



LIFE13 ENV/SI/000148  
Short version of the Progress Report

# LIFE FOR FOREST GENETIC MONITORING SYSTEM Lifegenmon

Covering the project activities  
from July 1<sup>st</sup>, 2014 to June 30<sup>th</sup>, 2019  
Reporting Date 31<sup>st</sup> July 2019

## Data Project

Project location:	Slovenia; Germany, Greece
Project start date:	1.7.2014
Project end date:	30.6.2020
Total budget:	5,484,162€
EC contribution:	2,734,952€
(%) of eligible costs:	49.87%

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Publisher: The Slovenian Forestry Institute, the Publishing Centre Silva Slovenica, Ljubljana 2019  
Title: LIFE GENMON Short Progress Report  
Authors: the LIFE GENMON Project team (alphabetically): Paraskevi Alizoti, F. A. Aravanopoulos, Evangelia Avramidou, Roland Baier, Marko Bajc, Tjaša Baloh, Gregor Božič, Andrej Breznikar, Domen Finžgar, Barbara Fussi, Pavlos Hassilidis, Melita Hrenko, Darius Kavaliauskas, Fotis Kiourtsis, Monika Konnert, Hojka Kraigher, Katja Sonnenschein Ermioni Malliarou, Tina Michieli, Pavlos Bekiaroglou, George Rousakis, Boris Rantaša, Chryse Sarvani, Veronika Vodlan, Mark Walter, Marjana Westergren  
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Editor in chief: Prof. Dr. Hojka Kraigher  
Technical editor: Katja Sonnenschein  
Design: Dvokotnik  
Circulation: Online  
Price: Free  
Co-financing: The project LIFE GENMON is co-financed by the European LIFE financial programme, national ministries in Slovenia, Germany, Greece, and all project beneficiaries. The electronic issue of this publication is available at <http://www.lifegenmon.si>.



This Project is financially supported by the European Union's LIFE financial mechanism.



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MINISTRY OF AGRICULTURE,  
FORESTRY AND FOOD



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Centre for Information Service,  
Cooperation and Development of NGOs



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## 2. LIST OF ABBREVIATIONS

**SFI** - Slovenian Forestry Institute

**AWG** - Bavarian Office for Forest Genetics (former - ASP)

**CNVOS** – Center for Information service, co-operation and development of NGOs

**AUTH** - Aristotle University of Thessaloniki

**GDDAY – DAMT** - The Decentralized Administration of Macedonia – Thrace

**SFS** - Slovenia Forest Service

**RC – AUTH** – Research Committee Aristotle University of Thessaloniki

**GA** – Grant Agreement

**PA** – Partnership agreement

**LoC** – Letter of Commitment

**AB** – Advisory Board

**TB** – Technical Board

**NFP** – National Focal Points

**CBP** – Coordinating Beneficiary Partner

**ABP** – Associated Beneficiary Partner

**PC** – Project coordinator (Prof. Dr. Hojka Kraigher)

**PM** – Project manager (Tjaša Baloh)

**DM** – Dissemination manager (Boris Rantaša)

**FM** – Financial manager (employed from April 2015; till then done by PM)

**BL** – Beneficiary leaders (Hojka Kraigher, Barbara Fussi, Veronika Vodlan, Phil Aravanopoulos, Nikitas Fragiskakis/  
Fotis Kiourtsis, Andrej Breznikar)

**AL** – Action leaders (Barbara Fussi, Phil Aravanopoulos, , Marjana Westergren, Veronika Vodlan, Katja Kavčič  
Sonnenschein, Hojka Kraigher)

**BAR** – Beneficiary Action Responsible (see Organigramme)

**BFM** – Beneficiary Financial Manager, responsible for LIFE GENMON

**SOP** – Standard Operation Procedures

**PM SOP** – Project Management Standard Operation Procedures

**FGM** – Forest Genetic Monitoring

**FGR** – Forest Gene Resources

**FRM** – Forest Reproductive Material

**DCU** – Dynamic Conservation Units (Forest Gene Reserves)

**EUFORGEN** – European Forest Genetic Resources Programme

**ICP** – International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests

## 3. EXECUTIVE SUMMARY

### 3.1. GENERAL PROGRESS

The project LIFE GENMON - LIFE for European Forest Genetic Monitoring System –started with its highly intensive schedule on July 1st, 2014. The first Technical Board and Kick-off Advisory Board – Preparatory Action Meeting (part of Preparatory Action A) were organised in Teisendorf, Germany, in mid-July 2014, when the Technical and Financial rules of LIFE projects were presented by the Coordinating Beneficiary Partner and accepted by all beneficiaries. The Advisory Board was also formed at the very beginning of the project, due to organisational activities having already started before the project contract was signed.

Immediately after the first AB meeting the transect drive from Bavaria to Greece was organised for BP representatives, and led by the country representatives – National Focal Points (NFPs). The transect drive was of utmost importance for the project team to get first-hand information about the state of forests, forestry, forest legislation and the state of forest genetic resources in the region, for which forest genetic monitoring was to be proposed. However, since some partners could not join the July 2014 transect drive, and since not all countries/regions could be visited, a continuation of this drive was organised in early July 2015. During the July 2014 drive ministry representatives from BiH and Serbia were met, and plots in BiH, Vojvodina, Northern Macedonia and Greece were visited. In July 2015 the ministry representatives from Northern Macedonia and Croatia were met, and plots in Central Serbia, eastern BiH, Croatia, Hungary and Slovenia were visited.

Closely linked to Preparatory Action A were all other actions, particularly E Management, and by M9 all management activities were already transferred to action E, including the organisation of the AB meetings. Technical Board Meetings were organised a day before AB Meetings.

ABP financial representatives and action responsible persons were defined, and reporting procedures between BPs and between CBP, the external evaluator and the LIFE Team were included into the Standard Operation Procedures for project management. These activities were done in close cooperation with the internal monitoring action C, led by ABP CNVOS. Furthermore, the project communication system (4th office), also needed for monitoring, was established.

The activities foreseen in Action E were immediately started, while the E1 Advisory Board and Networking Action enabled extensive cooperation at the transect area (NFP's of Advisory Board), as well as among the FGM scientific community at the Pan-EU level (EUFORGEN SC representatives in the Advisory Board), and E2 Project Management and Monitoring through day-to-day activities ensured smooth implementation of the six-year and five million EUR project consisting of over 30 implementation and more than 25 dissemination and networking sub-tasks.

In Preparatory Action A, the list of national legislation for all countries, from Germany to Greece, as well as European strategies and legislative documents important for forest genetic resources, were collected, a general overview of forest genetic monitoring regions was prepared, indicators and verifiers selected, and potential monitoring plots in all three participating countries proposed, visited, and selected. The review paper "Forest Genetic Monitoring: An Overview of Concepts and Definitions" was published in the journal *Environmental Monitoring and Assessment*.

Within the Implementation Action B1, the project monitoring regions were successfully defined and the selection of genetic monitoring sites for two species (*Fagus sylvatica*, *Abies alba/Abies borisii-regis* complex) accomplished. Common protocols for demographic assessment were determined and tested, and demographic assessment carried out based on these. The assessment of phenology phases has been ongoing on a yearly basis since the beginning of the project, and will continue for the project duration. Field sampling for DNA extraction has been completed (first project genetic monitoring assessment). Standardisation of the genetic data across partners has been achieved through common protocols, sample standards and especially through the successful performance of ring tests. The initial selection of genetic parameters for the genetic monitoring indicators and verifiers has been completed, and led to completion of the first laboratory assessment and analysis of field samples. In total, some 5,100 samples have been analysed for silver fir and beech. All loci used for the genetic assessment were polymorphic. In both species some of the tested verifiers did not differ significantly among cohorts, although in some others different results were detected among the studied cohorts within each population/FGM plot.

These results will be counted against those of the second assessment underway in 2019 to fully evaluate the genetic monitoring results. In general, the results are in line with those of other published studies of the same species within their distribution range, and reveal ample genetic variation. SNP analysis has commenced, and the experiment includes 144 SNPs/188 samples per country for beech and 267 SNPs/188 samples per country for silver fir. Overall, this indicates the generation of a vast amount of data for which a database has been developed, its library has been discussed and finalised, and the database itself has been deployed. Cost analysis is in progress and has proved to be a complex and crucial exercise, especially regarding the analytical description of costs and time requirements for all partners in the same manner. Based on the cost assessment and information capacity of different indicators and verifiers, the final selection will be included in the Manual for Forest Genetic Monitoring, and the development of a Decision Support System for genetic monitoring will be facilitated.

The Implementation Action B2 started in autumn 2015 with a review of existing concepts in FGM through a review paper. Another review was prepared on existing forest management practices and monitoring sites through a second review paper. The standardisation of protocols as part of the final guidelines has been finalised, and the optimisation for three different levels is ongoing. The extension of the established protocols for field measurements and lab work done for *Abies alba* and *Fagus sylvatica* is underway for the five additional selected species. Species leaders have been defined, and work started after the protocols for information assessment for fir and beech were discussed and accepted in June 2018. For each species reports were prepared on the biology, genetics, silvicultural system and any other essential data. The close cooperation with a Horizon 2020 financed project (GENTREE) has helped to promote genetic monitoring at the pan-European scale. Important basic material (criteria for selecting monitoring regions, FGM plot selection procedure, FGM plot description) for the establishment of the manual has been finalised. Activities regarding implementation and training started with discussion workshops with the related forestry services and continued with the presentation of the project objectives to target audiences at internal workshops, as well as at management/planning meetings of forest services and officers involved in management and planning. With the organisation of a common workshop between the LIFE GENMON and GENTREE projects, a further step in ensuring cooperation among practitioners in genetic monitoring implementation has been taken. The workshop was dedicated to discussions among scientists and forest practitioners on how best to implement genetic monitoring. These discussions were and will continue to be followed up by workshops at the national level with the participation of foresters who will implement the genetic monitoring in order to best prepare the guidelines and ensure cooperation of the target groups that will be implementing the genetic monitoring on a daily basis. As for conservation and use of forest genetic resources, and their monitoring, the whole region of SE Europe is of utmost importance, and thus a series of common workshops in SEE started with the first being held in BIH in June 2019.

Action B3 aims at establishing communication with the policymakers to raise awareness on the importance of forest genetic monitoring, through discussion and preparation of an action plan and of background policy documents. This comprises three sub-actions: i) formation of an action plan, ii) preparation of draft professional background documents intended for submission to the responsible legislative national bodies/policymakers, and iii) preparation of background professional/expert documents for scaling up genetic monitoring from the national to European scale. The work is done in close collaboration with the stakeholders, and is supported by the NFPs and other experts. The inclusion of the stakeholders among project partners also helps to identify possible issues not considered in the compiled literature or existing legislation, resolutions and strategies, and enables direct communication and testing of proposed solutions, and creates innovative ideas for better future strategies and legislation. The communication action plan has been prepared as a flexible outline so as to adapt to developments and circumstances at the national level, and is to be further operationalised throughout the project duration through constant interaction and discussion with policymakers, who will be invited to the workshops organised within B2. The ongoing discussions with policymakers (i.e. regular meetings with the nominated committees and representatives at the Ministry of Agriculture, Food and Forestry in Slovenia, the regular monthly meetings of the director of project partner AWG with the Bavarian ministry responsible for forests, and the combined role of the partner GDDAY DAMT as a forestry service and a decentralised forest ministry enabling communication with the Hellenic National Ministry) is increasing awareness of the importance and implications of genetic monitoring. The need for and advantages of genetic monitoring have been presented at a highly visible presentation on the importance of genetic diversity and monitoring adaptive capacity of forests to a changing environment within the framework of Forest Day (also part of the 16 + 1 CEEC - China process) at COP24 in Katowice, Poland.

Monitoring activities are carried out throughout the project via a monitoring matrix and protocol as a foundation for monitoring of all project activities and impacts. The documents were prepared by T. Michieli and T. Divjak and then

revised when V. Vodlan took over day-to-day monitoring of the project in April 2015.

Monitoring of the project is done on a regular basis and special technical meetings with PC, PM and/or AL have been organised (face-to-face when possible and otherwise by Skype). Due to the many dissemination events Vodlan became part of the Dissemination Team and is included in all communication. This enables her to constantly follow the progress made and provide consultancy and advice on possible improvements when activities are still in the preparation phase. The monitoring of Action A has been finished, while monitoring of Action B is done by regular meetings (Skype and face-to-face) with Action Leaders and other staff involved in the implementation.

The actions with most activities planned and carried out were the Dissemination actions, led by the Dissemination Manager (DM), and corresponding ABP responsible persons. The homepage is fully operational and highly visible (the website counter shows over 36,000 visits), the project leaflets, newsletters and e-news have been published and distributed, noticeboards were printed in English and the three national languages and posted on the plots, lists of media contacts in the three project countries were obtained, and activities according to the refined action plan are in progress. Workshops for children, training courses for teachers, teaching materials and children's books have managed to create and feed a huge general public interest. A number of internal workshops were also organised for specialists in forest inventory, forest owners, users of FRM, registered forest seed suppliers and nurseries, silviculturists and forest managers in all project countries, in addition to workshops and scientific conferences on forest management, forest genetics, legislative and governance events, and establishment of a common portal, in order to promote forest genetic monitoring, forests and forestry to the target audiences and stakeholders at different levels.

The project objectives and workplan have been shown to be very relevant, and the project as well as the concept of developing the system for forest genetic monitoring have already received great attention in the region and within the European forestry, nature conservation and other communities.

With regard to whether the project objectives and work plan are still viable, the project team has prepared the Refined Action Plan, within which the planned activities have been reviewed and corresponding costs checked.

## 4. TECHNICAL PART FOR EACH ACTION

### A: Preparatory action

Preparatory actions were finalised by July, 2015, as reported in the 1st Progress Report

### B: Implementation action

#### B1: Defining of optimal criteria and indicators

##### B1.1. Testing of indicators

Activities B1.1.1 till B1.1.3 Actions have been completed as planned

##### B1.1.4. Sampling in the genetic monitoring sites for the assessment of genetic baseline data.

Field samplings were done from May to August 2015, and were repeated in August 2019.

##### B1.1.5 Assessment of genetic baseline data from genetic monitoring sites.

Laboratory assessment of field samples was proposed for prolongation until March 2017, and will be repeated from August to December 2019. The initial selection of genetic parameters for the genetic monitoring indicators and verifiers has been completed as planned.

##### B1.1.6 SNP analysis, field and lab assessment repeated

SNP analysis (via outsourcing) of both *Fagus sylvatica* and *Abies borisii-regis* has been completed, and data analysis is underway for AWG, AUTH and SFI.

Phenology observations for 2018 and part of the observations until mid-June have been completed for both *Fagus sylvatica* and *Abies borisii-regis* as planned.

The silver fir genome is being sequenced and the first draft has just been published. Two LIFE GENMON partners (SFI, AWG) have joined the consortium of pan-European institutions in sequencing of the silver fir genome, with another partner (AUTH) planning to join.

##### Field sampling: sampling methodology comparative test

Testing of a complementary sampling design on one plot per species. This design consists of a high number of circular sub-plots, equally distributed along the plot in all directions. This test is performed for one species (*Fagus sylvatica*) in Slovenia to define the protocol, and later it will also be tested for the beech plots in the other two countries.

##### B1.2 Selection and valorisation of indicators

##### B1.2.1 Cost assessment per species, level, indicator and time requirements

Continuous assessment of the costs, final round up of measurements, final analysis still needed.

##### B1.2.2 Indicators and criteria for further implementation.

The finalisation of the list of indicators and verifiers will be discussed at the Project Meeting in Thessaloniki, 2019. It is noted that the evaluation will be fully available after the second genetic monitoring assessment.

##### B1.2.3. Development of a draft Decision Support System.

Submitted to Actions B2 and B3 for finalisation.

##### B1.2.4 Standardisation of demographic data

This will be performed by establishing common protocols after an evaluation of the monitoring exercise and its repetition.

##### B1.2.5. Standardisation of genetic data

Standardisation of genetic data has been achieved through common protocols, sample standards and the performance of ring tests.

##### B1.2.6 Database for genetic monitoring

A suitable database structure for genetic monitoring data has been developed. Further development and population of the database is in progress.



## B2: Preparation of Guidelines and Management Strategy

The action started in October 2015 and now is in full working phase. It comprises three sub-actions.

### B2.1.1 Definition of criteria for selection of species optimal for large scale FGM

Definition of criteria for selection of species optimal for large scale FGM: criteria for species selection developed in draft form; to be discussed and finalised by the end of 2019. Additional information

### B2.1.2 Review of existing concepts, compilation of forest management practices and existing forest monitoring sites

Finalised 31/12/2016 (1st Progress Report)

### B2.1.3 Advice on the selection of FGM sites and a draft compilation of the species-based guidelines

Species-based guidelines preparation is in progress. Species leaders and experts from the transect countries and HU have been defined

### B2.1.4 Cost assessment and final selection of indicators for the three levels of FGM

The activity is in progress, however it can only be finalised after resampling and analysis of natural regeneration in 2019.

### B2.1.5 Definition of guidelines suitable for a pan-European genetic monitoring in order to provide recommendations for each species and for each country to implement the genetic monitoring system based on the same guidelines

Workshops throughout the transect started in 2019 (1 WS in Sarajevo BiH carried out in June, 2019, 44 participants. Three other WS scheduled: Croatia – 1st December, 2019 focus on FRM; Serbia – mid-November 2019, focus on FMP; Banja Luka – mid-November 2019, to discuss national regulation and guidelines. The LIFE GENMON project team will participate at the IUFRO 2019 World Congress, Brazil, October 2019.

### B2.1.6 Expansion of the decision support system for sustainable forest management practices

The decision support system for sustainable FM practices will be an upgrade of the deliverable from B1. For complementation of the Decision support system for sustainable forest management several training workshops are scheduled in 2019/2020.

## B2.2 Preparation of the Manual for forest genetic monitoring

### B2.2.1 Procedures for site selection and site establishment

Criteria and procedures for site selection and plot establishment have been included into the protocols

### B2.2.2 – 2.2.4 Establishment of procedures for basic/standard/advanced level measurements

The second round of sampling and assessments is moved to March, 2020.

## B2.3 Implementation and training

Actions B2.3.1 and B2.3.2 include the trainings and workshops of FGM and cross-linking to general forest monitoring, which will serve as initial phase in preparation of the Manual and Guidelines in a way that will enable as soon as possible implementation in practice.

The actions are closely linked to Dissemination Action D2, thus the report on workshops organised is include in Action D2.

- Workshop for foresters and forest control officers in Bavaria (Kontrollbeamtentagung 02-04 05 2016).
- Workshop for foresters from Baden-Württemberg State Forest (Vermehrungsgutbeauftragte ForstBW 07-09 07 2015).
- Two workshops on “Provenance research in light of climate change” (10.10.2018 – 11.10.2018 and 07.05.2019 – 08.05.2019)
- Six workshops for forest owners, users of FRM, tree dealers, nurseries, seed dealers, silviculturists and forest managers were organised in Slovenia and one in BIH as a transect country:
- Workshop on forest genetic resources and their importance for the future of the Slovenian forests, Ljubljana, 1.03.2018
- Workshop on Forest seed production, Poljčane, 8.11.2018
- Workshop on Forest nurseries, Prestranek, 11.12.2018
- Workshop on forestry nurseries - From seed to seedling, Kranj, 30.01.2019
- Workshop: How to apply measures of restoration, nurturing after damages in forests, done by natural disasters, Lukovica pri Domžalah, 19.03.2019
- Workshop on tending of the seeds stands, Žužemberk, 24.04.2019
- Workshop, Sarajevo, 24.-25. 6. 2019
- A training seminar ‘Genetic monitoring of Hellenic and European forests’ May 16, 2019 for foresters and officers of the Hellenic Forest Service, forest managers, and post graduate students.

### B3: Policy guidelines

Identification of the national/regional/EU and global genetic monitoring problems, objectives and strategies was carried out and reported with the Mid-term Report. The action plan was also discussed at the stakeholder workshop in Thessaloniki in 2017 and in BIH in 2019, which contributed to identification of modifications per country.

Meetings with policymakers took place after the initial discussions during the first and the second transect drives.

## C: Monitoring of the impact of the project actions

For the purpose of impact monitoring a set of standard questionnaires was developed.

## D: Communication and dissemination action

### D1 General dissemination

#### D1.1 E-communications

A web [portal](#) in English and Slovenian is published, with links to useful information on forestry, with data on plots, and we are adding news about events, new publications, and scientific papers to encourage the engagement of regular visitors to the portal.

#### D1.2 Printed information

According to the refined action plan, in total seven [newsletters \(D1.2.1\)](#) will be published instead of 10. Four newsletters have already been published, and 5th and 6th will be published in 2019, one presenting the workshops for forestry experts and one intended for the IUFRO 2019 Conference in Brazil (October, 2019). The last newsletter will be published in 2020. [General pamphlets \(D1.2.2\)](#) were published several times in all four project languages (German, Slovenian, Greek and English). [Short versions of project report \(D1.2.3\)](#) were published for the Inception Report, Progress Report, and Midterm Report. The [Layman's Report \(D1.2.4\)](#) in electronic form was published (first edition), the second edition will be published at the end of the project in four languages

#### D1.3. Children, their teachers and educators

In five [training courses for teachers \(D1.3.1\)](#) 230 teachers were reached. Teaching courses were organised in cooperation with the Slovenian network of forest schools and kindergartens, and the educational group Forest of Experiments at SFI. [Teaching materials for teachers/schools \(D1.3.2\)](#) were presented to more than 400 teachers at 10 events. The Handbook for Learning and Play in the Forests was published in Slovenian (1,000 copies) and English (500 copies), both also available online for free download. Due to huge interest from teachers and kindergarten educators, the Slovenian version was reprinted (5,000 copies) and distributed to all primary school libraries in Slovenia. Our activities at [workshops with children \(D1.3.3\)](#) have reached 3,750 children in project countries. Three [children's books and cartoons on forestry \(D1.3.4\)](#) were published in four languages, for a total of 12 books. Three short animations with augmented reality upgrades for the books were produced and can be accessed via the free mobile application BigForest in AppStore or Google Play. [A computer game \(D1.3.5\)](#) called Seedhunter, hunting for seeds with a smartphone, will be available for Android devices for free on Google Play in July 2019.

#### D1.4. Activities for families

Project activities for families have reached more the 2,500 people.

#### D1.5. Visits to the plots

For special groups of target audiences 15 [visits to the forest genetic monitoring plots \(D1.5.2\)](#) have been organised for different stakeholder groups: eight in Germany, three in Slovenia and five in Greece, with 451 participants in total.

#### D1.6 Open days for general public

Open days for the general public were organised in all project countries. In Germany we organised 12 events with 905 participants, six events in Greece with 2,071 participants and eight events in Slovenia with 1,487 participants. In total, the activities held on open days enabled our project team to reach 4,463 people

### D1.7 Media

In the reporting period there a total of 130 media items published about the project: eight at the on EU/global level, 86 at the national and 36 the regional level. The media reported on our activities in all project countries, and also in Bosnia and Herzegovina, Croatia and South Africa.

### D1.8 Sponsored publications in press

Eight paid publications have been procured (four in EU publications and four in Slovenian ones).

### D1.9 Co-organisation of events for important groups of stakeholders (D1)

LIFEGENMON has co-organised several events in D1 for important groups of general stakeholders, reaching more than 650 people.

### D1.10 Participation at trade fairs and popular science events

The project team has participated in 15 trade fairs and popular science events, reaching more than 8,000 visitors.

### D1.11 Project video

A video (25 min) will be produced and broadcast on the national media (RTV in SI, with an English version for EU distribution) on the topic of forests and climate change, emphasising the importance of genetic diversity to preserve the adaptive potential of forests to the changing environment, while a short video (2 min) on forest and climate change is planned . The distribution rights for the documentary Nature Parks of Slovenia: Virgin forest Krokav, produced by the Slovenian national television broadcaster (RTV) were purchased.

### D1.12 Project Dissemination Team visits

A project Dissemination Team workshop has been organised in Slovenia, and two webinars on writing blog posts have also been organised.

## D2 Target Dissemination

### D2.2 e-communication

Six workshops of portal establishing activities (D2.2.2) have been organised as an addition to other project activities (workshops, etc.), in order to find out what the project stakeholders would find useful on the web portal (D1.1.4).

### D.2.3 Internal workshops

Four workshops for specialists doing forest inventory and 14 events for forest owners, users of FRM, tree dealers, nurseries, seed dealers, silviculturists and forest managers were organised. We also prepared 10 workshops for scientists from forest management, silviculture and forest genetics.

### D2.4 Participation in management/planning meetings of forest services and officers involved in management and planning forest services

The LIFEGENMON project team participated in one workshop with regional forest management and heads of regional departments for silviculture and protection of forests with 25 participants, and two committees on forest reproductive material meetings were organised at the ministry, responsible for forestry in Slovenia, discussing progress in FGM.

### D2.5 Compilation of scientific publications in scientific journals

As a result of our activities two scientific articles were published in journals, one in Environmental Monitoring and Assessment and the other in Forests.

### D2.6 Project report with technical information

The inception report with technical information has been published in electronic format.

### D2.7 Publication of the guidelines for forest genetic monitoring for seven tree species

According to RAP the guidelines were renamed "Publication of the guidelines for forest genetic monitoring for seven tree species".

### D2.8 Leaflets for promotion of legislative documents processed within the project at EU level

Foreseen as part of after-life communication plan.

### D2.9 Scientific conferences

The organisation of our second scientific conference session is planned in autumn 2019, at the XV IUFRO World Congress 2019: “Forest Research and Cooperation for Sustainable Development”, in Curitiba, Brazil.

### D2.10 Participation at scientific, professional, legislative and governance events

LIFEGENMON project team members participated in more than 30 events that were related to scientific, professional, legislative and governance matters.

### D2.11 Publishing and co-publishing of professional and scientific work

As a result of our activities four scientific monographies, three proceedings of scientific meetings and five professional articles were published

### D.2.12 Workshops and summer schools for students

LIFEGENMON workshops and summer schools have included 715 students at 21 events, across all project countries. In Germany, four events were organised with 181 participants. In Greece 111 students participated in three events. In Slovenia we reached 423 students with 14 events.

### D2.13 Workshops for stakeholders across the transect area

In years 2019-2020 a series of workshops are to be organized for promotion of forest genetic monitoring and presentation of the decision support system, the Manual and Guidelines in the transect countries, especially SE European countries. The first WS was carried out in Sarajevo, BiH, with 44 participants, in June 2019.

### D2.14 Common workshops with complementary projects and programs

Our project members connected with other projects and programs on several occasions, presented our project aims at LIFE program events, at Horizon Europe program events, at IUFRO and FAO meetings, at EC events, COST Actions and trainings. In addition, the LIFEGENMON project team was and remains in constant cooperation with the projects GENTREE, SEEMLA, LIFE EMONFUR, LIFE MANFOR C.BD, LIFE DINALPBEAR, LIFE Climate Path 2050, LIFE Lynx, LIFE ARTEMIS, LIFE Grin among others.

## E1: The Advisory Board and networking

The action and its sub-actions are in progress. The Advisory Board has been set up with representatives from the EUFORGEN Steering Committee, experts from SE Europe, and relevant ministries. The experts from SE Europe (National Focal Points, NFPs) were chosen among EUFORGEN national coordinators and EUFGIS National Focal Points (an AGRI GEN RES project lasting from 2007 – 2011). Four AB meetings were organised (July 2014, March 2015, September 2016, February 2018) and the fifth in Thessaloniki, Greece, in July, 2019.

### Networking:

In the reporting period the following events have taken place:

- AFORGEN Meeting and Field trip, Kranjska Gora, Slovenia, June 2018.
- Presentation of the SIFORGEN program and the LIFEGENMON project at the DG SANTE and OECD GRM meetings in April 2018 in Dolenjske Toplice and the organisation of the LIFEGENMON field survey (also B3);
- Presentation of LIFEGENMON to SC EUFORGEN in June 2018 in Bonn and in April 2019 via Zoom (also B3);
- Coordination of the long-term objectives of the LIFEGENMON project with the preparation of the content of the sixth phase of the EUFORGEN program in August in London, at the SC EUFORGEN in April 2019 in Luxembourg, and through inclusion into recommendations of the WG on FRM EUFORGEN;
- Coordination of forest seed and nursing practices and their impacts on genetic diversity at the EUFORGEN Workshop on FRM in Oslo, November 2018;
- Presentation on the importance of genetic diversity and monitoring the adaptive capacity of forests with regard to a changing environment within the framework of the Forest Day (process 16 + 1) at COP24, which took place on 07.12.2018 in Poland;
- Presentation at the 15th International Phytotechnology Conference and the conference session “How to advance forestry for future generations” in Novi sad, 02.10.2018;
- Presentation at the 7th Joint WG/7th MC Meeting COST Action FP1403 (NNEXT), “Non-native tree species for European forests: experiences, risks and opportunities”, Hotel Lev, Ljubljana, 20.-21. 3. 2018.
- Presentation at the roundtable on the International Day of Forests (Svjetski dan Šuma) at Akademija nauka i umjetnosti Republike Srpske, Banja Luka, 21. 3. 2018.

## E2: Project management and monitoring of project progress

LIFEGENMON project management and coordination is implemented at two levels: activity level and general project level. In addition, the implementation is ensured through the day-to-day management at each ABP.

## E3 After LIFE Communication plan

A web portal with home page – open access will be operational and updated at regular intervals until 2025. Teaching materials for teachers/schools (The Handbook for Learning and Play in the Forest in Slovene and English) are uploaded to an open access repository and will be freely available in the future. The project video will be available on the webpage and social media. Leaflets for promotion of legislative documents processed within the project at EU level will be produced and distributed to stakeholders. LIFEGENMON aims, topics and findings will be presented at scientific, professional, legislative and governance events.

## 4.1. Impact

1. **Objectives achieved and foreseen:** While the impacts of the genetic monitoring will be known in the last period of the project, the project has already increased awareness of the importance of forest genetic diversity and its monitoring not only in countries where the project is taking place, but also in those that are not directly involved. In this way a network of potential supporters and advocates of forest genetic monitoring is being established, and will serve as a tool for putting forest genetic monitoring into practice after the project ends.
2. **Direct/quantitative environmental benefits:** During the selection process high overgrazing from wildlife and its negative impact on fir regeneration was detected and communicated to the forestry officials. For six forests in Germany, Slovenia and Greece, the baseline data for long-term comparison of changes due to climate change and/or forest management has been established and the tissues stored. The benefits of the project include conservation of forest genetic resources, the importance of biodiversity and genetic diversity being explained to the public, and forestry professionals being educated in the participating countries, the transect states and beyond.
3. **Relevance for environmentally significant issues or policy areas:** The effects of large scale disturbances and climate change on the future distribution of forest trees, and thus the existence of forests in future climates, have been communicated at the national level as part of this project. The development of the FGM system contributes directly to all activities within the EUFORGEN programme and its inputs to the FOREST EUROPE process, as well as to fulfilling the EU biodiversity strategy and its action plan until 2020. Furthermore, the first steps of monitoring forest genetic resources have been implemented, contributing directly to the three strategic priorities of the FAO Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources.
4. **Long-term/qualitative environmental benefits:** A long term FGM will allow improved adaptive forest management and thus greater resilience to the effects of climate change with regard to the sustainability of forests.
5. **Long-term/qualitative economic benefits – long-term financial sustainability:** Long-term benefits include improved ecosystem services and thus economic benefits.
6. **Long-term/qualitative social benefits:** Healthy and resilient forests provide a space to breathe, relax, enjoy recreation, and provide food and freshwater, to only name a few of their social benefits.
7. **Continuation of the project actions by the beneficiary or other stakeholders:** In Slovenia, discussions are also focusing on making genetic monitoring operational within the regular work of the forest service.
8. **Replicability:** The project activities are aimed at the national, regional and international levels with a view to serving as a case project and system at the pan-European scale, and for repetition of the concept in other EU regions using the decision support tool and the manual prepared by the LIFEGENMON project.
9. **Demonstration value:** The project is preparing the basis for a future FGM system at the national, regional and EU scales, promoting implementation and enforcement of national and EC environmental legislation and biodiversity initiatives, and improving the knowledge base for forestry strategy and biodiversity policy in this area.
10. **Transferability:** The project activities in the three partner countries are replicable at the regional level of SE Europe, with a view to serving as a case project and system at the pan-European scale. The forestry professionals and policymakers from the transect countries communicate regularly with the project team on genetic monitoring and its establishment. Genetic monitoring could thus be quickly adopted if a decision to do so were made. In the decision support tool under development by EUFORGEN, there is a placeholder indicator on genetic variability in gene conservation units, which could utilise the results of the LIFEGENMON project.