



# ANNUAL REPORT 2015

FACULTY OF FORESTRY AND WOOD SCIENCES CULS PRAGUE



Czech University of Life Sciences Prague

Faculty of Forestry  
and Wood Sciences

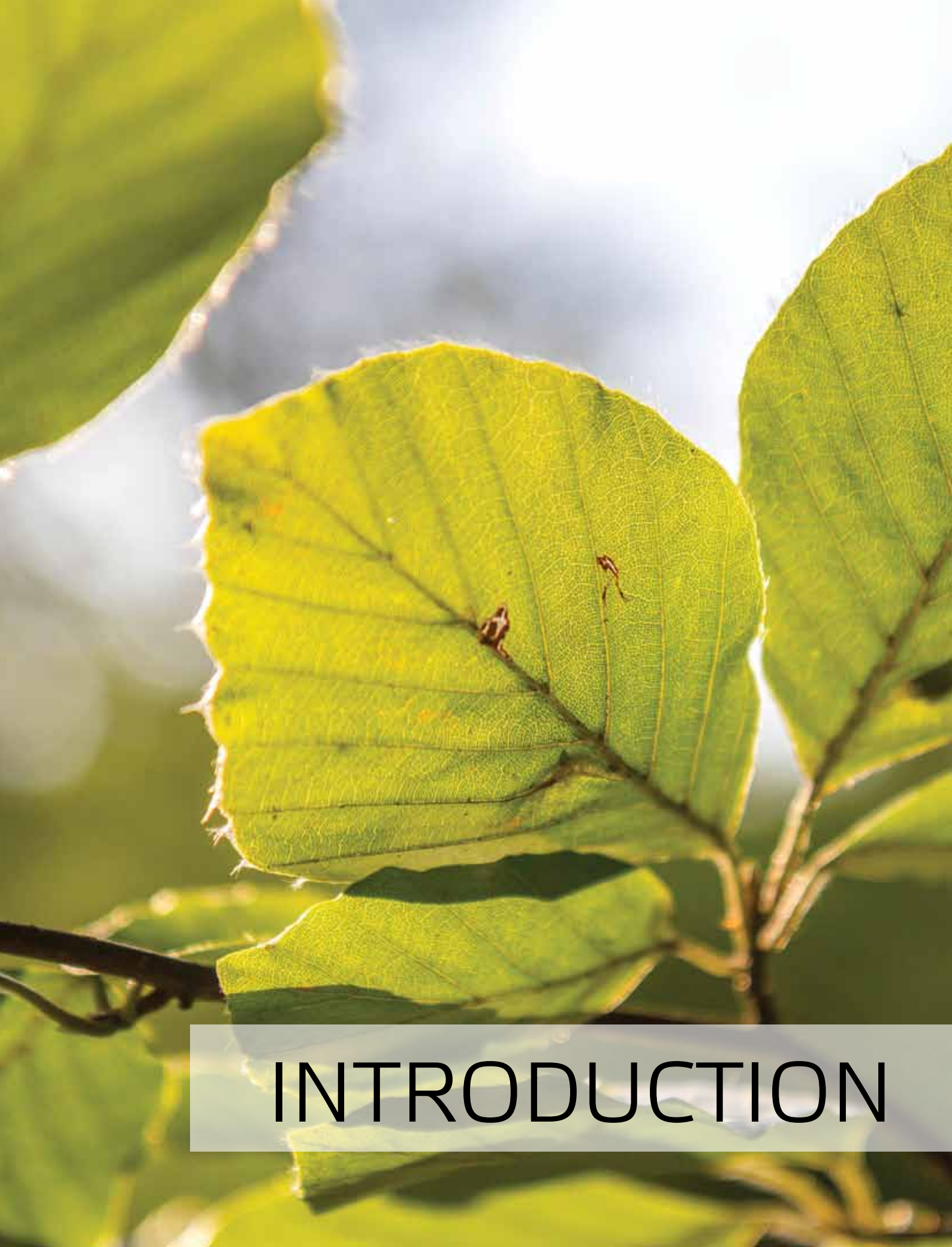


Czech University of Life Sciences Prague

**Faculty of Forestry  
and Wood Sciences**

**Faculty of Forestry and Wood Sciences**  
Czech University of Life Sciences in Prague  
Annual Report 2015





# INTRODUCTION



# 1. Introduction

The Annual Report on the Activities of the Faculty of Forestry and Wood Sciences (FFWS) of the Czech University of Life Sciences in Prague (CULS) was renegotiated by the FFWS Scientific Board on May 11, 2016 and approved by the Academic Senate of the Faculty of Forestry and Wood Sciences of the CULS in Prague on June 2, 2016.

The year 2015 was very important for the FFWS with regard to the acquisition of the RDI project as the granted CZK 280 million was used to build a new FFWS Pavilion of Wood Sciences and Technologies and equip it with state-of-the-art technology for teaching as well as scientific and research purposes. Cordial thanks must be extended to all those who have contributed not only to building, but also equipping and opening the Pavilion in an extremely short time span, which has been vital for further development and improvement of the teaching and research of not only wood sciences, but also forestry branches of study in the coming years. In the area of teaching the academic year 2014/2015 was a year of further improvement of educational work whereas an intensive preparation of printed and electronic study materials became a priority besides more intensive communication with students. One of the major strategic objectives of the Faculty is to maintain the current number of students despite the decre-



asing number of potential applicants. The total number of newly admitted students increased slightly in 2015. It is the result of intensive work on the promotion of studies at the FFWS. However, due to the significant decline in available students in the near term, it will be important to pay even more attention to the marketing of studies. Because of the economic boom the number of unemployed graduates of the FFWS remained very low in 2015. In the area of research and scheme the significantly positive trend from the previous year continued also in 2015, which resulted in a further 30% increase in the number of articles with IF (from 136 in 2014 to 176 in 2015), while the number of articles in Scopus was approximately the same as in 2014. In the area of R&D, the FFWS currently holds a lea-

ding position as regards the dynamics of the growth of R&S outputs and the number of publications per one full-time job at the entire CULS. FFWS PhD students succeeded in the competition for the „CULS Rector’s Award“ for publishing activities when they were granted seven out of fifteen awards, including the second and third rank. The strategic objective for the next period is further improvement of publishing outputs and the replacement of the less significant periodicals with excellent publications in each branch of study in which the Faculty carries out research activities. The publishing activities have been further improved not only by the introduced post-doctoral positions, but also by the incentive programme for staff and PhD students aimed at supporting excellent publication outputs. As regards the acquisition of project funding, the year 2015 was marked by intensive work on the proposals submitted to grant competitions although the options were limited. PhD students conduct their research activities through projects of the FFWS internal grant agency and the CULS internal grant agency (CIGA) where the FFWS again established itself markedly in the university competition when were approved seven projects.

In 2015, the Dean was elected for the next electoral period at the Faculty. With regards to the envisaged new tasks at the end of 2015, but also in the next period several changes took place in the positions of the FFWS Vice-Deans in order to intensify the processes in the area of international relations, but also in science and research. After a decline in the intensity of communications with staff and students, caused by the time demands of work on the FFWS Pavilion of Wood Sciences and Technologies in 2015, there is a plan to renew the communication with staff and students on the regular basis in 2016.

FFWS management



# FFWS BASIC DATA



## 2. FFWS basic data

### 2.1 Full name and address of the Faculty

**Full name:**

Fakulta lesnická a dřevařská  
České zemědělské univerzity v Praze

**Faculty address**

Czech University of Life Sciences in Prague  
Faculty of Forestry and Wood Sciences  
Kamýcká 129  
Postal code: 165 21 Prague 6 - Suchdol

**English translation of the name of the Faculty:**

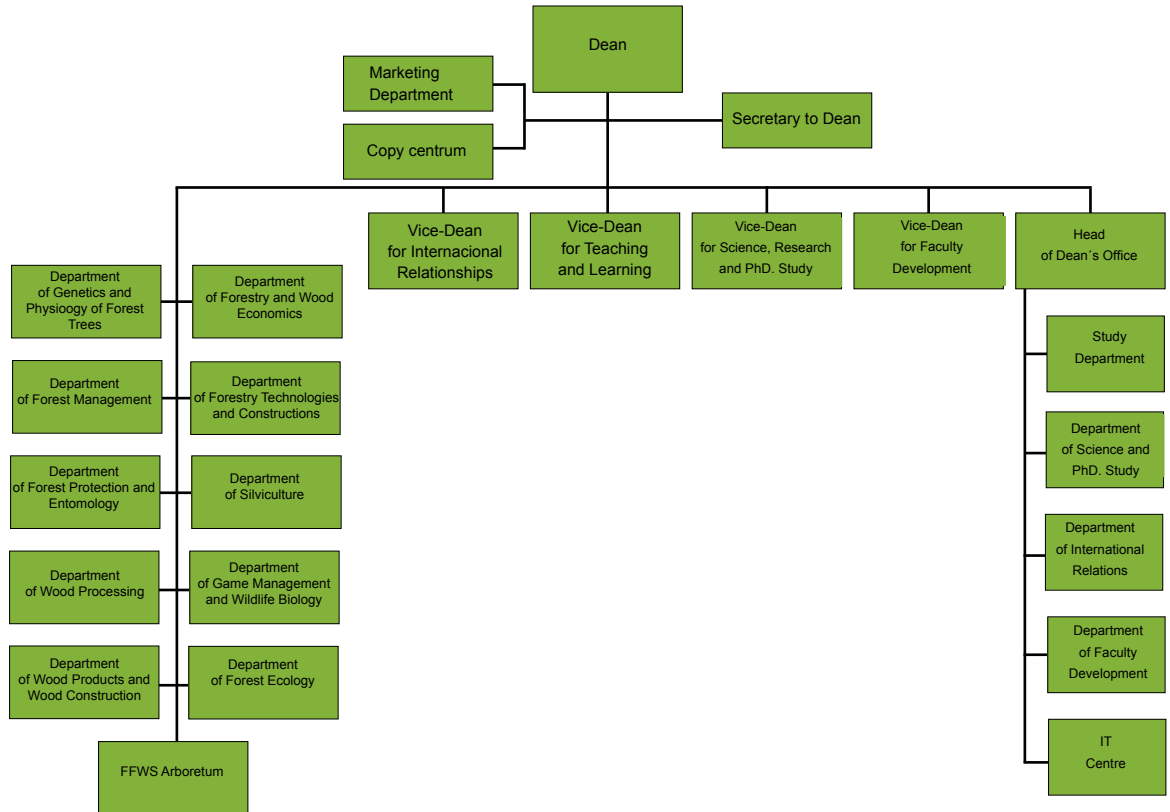
Faculty of Forestry and Wood Sciences  
Czech University of Life Sciences Prague

**Commonly used abbreviations:**

FLD ČZU (in Czech)  
FLD (in Czech)  
FFWS CULS (in English)  
FFWS (in English)

## 2.2 Organisational chart and structure of the FFWS

Organisational chart of the Faculty of Forestry and Wood Sciences



## 2.3. Members of the Scientific Board, Academic Senate and other FFWS bodies

### 2.3.1 FFWS Academic Senate

#### **Academic staff:**

doc. Ing. Martin Böhm, Ph.D.

doc. Ing. Oto Nakládal, Ph.D.

prof. Ing. Jaroslav Červený, CSc.

prof. Ing. Miroslav Svoboda, Ph.D.

doc. Ing. Ivana Tomášková, Ph.D.

Ing. Jan Bomba, Ph.D.

prof. Ing. Milan Lstibůrek, MSc., Ph.D.

Ing. Petr Vopěnka

#### **Students:**

Ing. Jiří Procházka

Ing. Tomáš Svoboda

Ing. Tereza Kolbabová

Ing. Hana Mrhalová

### 2.3.2 FFWS Scientific Board

#### **Internal members - FFWS staff:**

prof. Ing. Marek Turčáni, PhD., Chairman

doc. Ing. Jaroslav Červený, CSc.

doc. Ing. Milan Gaff, PhD.

doc. Ing. Miroslav Hájek, Ph.D.

doc. Ing. Jaroslav Holuša, Ph.D.

doc. Ing. Václav Kupčák, CSc.

doc. Ing. Milan Lstibůrek, MSc., Ph.D.

doc. Ing. Róbert Marušák, PhD.

doc. Ing. Ján Merganič, PhD.  
prof. Ing. Vilém Podrázský, CSc.  
doc. Ing. Jiří Remeš, Ph.D.  
prof. Ing. Miroslav Svoboda, Ph.D.  
prof. Ing. Luděk Šišák, CSc.  
doc. Ing. Martin Böhm, Ph.D.  
doc. Ing. Václav Malík, Ph.D.  
doc. Ing. Ivana Tomášková, Ph.D.

**Internal members – other CULS faculties:**

doc. Ing. Václav Hejnák, Ph.D.  
doc. Ing. Bohdan Lojka, Ph.D.  
doc. Ing. Jiří Mašek, Ph.D.  
prof. Ing. Pavel Pech, CSc.

**External members:**

prof. Dr. Ing. Petr Horáček (membership ended as at 25 February 2015))  
Ing. Jiří Janota (membership ended as at 25 February 2015)  
doc. Ing. Bohumír Lomský, CSc.  
prof. Dr. Ing. Viliam Pichler  
Ing. Petr Pražan, Ph.D.  
prof. Ing. Mikuláš Siklienka, PhD.  
doc. Ing. Alois Skoupý, CSc.  
Ing. Dušan Utinek, Ph.D.  
Ing. Jaromír Vašíček, CSc.  
Ing. Daniel Vlkanova, Ph.D., MBA  
Mgr. Ing. Lukáš Zagata, Ph.D. (membership ended as at 11 May 2015)  
doc. Ing. Petr Zahradník, CSc.  
Ing. Martin Žižka, Ph.D.

### **Changes in the membership in the FFWS Scientific Board**

On February 2015 the following members were appointed:

doc. Ing. Radomír Klvač, Ph.D.

Ing. Josef Vojáček

On 11 May 2015 the following member was appointed:

doc. Ing. Milan Houška, Ph.D.

## **2.3.3 Management of the Faculty of Forestry and Wood Sciences**

### **Dean:**

prof. Ing. Marek Turčáni, PhD.

### **Vice-Deans:**

Ing. Kateřina Ventrubová, Ph.D., Vice-Dean for Development (until 2 February 2015)

Prof. Ing. Luděk Šišák, CSc., Deputy-Dean, Vice-Dean for International Relations  
(until 15 December 2015)

doc. Ing. Jiří Remeš, Ph.D., Vice-Dean for Education (until 15 December 2015, from 17  
December 2015)

doc. Ing. Róbert Marušák, Ph.D., Vice-Dean for Research and Development (until 15 De-  
cember 2015),

Deputy-Dean, Vice-Dean for International Relations (from 17 December 2015)

Ing. Tomáš Kušta, Ph.D., Vice-Dean for Research and Development (from 17 December  
2015)

### **Head of the Dean's Office:**

Ing. Bc. Martin Prajer, Ph.D.



# EDUCATION ACTIVITIES

### 3. Education Activities

Activities in the field of education carried out in 2015 were based on the priorities defined in the Update of the Long-term Plan of the Faculty and focused mainly on the following areas:

- Stabilising the number of students of Bachelor's and follow-up Master's degree programmes, increasing the attractiveness of studies at the FFWS;
- Improving the educational process with the aim to increase the success rate of students in their studies;
- Ensuring the necessary accreditations;
- Intensifying cooperation with other universities in the area of educational activities;
- Continuing in alignment of the curricula of the full-time and combined type of study in Bachelor's and follow-up Master's degree programmes at the FFWS;
- Developing the offer of lifelong training for the staff of public and private companies in the fields of forestry and wood sciences;
- Creating training

courses (in cooperation with VLS, s.p.);

- Assessing the employment and employability of FFWS graduates.

The above mentioned priorities are driven by the effort to transform the FFWS into a modern educational institution which stands on three pillars: gifted students, high-quality teachers and well employable graduates. Therefore, efforts focus on the gradual increasing of quality of applicants admitted to study at the FFWS (organisation of the admission procedure, sufficiently diversified and attractive branches of study), further improving of the study conditions (including the application of all relevant motivational tools), improving of the educational process as such (through the improvement of teaching competences of teachers), and, ultimately, on the increasing of graduates' employability (among other things, also intensive cooperation with the sphere of application).



## 3.1 Organisation of studies at the FFWS

The Faculty of Forestry and Wood Sciences offers studies of branches and programmes in the field of forestry and wood sciences in their entirety, including matters related to public administration and enterprise in this area or associated with game management and other forest and landscape components, including management of forests in protected landscape areas. The essence of all branches of study is the fulfilment of the principles of sustainable management of natural (renewable) resources aimed to harmonise the environmental principles of landscape management with the requirements of the society for all the forest products.

### 3.1.1 Accredited study programmes and branches of study at the Bachelor's, follow-up Master's and postgraduate levels of degree taught in the Czech language

At present, the FFWS has six accredited Bachelor's degree branches of study and two follow-up Master's degree branches of study, which are taught in the Czech language (Chart 1). In 2015, the FFWS prepared and submitted to the Accreditation Commission an application for the extension of validity of the accreditation of the Bachelor's branch of study titled Operation and Game Management (within the Forestry study programme). At the same time, in 2015, an application for granting of accreditation for English versions of the following branches of study was submitted: Game Management, Forestry, Forest Engineering, Wood Technology, and Wood Engineering. This application was successful – the Accreditation Commission issued a favourable opinion on the extension of the validity of accreditation of the Operation and Game Management branch of study for a period of eight years (until 31 December 2023) and the extension of accreditation to include the English versions of the said branches of study for the time of duration of the Czech branches of study, which was subsequently approved by the Ministry of Education, Youth and Sports.

The FFWS has two accredited doctoral study programmes (DSP) in the Czech language: Forestry Engineering, and Economics and Management. In the framework of the Forestry Engineering DSP the PhD studies are organised in five branches of study, i.e. the Dendrology and Forest Tree Breeding, Forest Management, Silviculture, Forest Protection and Game Management, and Technology and Mechanisation in Forestry. The Economics and Management DSP has one accredited branch of study, i.e. Economics and Management of an Enterprise. All branches are accredited for full-time and combined types of study. The standard period of study in all branches of study is 3 years. In 2012–2013, the Forest Protection and Game Management and Silviculture DSPs were accredited also for the standard study period of four years, which will gradually replace the three-year branches of study.



**Chart 1: Accredited study programmes and branches of study taught in the Czech language in 2015**

Type of Study	Study programm	Study Specialization	Form of Study	Accreditati-on to	Accredited study period
Bachelor's degree	Wood Technology	Wood Technology	full-time combined	30. 11. 2017	3
		Business in the wood processing	full-time	31. 12. 2016	3
	Forestry	Economic Administration Services in Forestry	full-time combined	30. 11. 2017	3
		Forestry	full-time combined	30. 11. 2017	3
		Operation and Game Management	full-time combined	31.12.2023	3
		Preservation of Products of Nature and Taxidermy	full-time	31. 5. 2018	3
Master Program	Wood Engineering	Wood Engineering	full-time combined	31. 1. 2018	2
	Forest Engineering	Forest Engineering	full-time combined	31. 1. 2022	2
PhD Study	Forest Engineering	Dendrology and Forest Tree Breeding	full-time combined	31. 5. 2020	3
		Forest Management	full-time combined	31. 5. 2020	3
		Silviculture	full-time combined	31. 5. 2020	3
		Silviculture	full-time combined	31. 5. 2020	4
		Technology and Mechanization in Forestry	full-time combined	31. 5. 2016	3
		Forest Protection and Game Management	full-time combined	31. 5. 2020	3
		Forest Protection and Game Management	full-time combined	31. 7. 2020	4
	Economics and Management	Economics and Management of an Enterprise	full-time combined	31. 5. 2016	3

### **3.1.2 Accredited study programmes and branches of study at the Bachelor's, follow-up Master's and postgraduate degree levels taught in the English language**

At present, the FFWS has three accredited Bachelor's degree branches of study and four follow-up Master's degree branches of study, which are taught in the English language (Chart 2). Traditionally, most of the students study the Forestry, Water and Landscape Management branches of study (in relation to the inclusion of this branch of study to the list of branches of study supported by the Ministry of Education, Youth and Sports of the Czech Republic in the framework of the House of Foreign Services programme for government scholarship holders). As regards the Bachelor's degree branches of study, the year 2015 saw an increased interest in the Forestry branch of study, mostly from applicants from African countries, in particular, from Ghana. Therefore, in 2015, the entrance exams were held at the Embassy of the Czech Republic in Accra (Ghana). In majority of cases, however, the admitted students' failure to document the recognition of the required level of education poses an obstacle to their enrolment at the university. Students may apply for the recognition no sooner than after their arrival to the Czech Republic. The recognition of secondary education is provided by the regional authorities and takes a very long time (3–6 months), which prevents their timely enrolment in the university. For these reasons, a preparatory course of lifelong learning with the same content as the Forestry Bachelor's degree branch of study was established to include those applicants who cannot be enrolled into the standard study programmes yet.

As for postgraduate (PhD) studies held in the foreign language, the Faculty has two accredited study programmes with all branches of study as in the Czech language. It is the Forestry Engineering study programme, including the following branches of study: Silviculture, Dendrology and Forest Tree Breeding, Forest Protection and Game Management, Forest Management, Technology and Mechanisation in Forestry. The second study programme is the Economics and Management with the Economics and Management of an Enterprise branch of study.

**Chart 2: Accredited study programmes and branches of study taught in the English language in 2015**

Type of Study	Study program	Study Specialization	Form of Study	Accreditation to:	Accredited study period
Bachelor's degree	Forestry	Game Management	full-time combined	30. 12. 2023	3
		Forestry	full-time	31. 11. 2017	3
	Wood Technology	Wood Technology	full-time	30. 11. 2017	3
Master program	Forestry Engineering	Forestry, Water and Landscape Management	full-time	31.7.2020	2
		Forest Engineering	full-time	31.1.2022	2
		Tropical Forestry and Agroforestry	full-time	31.3.2020	2
	Wood Engineering	Wood Engineering	full-time	31.1.2018	2
PhD Study	Forestry Engineering	Silviculture	full-time combined	31.5.2020	3
		Silviculture	full-time combined	31.5.2020	4
		Forest Protection and Game Management	full-time combined	31.7.2020	4
		Dendrology and Forest Tree Breeding	full-time combined	31.5.2020	3
		Forest Management	full-time combined	31.5.2020	3
		Technology and Mechanization in Forestry	full-time combined	31.5.2016	3
	Economics and Management	Economics and Management of an Enterprise	full-time combined	31.5.2016	3

### 3.1.3 Double degree programmes

For a long time, the double degree programmes (DD programmes) have been a stable part of the offer of studies at the FFWS. Currently, three contracts have been concluded for the implementation of DD programmes. Two of them have been signed with the Faculty of Forestry (Escuela Técnica Superior de Ingenieros de Montes) of the Technical University of Madrid (for the Forestry, Water and Landscape Management, and the Forest Engineering branches of study). In 2015, one student of the FFWS continued in his studies in Madrid under this contract. In the same year, two Russian students from the Volga State University of Technology started studying the Wood Engineering at the FFWS under the DD programme.

### 3.1.4 Educational activities outside the scope of the accredited study programmes

In 2015, the Faculty of Forestry and Wood Sciences repeatedly organised for students in the last year of their Master's degree studies an intensive course focused on scientific and research activities in the context of their diploma theses. At the same time, in 2015, the FFWS extended the offer of English language courses for students going to study abroad and for PhD students. Two language courses were held with the aim to increase the knowledge of languages and to provide students with adequate specialised terminology at the required B2 or C1 level under CEF. Similar language courses have been also organised for FFWS teachers and lecturers. In close cooperation with the Secondary Forestry School in Hranice and Lesy hl. m. Prahy, the FFWS again prepared and implemented a course of forest pedagogy, which involved both FFWS students and teachers.

Other educational activities are related to the activities of FFWS student associations which, with the support of the FFWS, hold a number of lectures, interesting film projections with subsequent discussions and other events (e.g. The Wolf Mountains, discussion – the future of the European wilderness; Wild Bavaria – the dawn of a virgin forest; the students' competition in hunting trumpeting and deer calling). These events boast plenty of participants – 50–150 students on average. The acclaim and popularity of these events keep growing and already exceed the horizon of the FFWS.

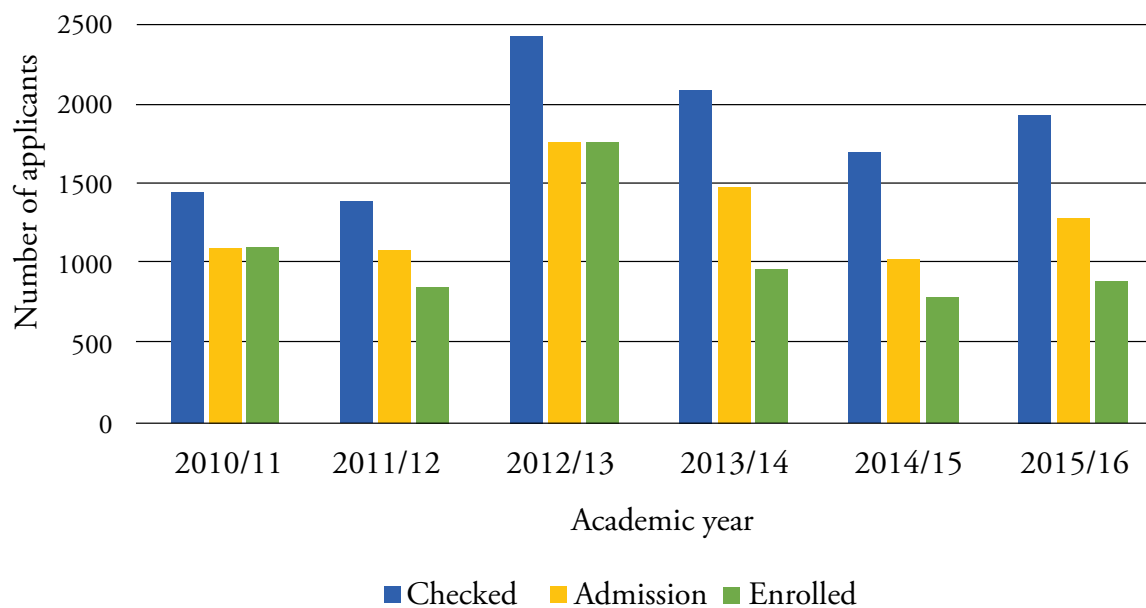
In addition, in 2015, the FFWS offered to students and educators lectures of both domestic and foreign lecturers, e.g.: prof. Milan Lstibůrek: Breeding without breeding: scientific journey to real-life applications, Dr. Murat Sarigini: The effects of soil and climatic conditions on wood anatomy of *Fraxinus angustifolia* in Turkey. Short-term and Long-term Effects of Vegetation Control on Soil Nutrients and Carbon Cycle in Western Black Sea Region of Turkey. Evaluating pretreatment techniques for converting hazelnut husk to bioethanol.



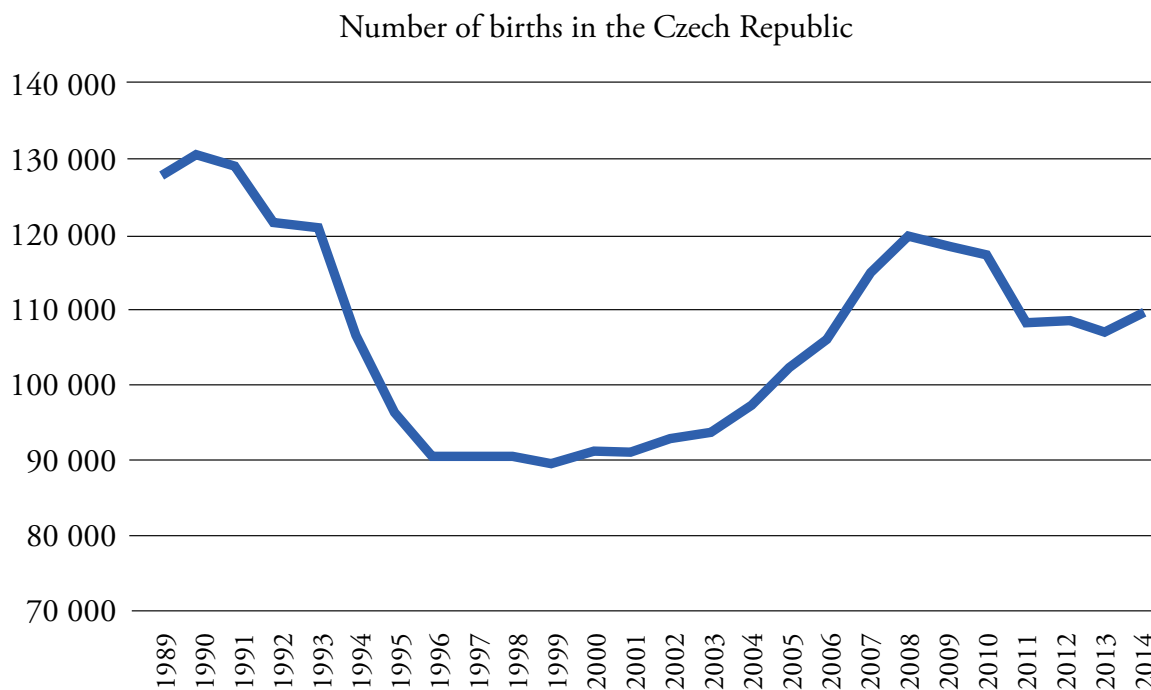
## 3.2 Interest in studies at the FFWS

The development of interest in studies at the FFWS over the past five years is documented in Chart 3, which lists the number of applications in individual branches of study. The development of the number of registered applicants, admitted and finally enrolled students is given in Fig. 1. This overview makes it evident that the situation in this area has evolved quite significantly over the last five years. The number of applicants and admitted students is influenced by several factors. Above all, the admission requirements have an impact as was obvious in the academic year of 2012/13 when the admission requirements were set so as to gradually achieve an increase in the number of students in higher grades. In later years, however, this procedure was not repeated and admission requirements are rendered stricter. Subsequently, there was a decline in the number of applications for study; nevertheless, in 2015, the number of applications increased again to 1,938. The situation in the admission procedure is markedly influenced by the downward demographic curve (Fig. 2). It is obvious that freshman classes at universities touched the bottom of the demographic decline and now the students born in years with the historically lowest fertility rate in the Czech Republic commence their university studies (Fig. 2). This adverse situation will last for about another six years. Only then we can expect a gradual increase in the number of applicants for university studies.

**Fig. 1:** development in the number of registered, admitted and enrolled students between 2010 and 2015.



**Fig. 2:** Demographic transition curve in the Czech Republic after 1989.



**Chart 3:** Development in the number of applications for study in the FFWS branches of study

Type of Study	Study Specialization	Form of Study	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Bachelor's degree	Forestry	full-time	241	230	454	418	355	402
		combined	98	103	150	118	110	115
	Economic Administration Services in Forestry	full-time	200	203	532	361	168	157
		combined	175	139	206	122	113	67
	Operation and Game Management	full-time	174	143	147	122	147	178
		combined	179	139	184	109	118	170
	Wood Technology	full-time	149	152	244	169	127	141
		combined	21	35	44	53	40	41
	Business in the wood processing	full-time				246	177	176
	Preservation of Products of Nature and Taxidermy	full-time					25	60
Forestry	full-time			7	7	18	45	
Game Management	full-time	1	1	2	1	1	9	
Master Program	Forest Engineering	full-time	72	62	190	83	71	124
		combined	121	123	145	104	132	169
	Wood Engineering	full-time	25	27	81	126	43	35
		combined		21	35	45	45	25
	Forestry, Water and Landscape Management	full-time	4	11	25	11	15	17
	Forest Engineering	full-time						2
	Tropical Forestry and Agroforestry	full-time		6	1	0	1	5
<b>Total</b>			<b>1460</b>	<b>1395</b>	<b>2447</b>	<b>2095</b>	<b>1706</b>	<b>1938</b>



### 3.2.1 Student recruitment

The above-mentioned negative demographic trend increases the significance of activities aimed at recruiting students. The Faculty of Forestry and Wood Sciences has therefore developed a strategy of active addressing of prospective students through both direct and indirect (Internet) campaigns. The direct campaign is focused on presenting the studies at the FFWS at selected secondary schools. Students from selected secondary schools are also invited to Open Days, which remain an important part of providing prospective applicants with information. In 2015, the Open Days were attended by 446 visitors of which 302 were applicants for study. In addition, in the autumn of 2015, the FFWS held a presentation day which aimed to address more students potentially interested in studies at the FFWS. In 2015, an attention in promoting studies at the FFWS was also paid to some schools abroad (Slovak Republic), including personal visits to selected secondary schools of forestry and wood sciences (Spišská Nová Ves, Prešov, Liptovský Hrádok). The FFWS was also active at some study and career fairs in the Slovak Republic (Academy & VAPAC Bratislava, Gaudeamus Nitra).

Besides these recruitment efforts, the cooperation with secondary schools in the area of educational and secondary specialised activities is of importance for the FFWS promotion. In 2015, it also took the form of organising the Biological Olympics and other competitions. It is, e.g., the YPEF international competition (Young People in Eu-

ropean Forests), where the FFWS takes part in the organisation with selected secondary forestry schools (in Písek, Hranice na Moravě, Žlutice and Trutnov) and Česká lesnická společnost. In 2015, the FFWS again organised the national round of this competition and for the first time the regional round for Prague with a high participation of competing teams, mostly from Prague grammar schools. Furthermore, the Faculty offers lectures and seminars on pressing and interesting topics to secondary schools, which is also a way to address other potential applicants. In 2015, the FFWS was also involved in the issues of forest pedagogy, which is primarily designed for elementary schools, but still raises awareness about the possibilities of studying at the Faculty in the long-term time horizon.

To enhance the reputation of the FFWS, it is very important to foster the student-friendly environment at the Faculty. The questionnaires, which are distributed to new students upon their enrolment for the study and potential applicants during the Open Days, clearly show that information from family and friends is, besides the Internet, the main source of information about studying at the FFWS. The perception and evaluation of the Faculty by its students and graduates is thus of major importance. The Faculty management therefore makes great effort to communicate with students as much as possible, to support student associations and hold regular meetings.

## 3.3 FFWS students

### 3.3.1 Students in accredited branches of study at the FFWS

Students in accredited study programmes form the dominant part of all students at the FFWS. An overview of the number of students over the past six years is shown in Chart 4. The number of students admitted to the first year is significantly influenced by the defined numbers of students financed by the Ministry of Education, Youth and Sports. The number of students in higher grades is then the result of their academic success or failure. The aim for the future is to stabilise the number of students with regards to the strategy of the Ministry of Education, Youth and Sports, which plans a long-term decrease in the number of funded students in the first year; it is therefore necessary to increase the student success rate in their studies. The measures introduced in 2015 begin to take effect; therefore, the year 2015 saw a slight increase in the total number of students in comparison with 2014.

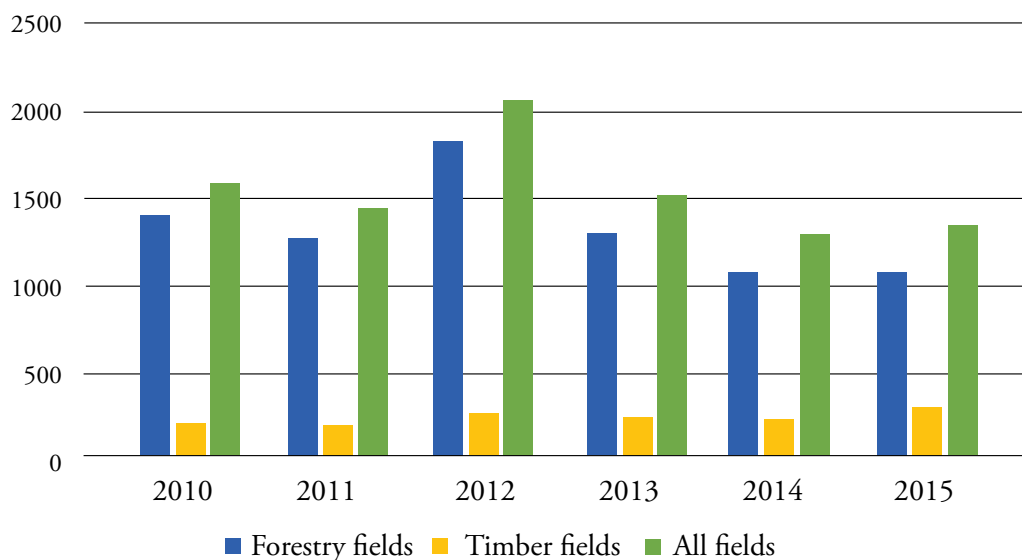


**Chart 4.** : Development in the number of students in the FFWS branches of study, status as at 31 October 2015.

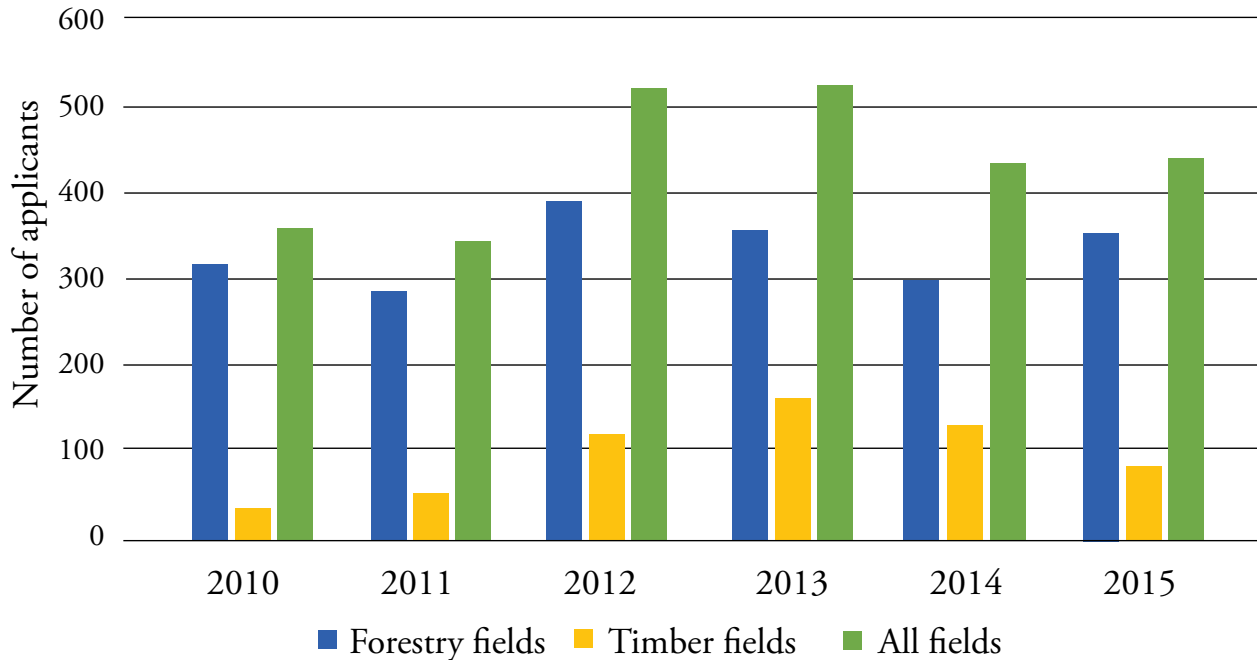
Type of Study	Study Specialization	Form of Study	2010	2011	2012	2013	2014	2015
Bachelor's degree	Forestry	full-time	239	216	396	313	329	350
		combined	151	137	175	122	102	127
	Economic Administration Services in Forestry	full-time	236	207	473	332	210	128
		combined	287	266	289	188	108	68
	Operation and Game Management	full-time	152	123	149	109	106	136
		combined	307	295	306	197	177	190
	Wood Technology	full-time	164	135	198	142	116	122
		combined	19	37	45	38	25	36
	Business in the wood processing	full-time				42	73	117
	Preservation of Products of Nature and Taxidermy						9	34
Forestry				2	3	7	13	
Game Management				0	0	0	0	
Master Program	Forest Engineering	full-time	111	77	170	139	101	128
		combined	200	204	214	209	192	227
	Wood Engineering	full-time	40	41	79	106	78	43
		combined		15	48	62	57	46
	Forestry, Water and Landscape Management	full-time	14	9	19	19	13	5
	Tropical Forestry and Agroforestry	full-time		3	1	0	0	1
<b>Total</b>			<b>1920</b>	<b>1765</b>	<b>2564</b>	<b>2021</b>	<b>1703</b>	<b>1771</b>

An overview of trends in the number of students in the study branches of forestry and wood sciences is shown in Fig. 3 and 4. It is obvious that the proportion of students of the study branch of wood sciences at the Bachelor's degree level is gradually increasing slightly and is not subject to such variations as the number of students in the forestry branches of study. It is also related to the gradual launch of the study branch titled the Business in the Wood Processing and Furniture Industry. In the forestry branches of study the number of students at the Bachelor's degree level was successfully stabilised over the past two years.

**Fig. 3:** Development in the total number of students of the Bachelor's branches of study (Forestry and Wood Sciences) between 2010 and 2015.



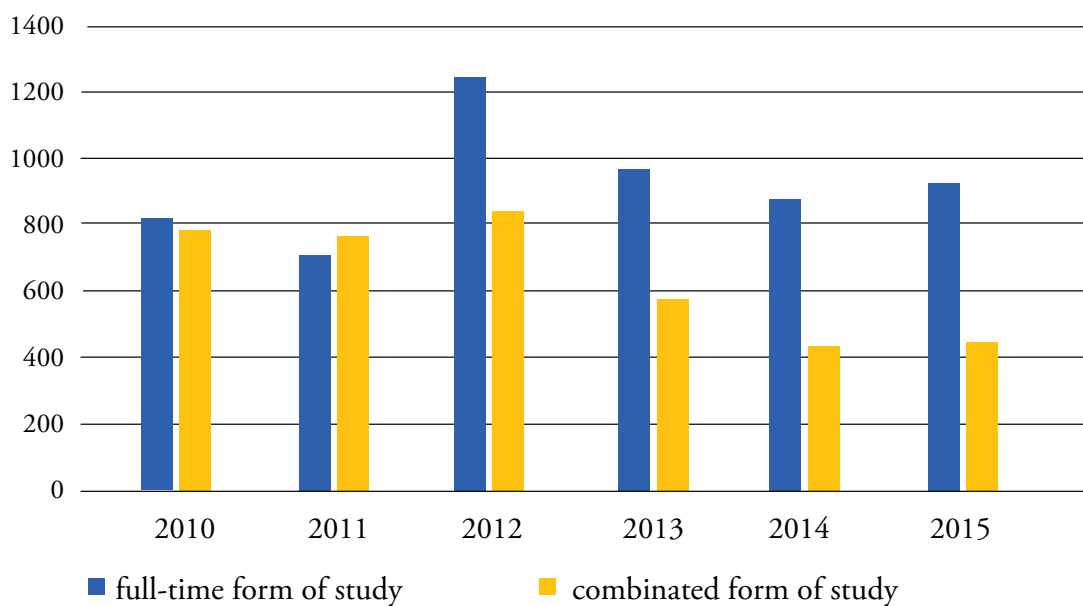
**Fig. 4:** Development in the total number of students of the follow-up Master's branches of study (Forestry and Wood Sciences) between 2010 and 2015.



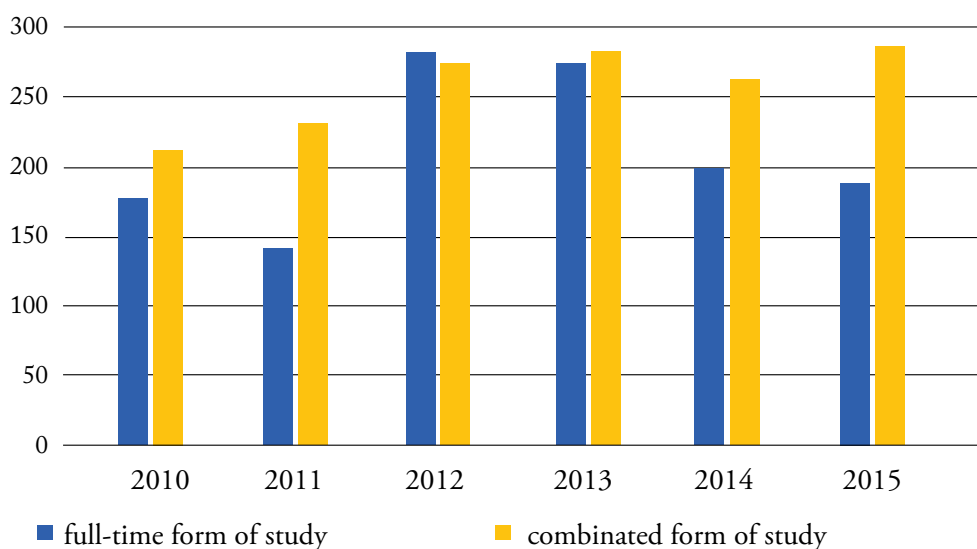
In the follow-up Master's degree studies, there has been a greater volatility in the number of students over the past six years. The highest numbers were achieved in 2012 and 2013, whereas in 2014, a fairly significant decline was recorded. In 2015, the decline was compensated, in particular, by an increase in the number of students in the forestry branches of study. In the Wood Engineering, however, the decline in the number of students continued even in 2015.

Fig. 5 and 6 list the proportions between the students of the full-time or combined form of study in the last five years. It is obvious that the shares and the development of the ratio between the number of students in the full-time and combined form of study differ. While at the Bachelor's degree level, the share of students in the combined form of study amounted only to about 32% over the past two years, at the master's degree level this share was rising and reached almost 61% in 2015. In total, the proportion of students in the combined form of study equals approximately 40%.

**Fig. 5:** Development in the total number of Bachelor's degree students in full-time or combined form of study between 2010 and 2015.



**Fig. 6:** Development in the total number of follow-up Master's degree students in full-time or combined form of study between 2010 and 2015.



The numbers of admitted DSP students in the first year split according to the form of study and individual branches of study over the last five years are shown in Chart 5. With regards to the R&D strategy at the FFWS, since 2012, the percentage of students admitted for the combined type of study (20%) has been gradually decreasing in comparison with the full-time type of study (80%). This trend as well as a greater emphasis on quality and outcomes of PhD students' results is expected in the future. The publishing activity of PhD students of the combined form of study is still low, their involvement in site projects is minimal and a large number of these students interrupt their studies and eventually often drop out their studies.

**Chart 5:** Number of admitted students in the first year of PhD programmes between 2010 and 2015.

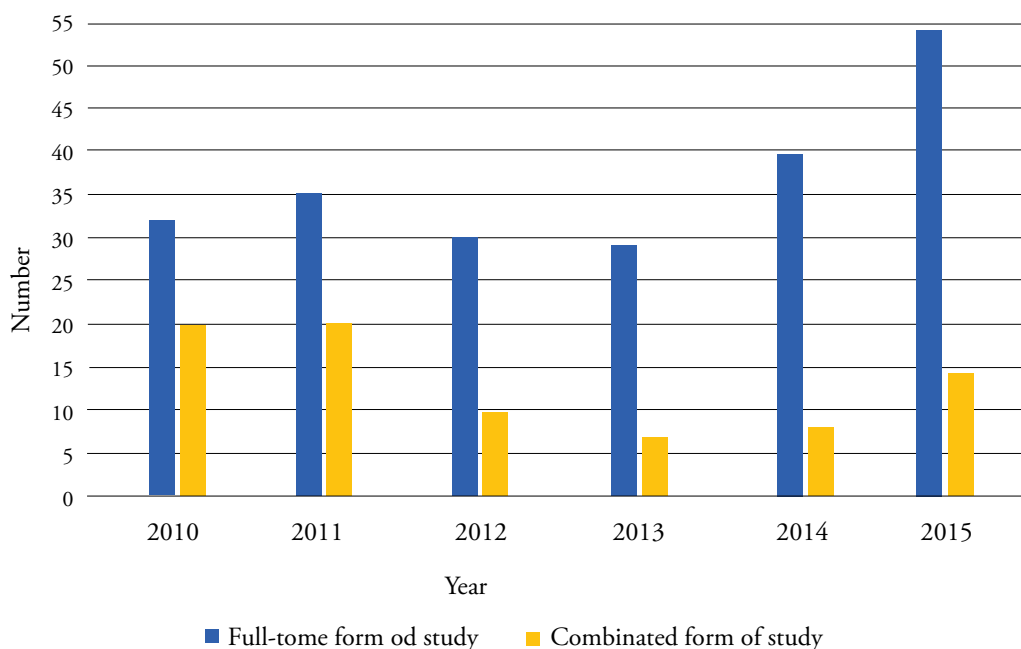
Study Specialization	Year											
	2010		2011		2012		2013		2014		2015	
	Form of Study (F - full-time, C – combined)											
	F	C	F	C	F	C	F	C	F	C	F	C
DFTB	0	0	5	3	1	0	0	0	1	1	1	0
FM	5	2	1	1	2	1	3	0	2	1	8	1
FPGM	6	4	5	2	6	2	11	2	8	4	21	3
S	5	7	7	8	8	4	4	1	14	0	8	3
EME	10	6	11	4	5	2	3	3	5	2	7	5
TMF	5	2	4	4	5	2	8	1	10	0	11	2
<b>Total</b>	<b>31</b>	<b>21</b>	<b>33</b>	<b>22</b>	<b>29</b>	<b>11</b>	<b>29</b>	<b>7</b>	<b>40</b>	<b>8</b>	<b>56</b>	<b>14</b>

In 2015, a total of 210 PhD students studied at the FFWS. In comparison with previous years, it was the highest number. An increase is noticeable especially between 2014 and 2015 (Chart 6). This development was largely influenced by the change in the philosophy and focusing on full-time students; the number of students was gradually falling down in 2012 and 2013 and has been increasing again since 2014 (Fig. 7).

**Chart 6:** Development in the number of students of PhD programmes at the FFWS between 2010 and 2015.

Type of Study	2010	2011	2012	2013	2014	2015
Full-time study	108	122	82	81	84	122
Combinated study	82	72	43	35	22	35
Interrupted study	38	22	40	40	61	37
Graduates	8	12	22	14	20	16
<b>Total number of students</b>	<b>198</b>	<b>206</b>	<b>147</b>	<b>130</b>	<b>126</b>	<b>210</b>

**Fig. 7:** Development in the number of enrolled students of PhD programmes between 2010 and 2015 in full-time and combined form of study (R&D update).



### 3.3.2 Students' study results

The high failure rate has been a major problem of the FFWS over a long period of time. Highly demanding studies, insufficient motivation and often even a small learning potential of the FFWS students played their part.

Close attention has been thus paid to the issue of reducing the study failure rate at the FFWS over the recent years. After analysing the causes of this failure rate, mainly the following causes were identified: insufficient competence of newly admitted students for studies at the FFWS, the difficulty of some subjects, study structure (curricula) together with the strict conditions for advancement to higher grades, poor motivation of students to study and conditions in which learning takes place.

The solution of this adverse situation has been aimed at all selected areas:

- Recruiting for studies at the FFWS talented students who have the learning potential for university studies. It includes the promotion of the Faculty and its branches of study together with graduates' employability, gradually increasing demands in the admission procedure, which will allow for reducing the number of admitted students to the group with the best competences, the educational counselling for students and intensification of the communication with students.
- Structuring of the study so that the composition of the study subjects would correspond with the graduate's profile and the specificity of individual branches.



ches of study (diversification of studies) while the study load would be evenly and in a balanced manner distributed over all years of study. In order to achieve this goal, the following measures have been taken: optimising of study programmes and branches of study at the FFWS, partial modifications to curricula, preparation and implementation of additional seminars and courses for more difficult subjects, spreading of the study over a longer period of time.

- Increasing of the motivation and interest of students which is considered to be the main means in achieving better learning outcomes. The chief tools that are used to enhance the study motivation at the FFWS include: scholarship programmes, the development of active and talented students, which is supported also through extracurricular activities, the promotion of cooperation with the sphere of application increasing graduates' employability and thus making learning more attractive.

- Gradually improving study conditions and optimising the process of teaching as such. It is key for all the necessary specialisations to be rendered by the best professionals with high-quality teaching capabilities. With the use of all available resources this includes: active support of updating and preparation of study materials, more active evaluation of the quality of teaching, the gradual enhancement of the pedagogical „expertise“ of FFWS academics, gradual improving of the technical and material background of the educational process.

These measures have been gradually implemented at the FFWS and the results are already beginning to show – the study failure rate dropped down significantly in the last academic year. The advancement between the individual years of study at the Bachelor's and the follow-up Master's degree in the last four years is shown in Chart 7.

**Chart 7:** Coefficients of the advancement between the individual years of study at the FFWS calculated for the current academic year. The figure for the CULS is an arithmetic mean of the coefficient of the CULS advancement for academic years 2011/12–2014/15.

	permeability coefficient 2011/2012 FFWS	permeability coefficient 2012/2013 FFWS	permeability coefficient 2013/2014 FFWS	permeability coefficient 2014/2015 FFWS	average permeability coefficient CULS 2014/2015
<b>B1-B2</b>	0,464	0,395	0,457	0,709	0,640
<b>B2-B3</b>	0,510	0,492	0,575	0,642	0,698
<b>N1-N2</b>	0,767	0,717	0,793	0,782	0,732

B1 = Bachelors in the 1st/2nd.. grade

N1 = Master students

### 3.3.3 Students in the lifelong learning courses

In 2015, the Faculty of Forestry and Wood Sciences hosted two courses of the University of the Third Age in the framework of lifelong learning:

- Forests through the ages,
- Trees and herbaceous vegetation in the city, in the garden and in the wide open space.

Students who have passed these courses highly appreciate this form of lifelong learning. In 2015, the FFWS opened a new course of lifelong learning in English – Forestry, which is designed for foreigners who can thus get ready for studies of the accredited study programmes.

### 3.4 FFWS graduates

The number of graduates of the Faculty of Forestry and Wood Sciences per individual branches of study in 2015 is given in Chart 8. Unlike the number of students the number of graduates is not subject to such fluctuations and remains stable in the long term. In recent years, however, it has been growing slightly; in 2015, compared to the year 2014, the number of graduates in Bachelor's and Master's branches of study increased and reached the level of 326 successful graduates mainly due to a rise in the number of graduates with Master's degree.

Very low numbers of graduates at the Bachelor's degree level have been seen for long term in the Wood Technology branch of study, which is probably related to highly demanding nature of the studies. Neither other branches of study have high numbers of graduates, especially if compared with the number of students who begin studying. An unfavourable situation continues especially in the full-time study form of the Operation and Game Management branch of study.

The balanced and reasonably high numbers of graduates of the Master's study programme (in particular, in the case of full-time study where the numbers of graduates in the Forestry Engineering range between 20 and 45 and in the case of the Wood Engineering between 20 and 30) contribute to their relatively low unemployment and good employability.

**Chart 8:** Number of graduates of individual FFWS branches of study in 2015.

Type of Study	Study Specialization	Form of Study	Number of graduates
Bachelor's degree	Wood Technology	full-time	12
		combined	0
	Forestry	full-time	41
		combined	13
	Economic Administration Services in Forestry	full-time	50
		combined	31
	Operation and Game Management	full-time	11
		combined	40
Master program	Wood Engineering	full-time	16
		combined	8
	Forest Engineering	full-time	37
		combined	63
	Forestry, Water and Landscape Management	full-time	4
	Doctoral Study	Dendrology and Forest Tree Breeding	full-time
combined			0
Forest Management		full-time	1
		combined	0
Silviculture		full-time	2
		combined	3
Technology and Mechanization in Forestry		full-time	2
		combined	1
Forest Protection and Game Management		full-time	1
		combined	0
Management of an Enterprise		full-time	3
		combined	1

### 3.4.3 Employability of graduates

The FFWS monitors the unemployment of graduates on the regular basis according to the available data provided by labour offices and the Ministry of Labour and Social Affairs. According to these data, the unemployment rate of our graduates has been relatively low so far. An analysis of available data by the Ministry of Labour and Social Affairs provides a detailed insight into the unemployment of FFWS graduates (Charts 9 and 10). According to this analysis the labour offices registered as at 30 April 2014 (which is the reading that captures unemployment 11 months after graduation) only seven unemployed graduates of the FFWS of which only three were fresh graduates (ratio for our Faculty was 7/3; in the case of the FFWT MENDELU this ratio was 29/18). Nevertheless, out of this number only one was a graduate with Master's degree (in the case of graduates with Bachelor's degree it is not certain whether they are actually unemployed or not). As at 30 September 2015 (which is the reading that captures unemployment four months after graduation), labour offices registered overall eleven unemployed graduates of the FFWS of which seven were fresh graduates of which six graduated with Master's degree (ratio was 11/7/6 for our Faculty; in the case of the FFWT MENDELU this ratio was 28/24/16).

These data show the total unemployment rate of FFWS graduates. The graduates who graduated in 2014 reported as at 30 April 2015 (11 months after graduation) the unemployment rate of 1.1% (four months after graduation the unemployment rate was 3.2%). The unemployment rate of graduates who graduated in 2015 as at 30 September 2015 (four months after graduation) equalled 2.1%. The above comparison makes it clear that unemployment of graduates between 2014 and 2015 even slightly decreased and remains consistently at a very low level (while being markedly below average when compared to related branches of study in the Czech Republic).

**Chart 9:** Graduates registered at labour offices of the Czech Republic by universities and branches of study as at 30 April 2015 (Source: Ministry of Labour and Social Affairs).

Name of district	Name of school	Název oboru KKO/VOV	Graduates registered at labour offices of the Czech Republic, who ended study in 1. 5. 2014 – 30. 4. 2015
Prague (the capital city)	FLD	Wood Engineering	1
Prague (the capital city)	FLD	Forestry	1
Tábor	FLD	Forestry	1
<b>Total</b>			<b>3</b>

**Chart 10:** Graduates registered at labour offices of the Czech Republic by universities and branches of study as at 30 September 2015 (Source: Ministry of Labour and Social Affairs).

Name of district	Name of school	Study Programme KKOVS/OV	Graduates registered at labour offices of the Czech Republic, who ended study in 1. 5. 2015 – 30. 9. 2015
Prague (the capital city)	FLD	Forest Engineering	1
Beroun	FLD	Forest Engineering	1
Mladá Boleslav	FLD	Forestry	1
Czech Budejovice	FLD	Forest Engineering	1
Strakonice	FLD	Forest Engineering	1
Tábor	FLD	Wood Engineering	1
Semily	FLD	Forest Engineering	1
<b>Total</b>			<b>7</b>

Perhaps as a result of this favourable situation the FFWS students do not show too much interest in the events focusing on career counselling or job acquisition. The Job Fair may serve as an example of an opportunity for students to establish contacts with potential employers. In 2015, there were ten exhibitors on behalf of the FFWS: Agrowald Rožmberk, s.r.o., the Archbishopric of Prague, Foresta SG, a.s., Kronospan ČR, s.r.o., Lesy České republiky, s.p., Matrix, a.s., the Forest Management Institute in Brandýs nad Labem, Lesy hl. m. Prahy. Seven of these entities presented themselves in the standard way in exhibition booths. Six of them used the possibility to place their information in the brochure which was released in relation to the Job Fair. One company (Lesy hl. m. Prahy) presented its activities in a separate lecture.

Besides the above mentioned entities, there was yet another leading forestry company at the Job Fair – Vojenské lesy a statky, s.p. – a university-wide exhibitor. The participation of forestry and woodworking companies at the Job Fair was thus at about the same level as in the year before.

In the area of graduates' employability, the year 2015 saw a positive trend in an increase in job

### 3.5 Cooperation with the commercial sphere

offers from businesses and companies.

The cooperation with representatives of potential future employers takes place at the Faculty of Forestry and Wood Sciences at several levels. It is a cooperation in scientific and research activities (through such projects, inter alia, the current PhD students get ready for their future professions). In 2015, there was an excellent cooperation in this respect with Vojenské lesy a statky, s.p., Matrix, a.s., Městské lesy Doksy and other entities. Further cooperation with future employers of FFWS graduates takes place primarily in the area of education, chiefly in implementation of practical training and in the solution of students' diploma theses. Cooperation with the prac-

tical sphere is also executed when organising extracurricular activities (specialised seminars, activities under the Forest Pedagogy).

In 2015, cooperation was developing well also with Lesy České republiky, s.p., as a contract was signed and then performed, allowing for significant extension of the publishing activities of the FFWS in the field of teaching materials. The work of the Council for Cooperation with Practice is an example of cooperation with future FFWS graduates.

As in previous years, the FFWS also collaborated with timber companies, the Forest Management Institute, Vojenské lesy a statky, s.p., some municipal estates and private companies in this sector.



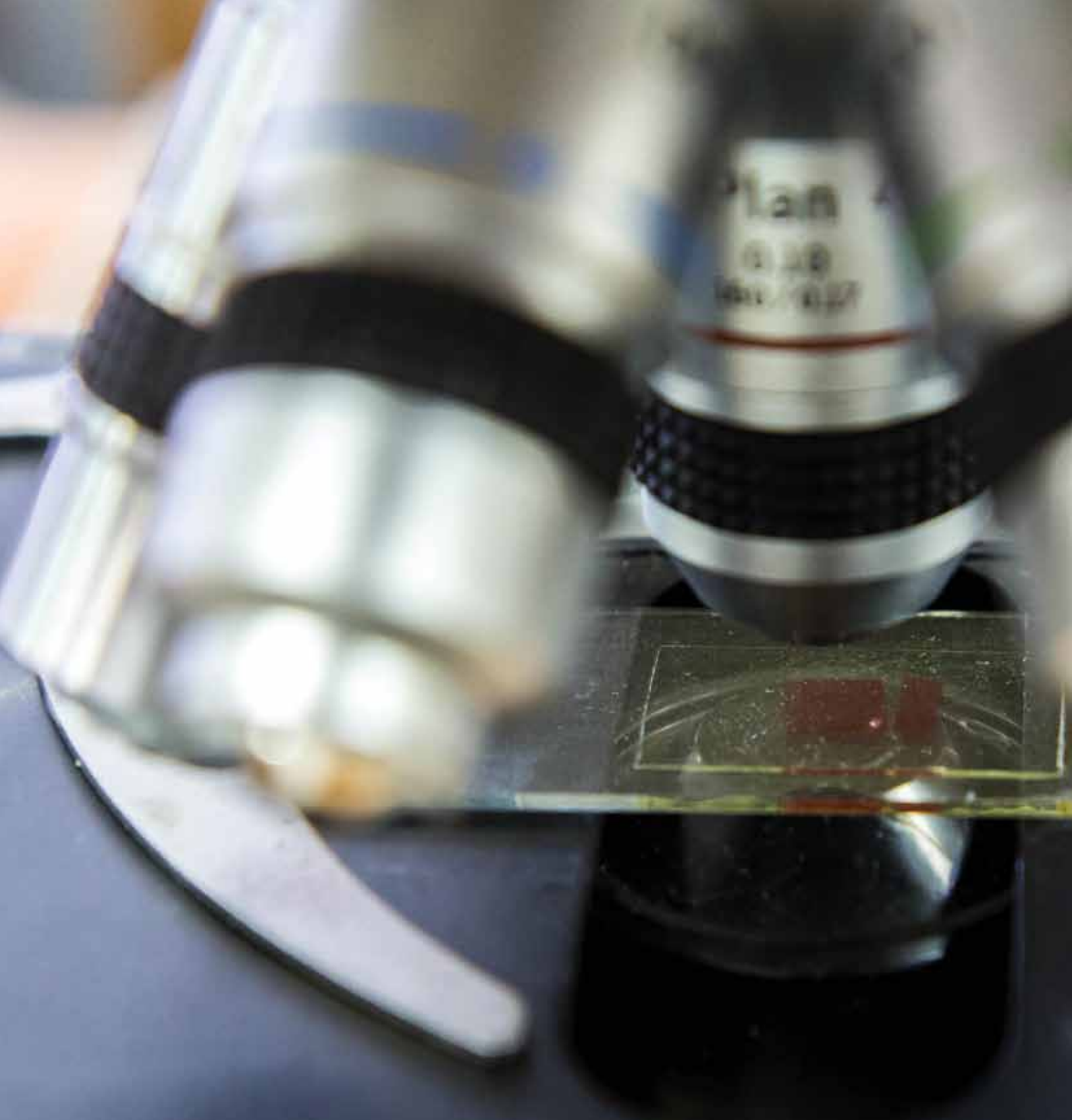
### 3.5.1 Board for Cooperation with Practice

Undoubtedly, the Council for Cooperation with Practice, which includes representatives of major employers, is an important form of cooperation with representatives of potential future employers of FFWS graduates. The Council acts as a link between the academic and educational life of the Faculty and real-life practice and comments mainly on the curricula with respect to the employability of graduates on the labour market, practical training of students, lifelong learning programmes and cooperation in science and research. It therefore provides a feedback necessary to improve the quality of studies at the FFWS, but also presents new ideas and possibilities for scientific and expert cooperation. Applying science and research results into practice is an important and integral part of all activities of the Faculty.

In 2015, the Council for Cooperation with Practice dealt mainly with the issues of graduates' employability and their readiness for practice. To that end the Council prepared and distributed a questionnaire to the main employers in the respective FFWS branches of study in order to identify the strengths and weaknesses of graduates and to have a better overview of the positions they occupy. The results are being gradually evaluated and will be possibly used for the adjustment of the curricula of individual FFWS branches of study.

### 3.5.2 Cooperation in education

Some experts from the sphere of application are directly involved in the educational process. In 2015, about 20 external lecturers took part in education at the FFWS. Besides that, collaboration with the sphere of application is indispensable in implementation of the practical training of FFWS students. It is mainly the programme of group and individual practical training sessions as well as excursions and field exercises; in 2015, besides the traditional cooperation with the School Forest Enterprise in Kostelec nad Černými lesy, the cooperation with other forestry and timber entities was also developing successfully (e.g. with Vojenské lesy a statky, s.p.).



VĚDA A VÝZKUM



## 4. Science and research

The FFWS' strategic objective in the area of research and development (R&D) is to become a leader in the field of basic and applied research in forestry and wood technology and in related sectors in cooperation with domestic and foreign partners. The activities of the Faculty have been directed in that way in the long run. In 2015, these activities in line with the Update of the Long-term Plan of the Faculty focused primarily on enhancing the quantity and quality of publishing activities, activities aimed at fund-raising from project resources and the development of young scientific teams.

### 4.1. Publishing activities and R&D results

Publication outputs serve as one of quantitative and qualitative R&D evaluation standards. The main goal of the Faculty in this area is primarily publishing in journals with an impact factor (IF). While in the past the bulk of the scientific outputs generated by the Faculty staff had been published in peer-reviewed and Scopus journals, since 2012, these outputs have been published in journals with an IF. The trend in the number of various types of articles since 2011 is evident from Fig. 8. In 2015, the staff members published a total of 176 scientific articles in IF journals, which is more than 3.5-fold increase compared to 2011. In comparison with the previous successful year 2014, it is an increase of 30%. It confirms the continuation of the upward trend and fulfilling of one of the goals of the Faculty, which is to increase the number of articles published in quality journals with an IF.

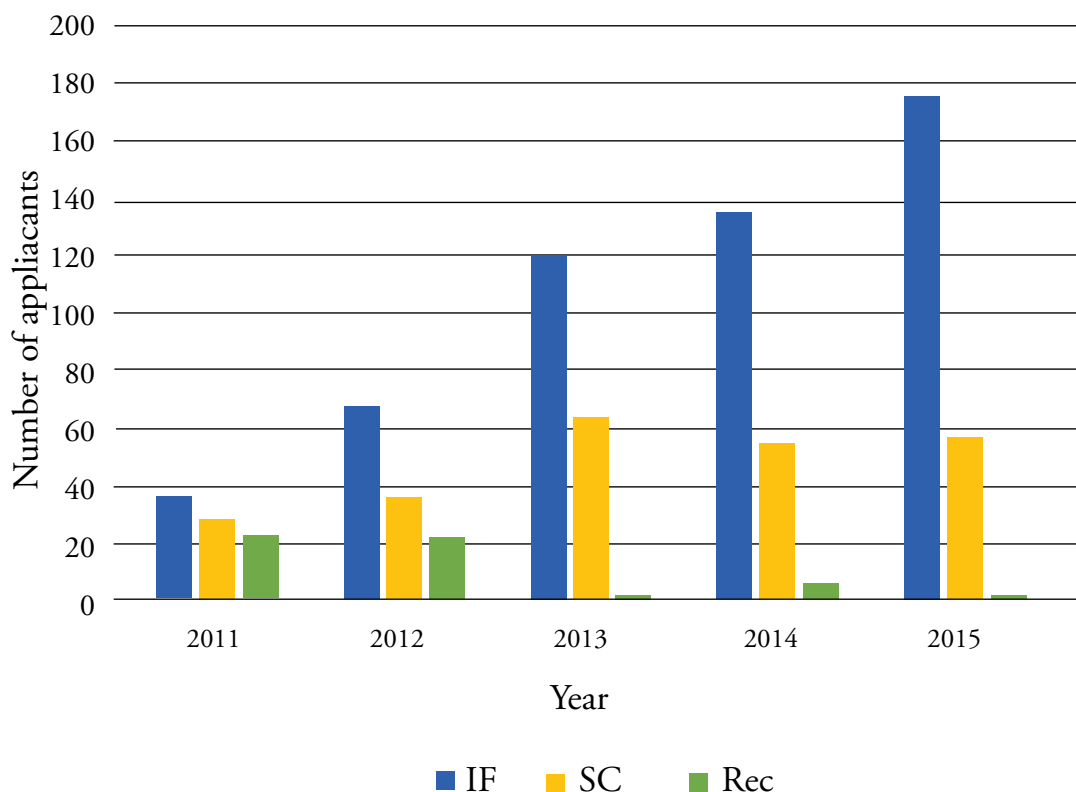
The articles were published in 97 various journals with an IF, most often in BioResources, Zootaxa, Forest Ecology and Management, Plos One, Wood Research and Forests. The most common sectors

according to the Central Register of R&D Projects in which the scientific outputs of the FFWS staff were published included Zoology and Forestry and according to the Web of Science categories the sectors included Zoology, Forestry, Entomology and Industrial Processes and Processing.

The Scopus articles, which totalled 57 in 2015, were most often published in the Journal of Forest Science, the Forestry Journal and Zprávy lesnického výzkumu (Reports of Forestry Research). Almost exclusively these were publications in the field of forestry.

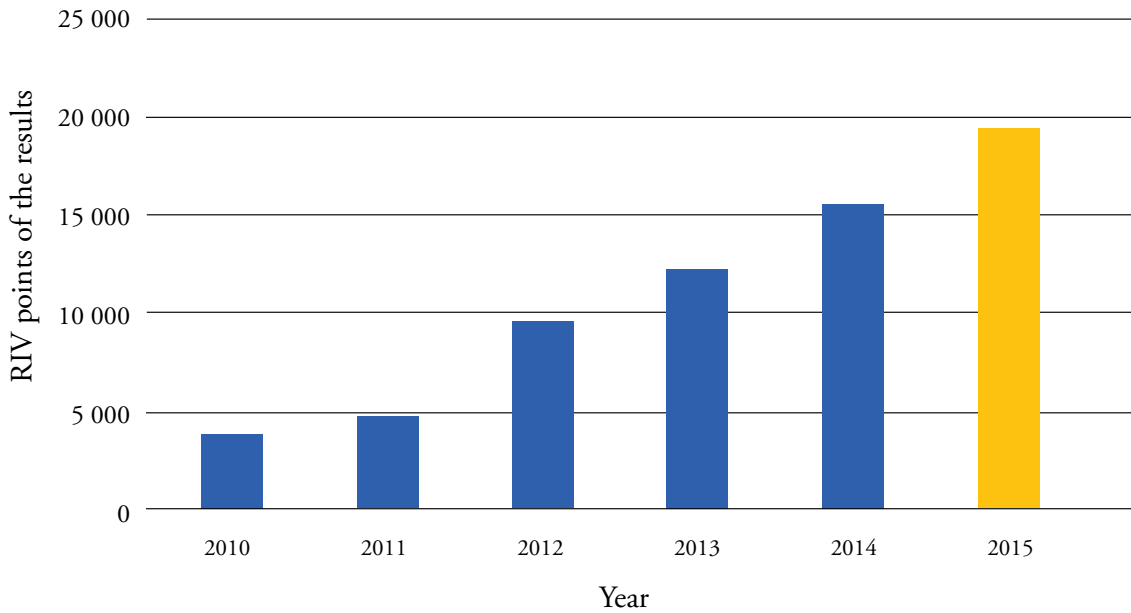
In 2015, besides the publication outputs, the FFWS also produced non-publication outputs, which included certified guidelines and maps, software, outputs with legal protection and research reports. The total number of these outputs amounted to 36 in 2015. In most cases these were the application outputs of current projects of the National Agency for Agricultural Research (NAZV) or the Technology Agency of the Czech Republic (TA CR) and contractual research.

**Fig. 8:** Number of individual articles of the FFWS between 2010 and 2015 (IF – IF article, SC – Scopus article, Rec – peer-reviewed article).

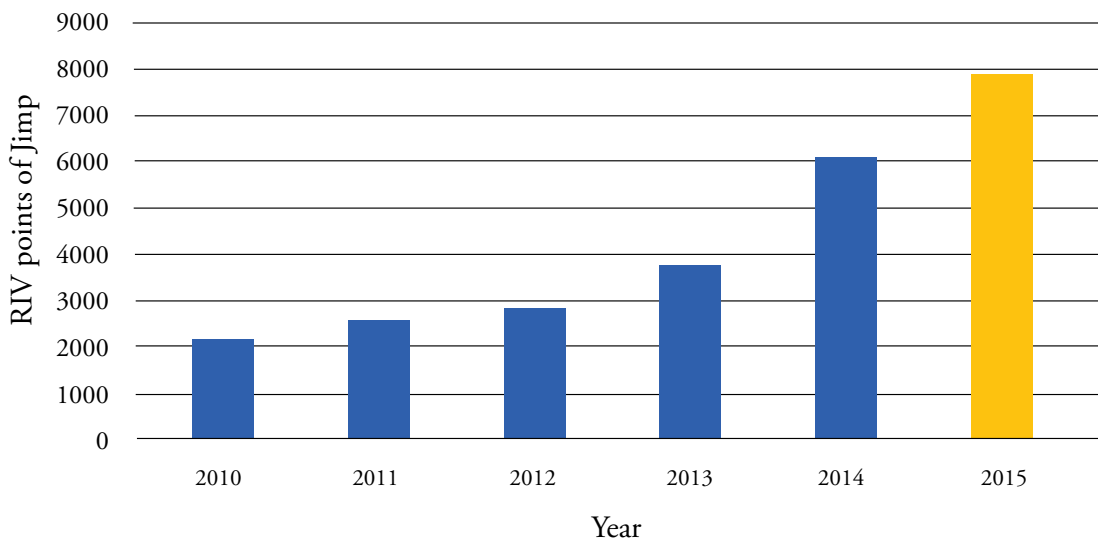


The publication activities of the Faculty at the national level are assessed by means of RIV points. Acceptance of incentive elements and greater emphasis on publishing in high-quality scientific journals is also reflected in the evaluation with RIV points. The fact that these measures are correct is obvious from Fig. 9, which shows the development of RIV points since 2010. Given the fact that the RIV points have more than one-year delay, the year 2015 cannot be evaluated yet because the final CRDI results are not known yet. The data for 2015 in Fig. 9 are estimated based on the known values of RIV points for the period of 2010–2013 and scoring of publications of IF and Scopus category, excluding the unknown values for pillars II and III. Thus, the actual score will be even greater. The development of the Faculty's score for publications of IF category (Fig. 10) for the period of 2009–2013 is supplemented by the expected score for 2014.

**Fig. 9:** Number of RIV points of the results (as adjusted according to Chapter V of the Methodology) of the Faculty between 2010 and 2014. RIV points are awarded with a more than one-year delay and the sum of points between 2009 and 2013 constitutes the RIV parameter for 2014. The figure for 2015 is based on the number and types of IF and Scopus publications.

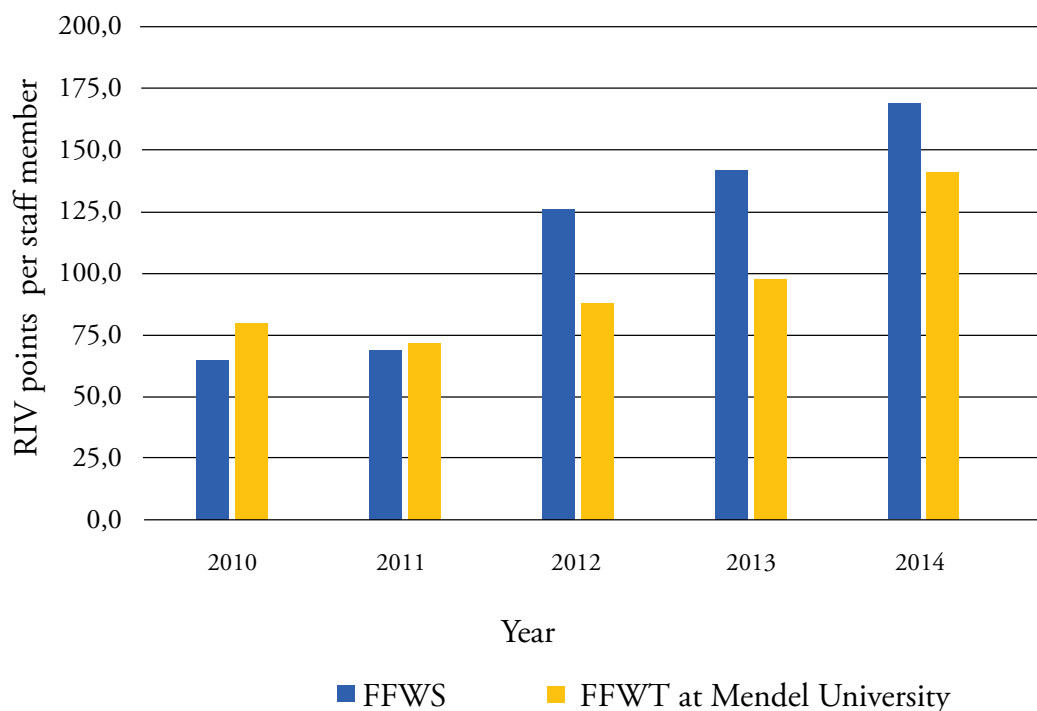


**Fig. 10:** Number of RIV points of articles in IF articles (as adjusted according to Chapter V of the Methodology) of the Faculty between 2009 and 2013. RIV points are awarded with a more than one-year delay and the sum of points between 2009 and 2013 constitutes the RIV parameter for 2014. The figure for 2015 is based on the number and types of IF publications.



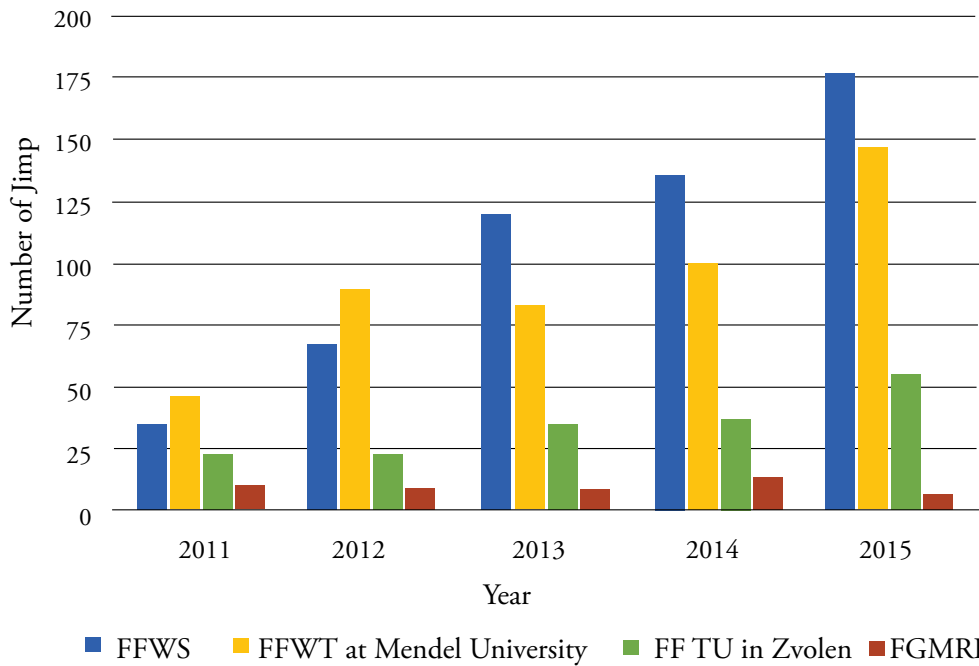
All the above presented graphic developments indicate that the trend, which the Faculty started pursuing in 2010, was clearly positive, as reflected in an increase in publishing activities of the Faculty. These positive results of increased publishing activities of the Faculty staff are obvious even in comparison with other forestry and wood-oriented faculties. In absolute terms our Faculty has achieved lower scores expressed in RIV points in comparison with the Faculty of Forestry and Wood Technology at Mendel University in Brno (FFWT MENDELU). Due to the different composition of personnel of both faculties it is preferable to compare the results as converted per one staff member. Four years ago, the FFWS was lagging behind its partner FFWT in Brno in terms of this indicator (Fig. 11). In 2011, the FFWT in Brno achieved a slightly better result. Since 2012, the number of points per one staff member has been higher at the FFWS in Prague than that at the FFWT in Brno.

**Fig. 11:** Comparison of the number of RIV points per staff member at the CULS FFWS in Prague and FFWT MENDELU in Brno.



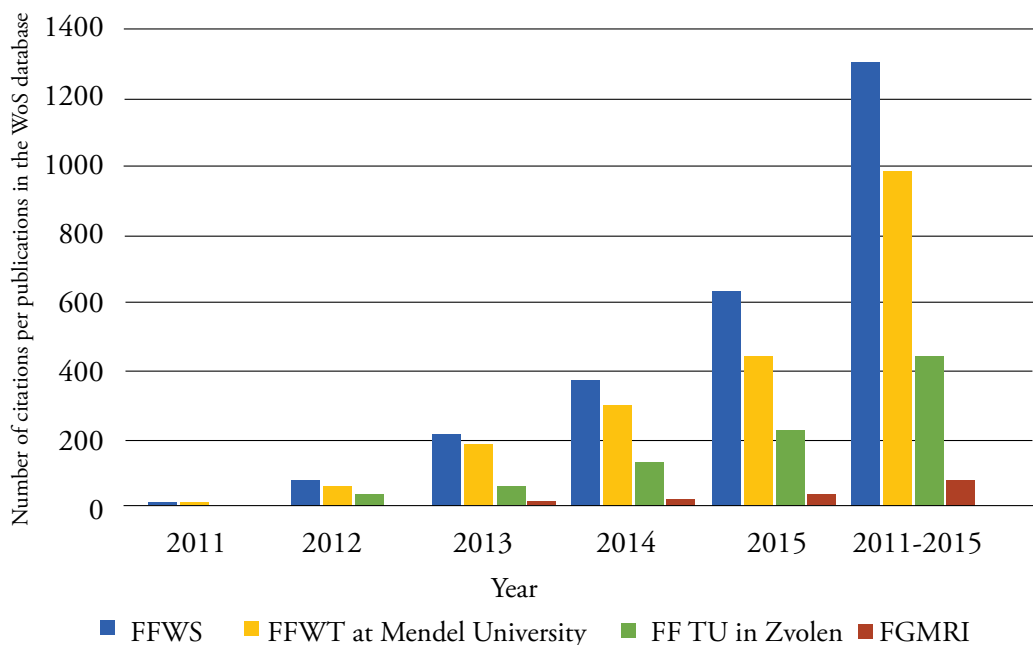
In comparison with other forestry-oriented research institutions the Faculty’s publishing activities have pursued a very good trend over the last two years. Fig. 12 illustrates the number of IF articles of four major forestry institutions in the Czech Republic and in the Slovak Republic. The values have been taken from the public RDI IS database and the WoS database. The chart shows the upward trend of the FFWS, which has taken the leading position and has thus switched the position with the FFWT MENDELU in Brno since 2013.

**Fig. 12:** Number of IF articles per given institution between 2011 and 2015.

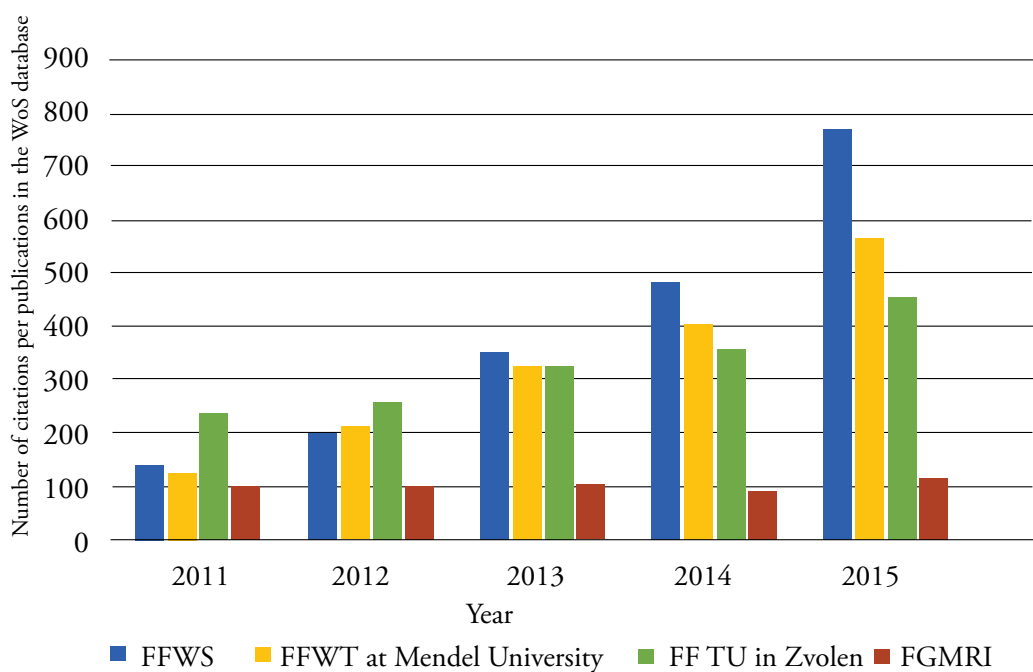


The FFWS also did very well in citations in the WoS database. It applies both to publications from the last five years as well as to all the publications posted on the WoS by the FFWS. The number of citations in the WoS database for the period of 2011–2015 of the publications published during the same period (2011–2015) is shown in Fig. 13. The total number of citations of all publications in the WoS database for the given institution in 2011–2015 is given in Fig. 14. The WoS database still does not contain all the articles published in 2015. At the same time, this database is a „living organism“ that is constantly changing e.g. with the increasing number of citations; therefore, the actual data presented in these charts may vary slightly. However, the development trend and some differences between forestry institutions are obvious. In both presented cases the correctness of measures and the trend pursued by the FFWS have been confirmed. By maintaining this trend the Faculty wants to reinforce its scientific level and quality among forestry- and wood-technology-oriented faculties.

**Fig. 13:** Number of citations of publications between 2011 and 2015 in the WoS database for the given institution.



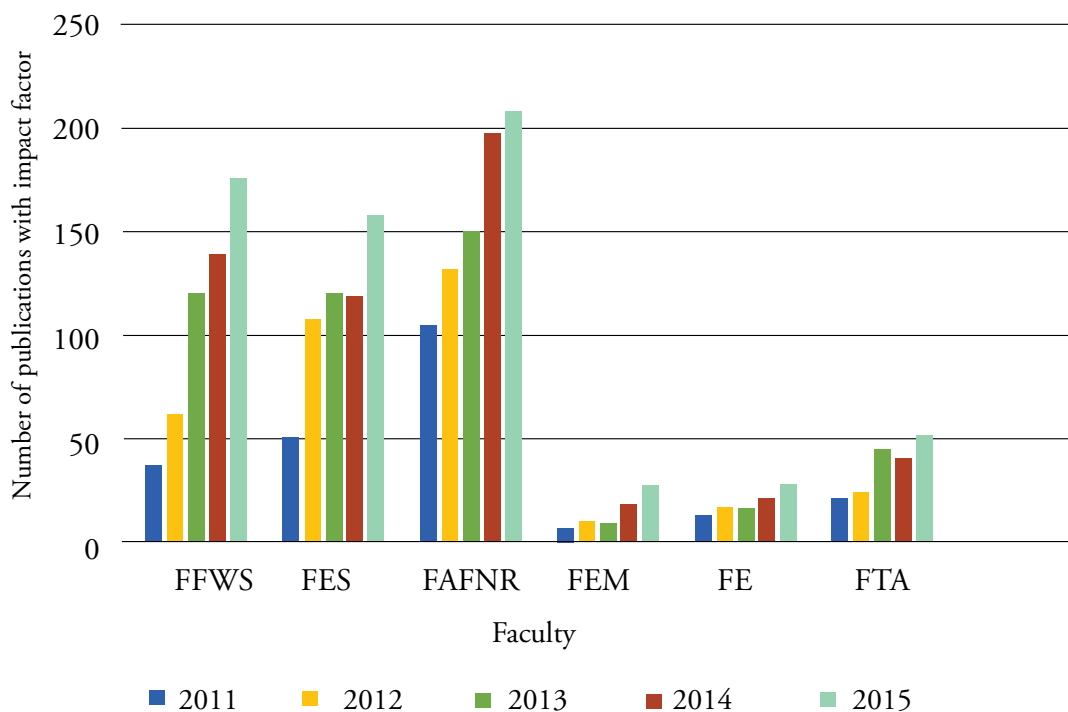
**Fig. 14:** Number of citations of all publications of the given institution in the WoS database



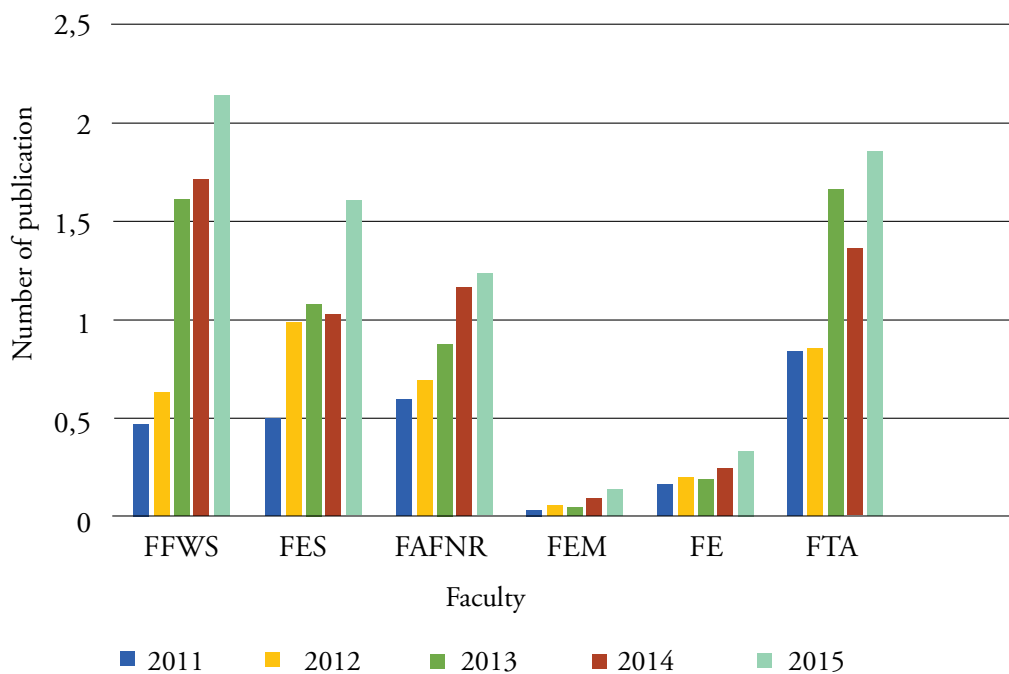


The upward trend in the publishing activity is seen even in comparison with other CULS faculties. Five years ago, the FFWS significantly lagged in the number of IF scientific articles behind the Faculty of Agrobiological Sciences (FAFNR) and the Faculty of Environmental Sciences (FES). While in 2011, the performance of the FFWS in terms of the number of these publications corresponded to 35% of the FAFNR, in 2015 it was already 85% (with regards to the fact that the FFWS has half the number of academic staff when compared with the FAFNR). In addition, since 2014, the FFWS has been the second faculty in terms of publishing in IF journals (Fig. 15). The FFWS' upward trend in publishing activities within the University is even more evident in the expression of the number of publications with an impact factor per staff member. In this representation the FFWS has attained the best position within the CULS for the third year in a row (Fig. 16). An increase in publishing activities of most staff members of the FFWS is evidenced by the comparison of the proportion of staff members with publications with an impact factor (Fig. 17). In 2015, more than 90% of the FFWS staff members contributed to the publication outputs in IF journals. More than a quarter of them were authors or co-authors of at least two papers published in the said journals. These are the highest shares out of all CULS faculties.

**Fig. 15:** Number of publications with impact factor at individual faculties of the CULS in Prague from 2011 to 2015.

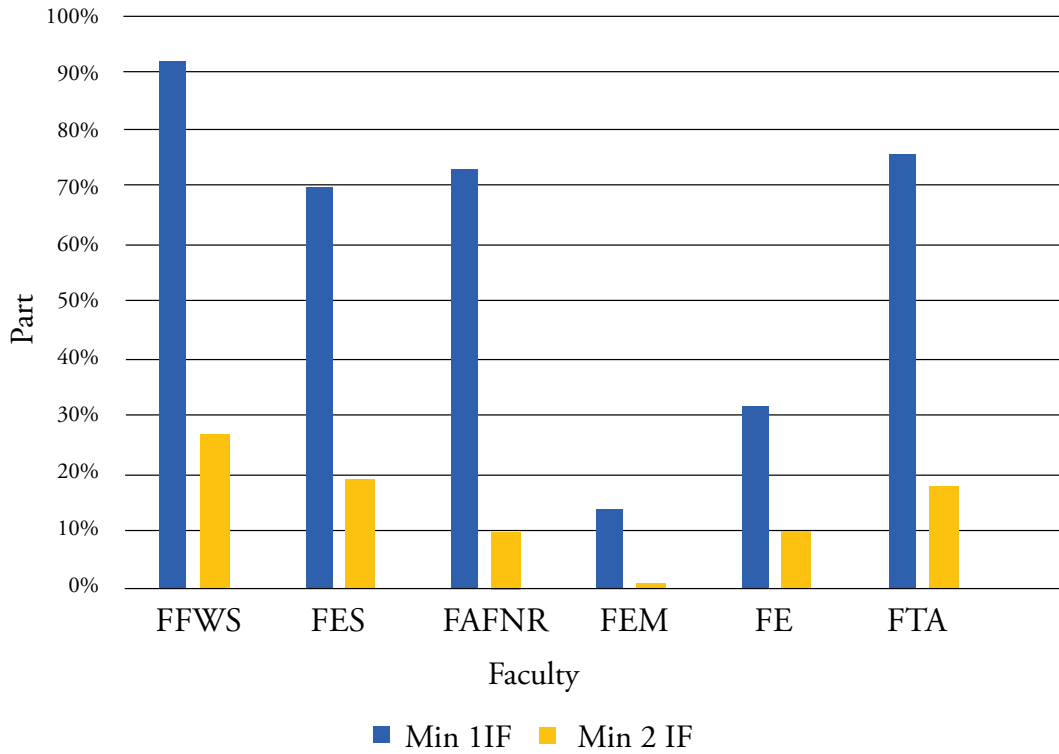


**Fig. 16:** Number of publication with impact factor at individual faculties of the CULS in Prague per member of academic staff between 2011 and 2015.





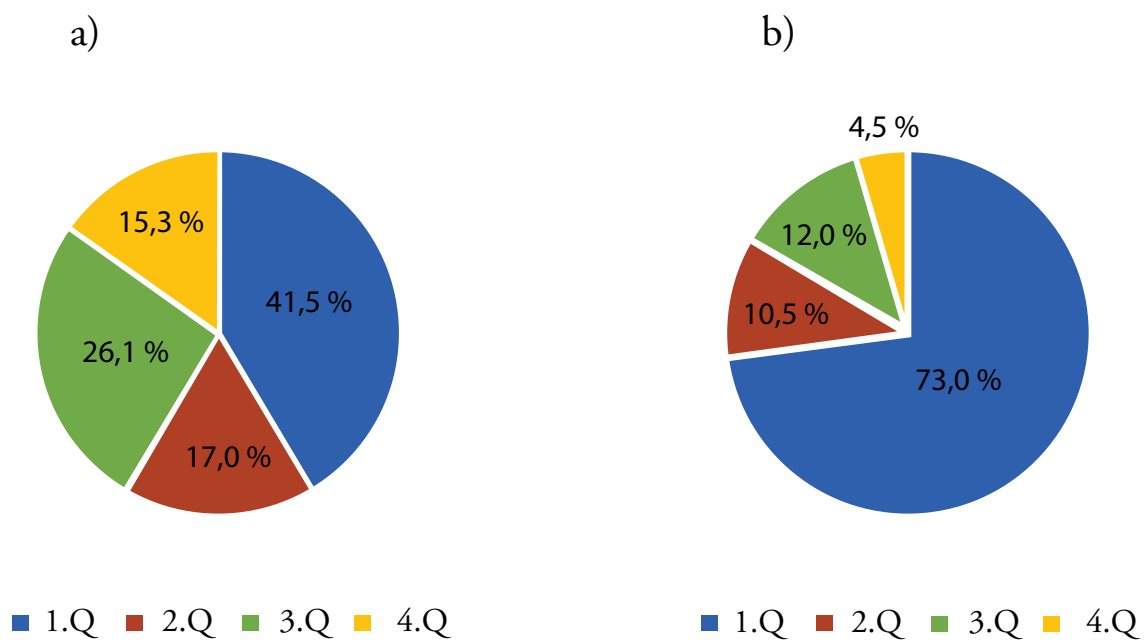
**Fig. 17:** Share of staff of faculties with one or two publications in magazines with IF in 2015.



**Publications of staff members in prestigious scientific journals – excellent outcomes**

Due to the general upward trend of rising quantity and quality of publications in journals of the highest quality, it is increasingly difficult to win recognition in these journals. It is even better to state that 41.5% of published IF articles appeared in journals in the first quartile of the given WoS sector while in multidisciplinary journals their average quartile is lower than 1.5. Fig. 18 shows the proportion of the number of articles published by the IF journal quartile and the share of expected RIV points for these articles.

**Fig. 18:** Share of (a) published articles in 2015 and (b) expected RIV points per quartile of the IF magazine.



## Overview of FFWS publications in top quality journals:

The list below details the most significant publications in 2015 in which the Faculty staff took part. The entire citation of the publication is quoted while the point value according to RIV is provided in parentheses.

JONSSON, B. – PE'ER, G. – SVOBODA, M. Forests: not just timber plantations. *Nature*, 2015, Volume 521, Issue 7550, p. 32–32. ISSN: 0028-0836. (305)

PRIMICIA, I. – CAMARERO, J. – JANDA, P. – ČADA, V. – MORRISSEY, R. – TROTSIUK, V. – BAČE, R. – TEODOSIU, M. – SVOBODA, M. Age, competition, disturbance and elevation effects on tree and stand growth response of primary *Picea abies* forest to climate. *Forest Ecology and Management*, 2015, Volume 2015, Issue 354, p. 77–86. ISSN: 0378-1127. (164.29)

SEEDRE, M. – KOPÁČEK, J. – JANDA, P. – BAČE, R. – SVOBODA, M. Carbon pools in a montane old-growth Norway spruce ecosystem in Bohemian Forest: Effects of stand age and elevation. *Forest Ecology and Management*, 2015, Volume 2015, Issue 346, p. 106–113. ISSN: 0378-1127. (164.29)

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KOLBABOVÁ, T. – MALKEMPER, E. – BARTOŠ, L. – VANDERSTRAETEN, J. – TURČÁNI, M. – BURDA, H. Effect of exposure to extremely low frequency magnetic fields on melatonin levels in calves is seasonally dependent. *Scientific Reports*, 2015, Volume 2015, Issue 5, p. 1–9. ISSN: 2045-2322. (130.19)

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BOURGUIGNON, T. – DROUET, T. – ŠOBOTNÍK, J. – HANUS, R. – ROISIN, Y. Influence of Soil Properties on Soldierless Termite Distribution. *PLoS One*, 2015, Volume 10, Issue 8, p. 1–11. ISSN: 1932-6203. (89.64)

BAČE, R. – SVOBODA, M. – JANDA, P. – MORRISSEY, R. – WILD, J. – CLEAR, J. – ČADA, V. – DONATO, D. Legacy of Pre-Disturbance Spatial Pattern Determines Early Struc-

tural Diversity following Severe Disturbance in Montane Spruce Forests. PLoS One, 2015, Volume 10, Issue 9, p. 1–18. ISSN: 1932-6203. (89.64)

BELOTTI, E. – WEDER, N. – BUFKA, L. – KALDHUSDAL, A. – KÜCHENHOFF, H. – SEIBOLD, H. – WOELFING, B. – HEURICH, M. Patterns of Lynx Predation at the Interface between Protected Areas and Multi-Use Landscapes in Central Europe. PLoS One, 2015, Volume 10, Issue 9, p. 1–23. ISSN: 1932-6203. (89.64)

VOTAVOVÁ, A. – TOMČALA, A. – KOFROŇOVÁ, E. – KUDZEJOVÁ, M. – ŠOBOTNÍK, J. – JIROŠ, P. – KOMZÁKOVÁ, O. – VALTEROVÁ, I. Seasonal Dynamics in the Chemistry and Structure of the Fat Bodies of Bumblebee Queens. PLoS One, 2015, Volume 10, Issue 11, p. 1–14. ISSN: 1932-6203. (89.64)

HOLÁ, M. – JEŽEK, M. – KUŠTA, T. – RÖSSLOVÁ, M. Trophic Discrimination Factors of Stable Carbon and Nitrogen Isotopes in Hair of Corn Fed Wild Boar. PLoS One, 2015, Volume 10, Issue 4, p. 1–12. ISSN: 1932-6203. (89.64)

In 2015, the most prolific staff members of the Faculty were as follows: Prof. Ing. Miroslav Svoboda, doc. Ing. Milan Gaff, Ph.D., Ing. Miroslav Gašparík, Ph.D., Ing. Monika Kvietková, Ph.D., Ing. Radek Bače, Ph.D., Jiří Háva. Out of PhD students: Mgr. Markéta Nováková and out of postdocs: Dr. Robert Charles Morrissey. The improvement in the publishing activity of PhD students is a positive factor. In annual competition for the Rector's Award for publishing activity of PhD students seven PhD students from the FFWS ranked among 15 award recipients. Specifically, the second place was taken by Ing. Martin Mikoláš, the third by Ing. Zdeněk Vacek, the sixth by Ing. Jan Kašpar, the seventh by Ing. Michaela Holá, the tenth by Ing. Jozef Pajtík, the twelfth by Ing. Miloš Trýzna and the seventh award recipient was Ing. Volodymyr Trotsiuk, PhD student, who placed the fourteenth. For his overall publishing activity during doctoral studies and for his dissertation Ing. Jan Kašpar, Ph.D. was granted by the CULS Rector the award of Prof. Stoklasa and also took the third place in the competition for the Award of the Minister of Agriculture for Young Scientists.

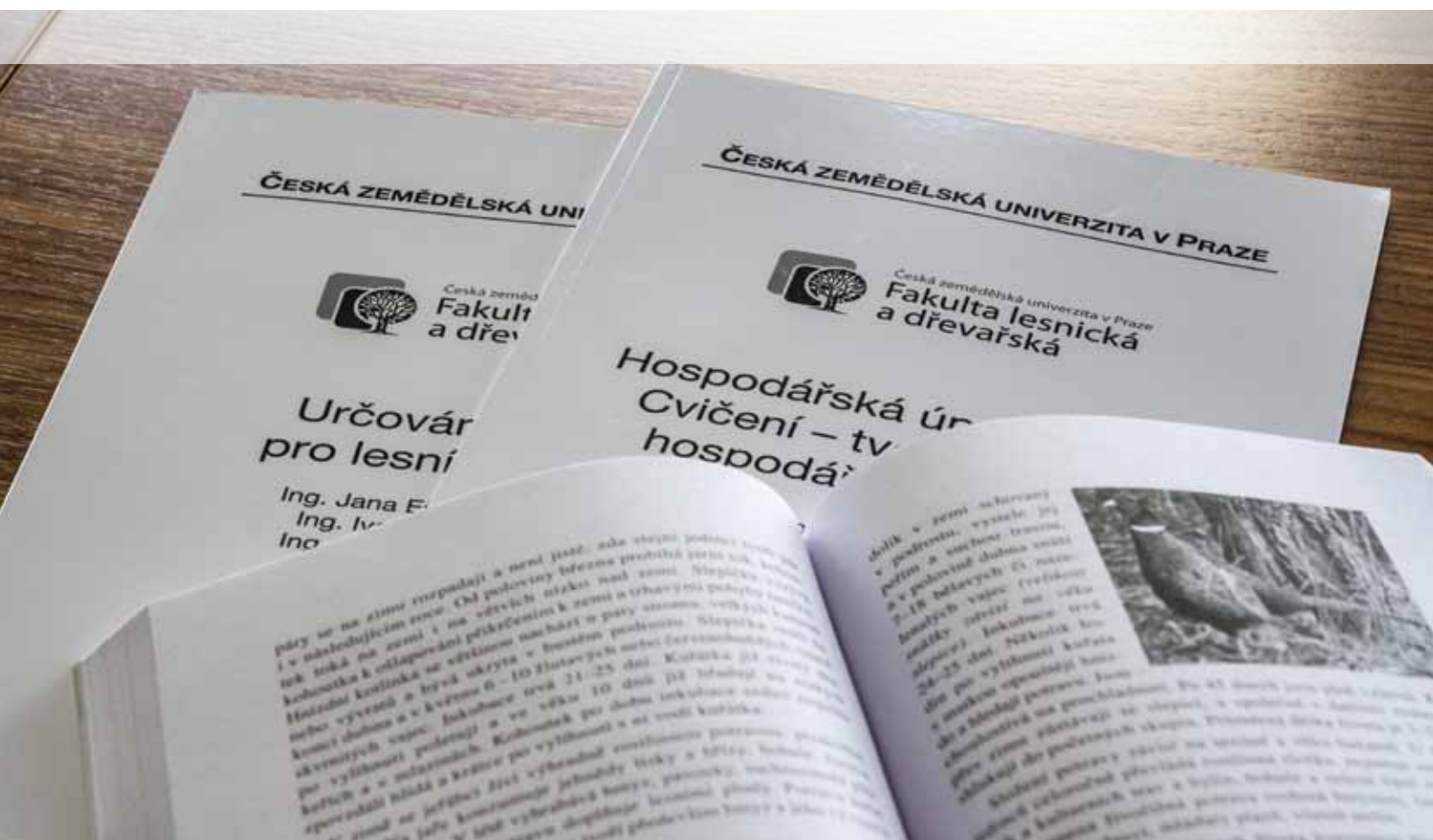
## Publishing activity of the departments

The publication performance of the Faculty in 2015 was satisfactory and attained the objectives of the long-term plan. However, the substantial disparity of publishing activities of individual departments still remains an issue at the Faculty level (Fig. 19). In 2015, the largest share of the total publication output was attributed to DWP (21.2%), DFE (19.8%), DFPE (17.8%), DFM (14.7%) and DG-MWB (11.8%). Other departments contributed to the Faculty's publication output with less than 10%. The real increase or decrease of the publication performance of the given department is illustrated by Fig. 20, which shows the performance of individual departments of

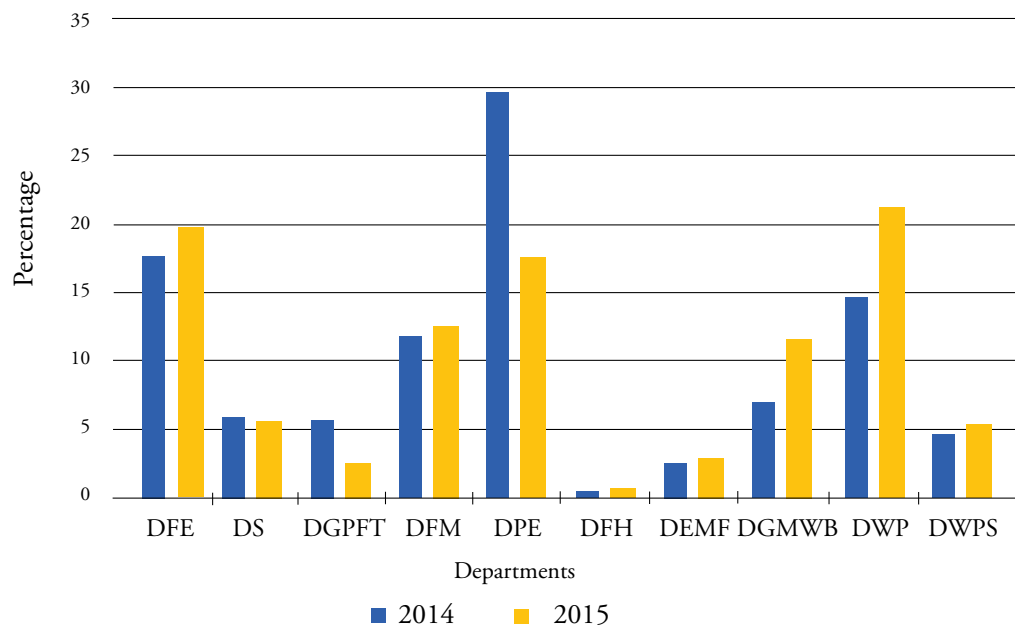
the FFWS in 2014 and 2015 measured by the number of points for IF and Scopus publications. DFPE and DFM boast stable and above-average performance in the long run. Since 2014, these departments have been joined by DFE and DWP with their above-average performance in spite of the fact that these are two of the three newest departments, which confirms that, in terms of R&D, their establishment has been beneficial for the Faculty.

Performance of departments also depends on the number of the academic staff.

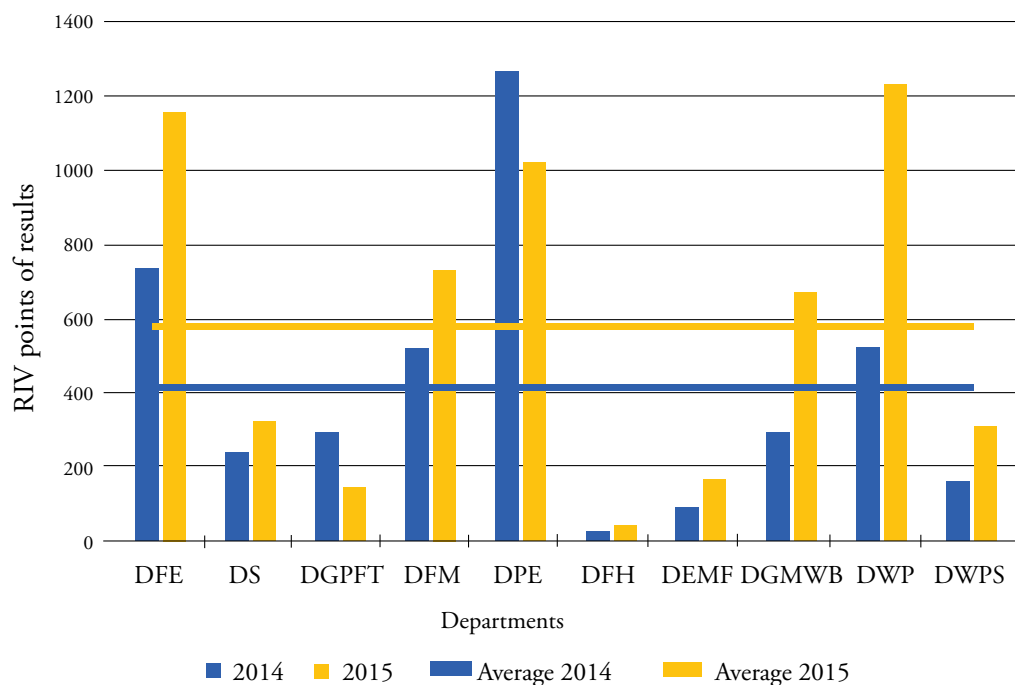
Fig. 21 shows the number of points in the publishing activities per a full-time job of a member of academic staff in 2015.



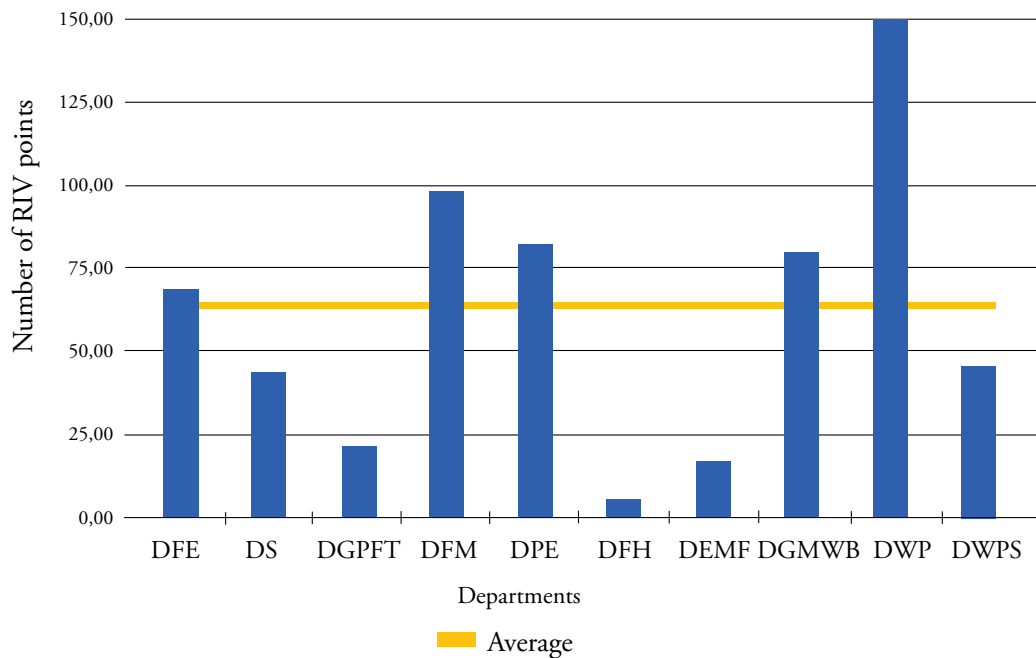
**Fig. 19:** Share of individual departments in the overall publishing output of FFWS R&D in 2014 and 2015.



**Fig. 20:** Output of FFWS departments in 2014 and 2015 in number of points for IF and Scopus publications.



**Fig. 21:** Average score of points in publishing activities per full-time employment load of one academic staff member in



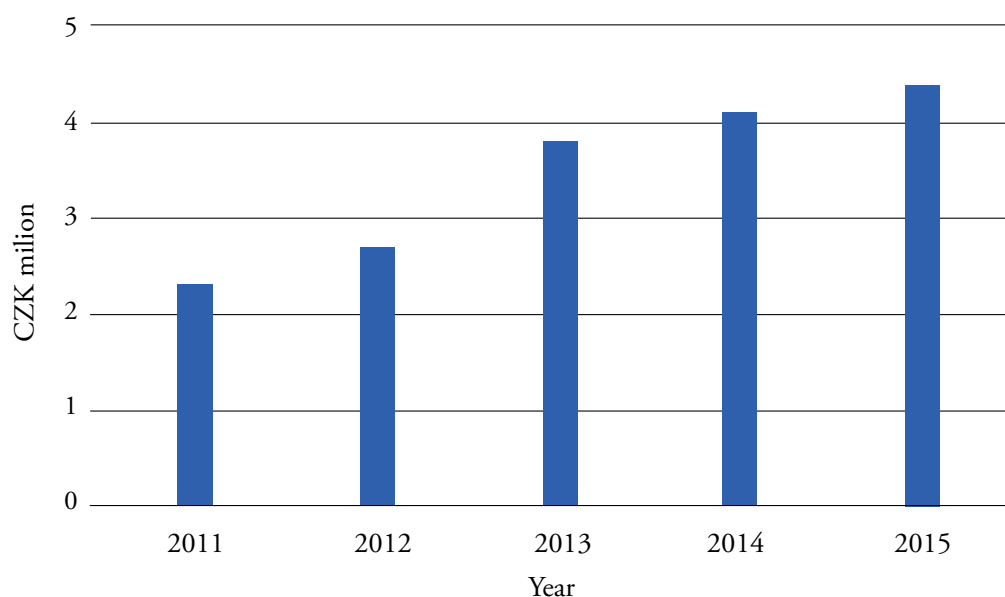


## 4.2 Funds for research and development

For many years, the Internal Grant Agency (IGA) at the Faculty has organised an internal grant competition for students, during which the students of doctoral study programmes have had an opportunity to get a grant for their research. Exclusively the specific university research funds have been used for these internal grants. 65% of this subsidy is used for the purposes of the Faculty IGA, the remaining 35% remains in the University funds for the support of university grants. In 2015, out of the total subsidy in the amount of CZK 6.6 million for specific research CZK 4.3 million was used for IGA projects in total, which is almost a two-fold increase in comparison with 2011 (Fig. 22). This positive trend is a result of increased scientific research and publication activities of the entire Faculty. In 2015, the IGA supported a total of 21 standard projects and one team project. These projects involved 45 PhD students and two postdocs. The quality of completed projects, especially of their outputs, has been increasing every year. It is evidenced by an increased number of outputs. In 2015, the outputs of IGA projects constituted a total of 58 publications that had already been published or accepted for publication in journals with an impact factor and 10 publications in journals included in the Scopus database. Students of doctoral study program-

mes compete for IGA projects every year. The whole competition is organised by the IGA committee in which all the departments of the Faculty are represented. Each proposal is evaluated by two reviewers. The evaluation result is a recommendation for funding or funding cuts or non-provision of funding. The success rate of student proposals averages 80–85%. In recent years, project researchers present interim reports during the project period, not only thus providing for both technical and financial performance of the project, but also ensuring the planned outputs. This guarantees an effective use of specific research resources.

In addition to support from the Faculty IGA, students of doctoral study programmes have an opportunity to receive a university-wide multi-annual grant from the University Grant Agency (CIGA). In recent years, the financial share of CIGA projects of FFWS PhD students amounted to less than 35% of the specific research contributed to CIGA by the Faculty. The total annual financial aid reached about CZK 1 million. In 2015, the FFWS obtained new projects that increased the volume of funds to CZK 3 million, which significantly changes the ratio of invested and granted funds.

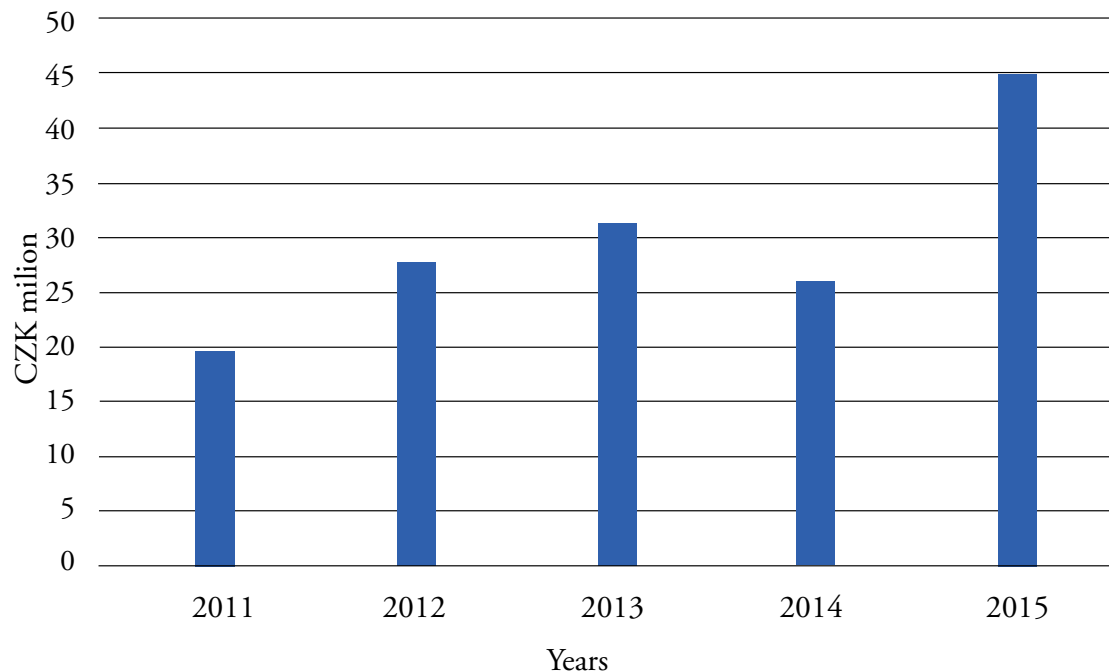
**Fig. 22:** Development of funds supporting IGA projects.

## Grants from domestic grant agencies

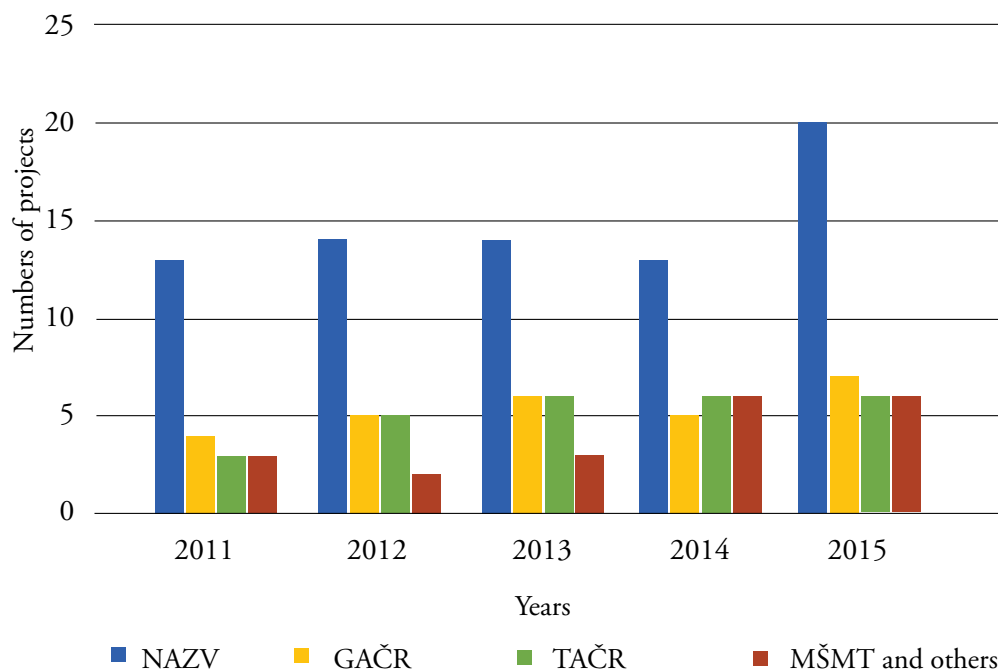
High-quality scientific activity cannot dispense with the aid of external projects. Each year, the Faculty bids for support from all domestic grant agencies that support research in the areas addressed by individual Faculty departments. For more than five years, the Faculty has been successful in acquiring new projects and increasing the amount of funds from these external sources every year. Nevertheless, in 2014, the volume of these sources decreased slightly as against the year 2013 (Fig. 23) mainly due to the fact that some grant agencies did not open calls for proposals in 2013. The Faculty gained only smaller projects, which in terms of financial volume did not compensate for the projects that were completed as at the end of 2013. In 2015, however, the volume of funds increased again to more than double the amount from 2011 (Fig. 23).

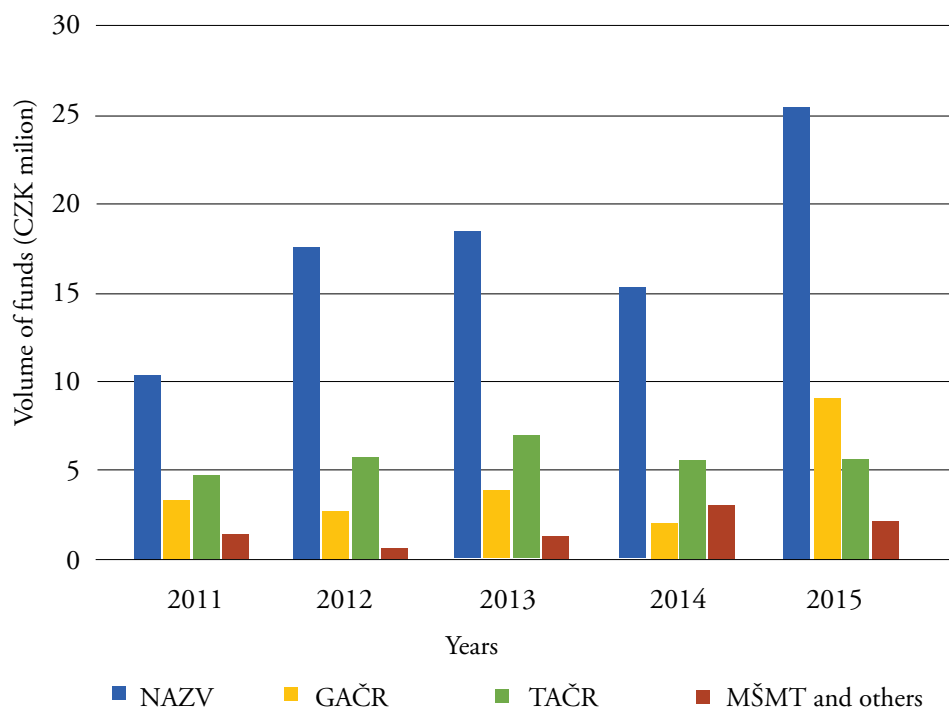
Overall, in 2015, the Faculty was working on 43 projects of which 20 were projects of the National Agency for Agricultural Research (NAZV), seven of the Grant Agency of the Czech Republic (GA CR), six of the Ministry of Education, Youth and Sports, and six of the Technology Agency of the Czech Republic (TA CR). The number of projects per year has significantly increased since 2011. In the long term most of the projects have been supported by the NAZV. The number of such projects has been relatively stable over the last five years. The trend in the number of projects acquired in the calls of the GA CR and TA CR is also positive (Fig. 24). Despite the positive situation in the total number of projects, the situation in this area is not entirely satisfactory on the long term scale. There are still departments without project coverage at the Faculty. The Faculty therefore supports research in these departments from its own resources.

**Fig. 23:** Development of funds acquired by FFWS for external scientific projects between 2011 and 2015.



**Fig. 24:** Number of projects as per grant providers between 2011 and 2015.



**Fig. 25:** Volume of funds in the projects as per grant providers between 2011 and 2015.

## External grants from abroad

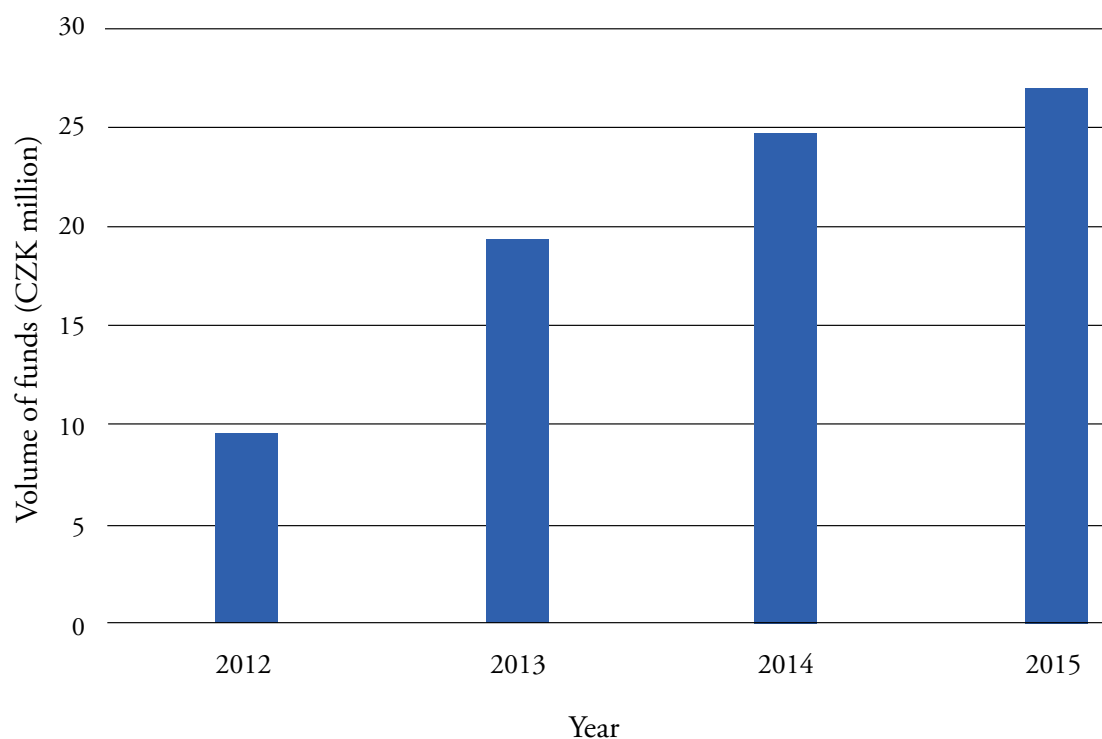
The participation of researchers in international projects is an integral part of enhancement of scientific activities at the Faculty. Objectively speaking, the Faculty has so far failed to acquire an international scientific project which would be coordinated by the Faculty. The staff members of the Faculty, however, participate in the preparation of project proposals as team members in an attempt to obtain a new high-quality scientific project. In 2015, the Faculty continued in the project of the 7th EU framework programme titled „Forest management strategies to enhance the mitigation potential of European forests“ (FORMIT). The Wageningen Universiteit from the Netherlands is the

project coordinator. Staff members from three departments (DFE, DFM and DFPE) participate in the project on behalf of the FFWS. In 2015, the Faculty was also involved in the project titled „Frameworks and possibilities of forest adaptation measures and strategies connected with Climate change“ supported in the framework of the EEA/Norway Financial Mechanism. Staff members from four departments (DFM, DFE, DFPE and DFWE) are engaged in the project on behalf of the FFWS. The EEA/Norway Financial Mechanism was also used for the project titled „Management Plan for Lynx, Wolf and Brown Bear“. DGMWB staff members are involved in this project on behalf of the FFWS.

## Institutional support

Since 2012, the resources from the institutional support for the Long-term Conceptual Development (DKR) provided by the Ministry of Education, Youth and Sports have been an indispensable source of support of science and research at the Faculty. For this period of three years, the amount of aid more than doubled (Fig. 26). As the amount of DKR aid is calculated on the basis of results in research, experimental development and innovations, there has been an increase in the number and quality of scientific outputs of the Faculty staff. Support resources are then used to support the scientific and research activities at the Faculty. It is namely support of human resources development of scientific teams and an incentive programme for the preparation of publication outputs. DKR resources are also used to modernise laboratories and instrumentation. In 2015, an amount of CZK 0.6 million was used for these purposes.

**Fig. 26:** Development of the funds volume in Long-term Conceptual Development (DKR) at the FFWS between 2012 and 2015.





### 4.3. Support for post-doctoral positions

One of the objectives of the long-term plan of development of the Faculty, which was successfully adhered to in 2015, was the support of post-doctoral positions. In 2015, three new postdocs from abroad (Iran, Nepal, Slovakia) assumed these positions. In 2015, five postdocs (three of them PhD graduates from the CULS) continued in the post-doctoral positions. The aim of these positions was to use their scientific and publishing potential. For this reason, postdocs were hired exclusively for a particular scientific project in the respective department.

Most of postdocs are involved in the preparation of project proposals. Thanks also to their contribution the Faculty has acquired three projects of GA CR, which directly involve five postdocs starting from 2015. Postdocs together

with staff members of Departments also participated in the preparation of publications. In 2014, postdocs were authors or co-authors of 10 scientific papers published in journals with an impact factor (e.g. Forest Ecology and Management, Vegetation History and Archaeobotany, Ecosystems) and two publications in journals in the Scopus database.

The introduction of post-doctoral positions has been clearly beneficial for the departments. It has assisted the scientific teams of the departments to gain new insights into the addressed issues and to improve the education of PhD students in these departments. A considerable imbalance in the occupation of post-doctoral positions in the individual departments still remains a negative issue.



## The most significant publication outputs of postdocs in 2015:

PRIMICIA, I. – CAMARERO, J. – JANDA, P. – ČADA, V. – MORRISSEY, R. – TROTSIUK, V. – BAČE, R. – TEODOSIU, M. – SVOBODA, M. Age, competition, disturbance and elevation effects on tree and stand growth response of primary *Picea abies* forest to climate. *Forest Ecology and Management*, 2015, Volume 2015, Issue 354, p. 77–86. ISSN: 0378-1127.

SEEDRE, M. – KOPÁČEK, J. – JANDA, P. – BAČE, R. – SVOBODA, M. Carbon pools in a montane old-growth Norway spruce ecosystem in Bohemian Forest: Effects of stand age and elevation. *Forest Ecology and Management*, 2015, Volume 2015, Issue 346, p. 106–113. ISSN: 0378-1127.

MIKOLÁŠ, M. – SVITOK, M. – TEJKAL, M. – LEITÄO, P. – MORRISSEY, R. – SVOBODA, M. – SEEDRE, M. – FONTAINE, P. Evaluating forest management intensity on an umbrella species: *Capercaillie* persistence in central Europe. *Forest Ecology and Management*, 2015, Volume 2015, Issue 354, p. 26–34. ISSN: 0378-1127.

CLEAR, J. – SEPPÄ, H. – KUOSMANEN, N. – BRADSHAW, R. Holocene stand-scale vegetation dynamics and fire history of an old-growth spruce forest in southern Finland. *Vegetation history and Archaeobotany*, 2015, Volume 24, Issue 6, p. 731–741. ISSN: 0939-6314.

BAČE, R. – SVOBODA, M. – JANDA, P. – MORRISSEY, R. – WILD, J. – CLEAR, J. – ČADA, V. – DONATO, D. Legacy of Pre-Disturbance Spatial Pattern Determines Early Structural Diversity following Severe Disturbance in Montane Spruce Forests. *PLoS One*, 2015, Volume 10, Issue 9, p. 1–18. ISSN: 1932-6203.







INTERNATIONALISATION

## 5. Internationalisation

In 2015, the FFWS' activities in the sphere of international relations focused on achieving the updated „Development Strategy of the FFWS in the Field of Internationalisation for 2015“. In this framework the activities in the area of internationalisation focused on three main sections in consistency with the present efforts of the Faculty leading to improvement of the study and teaching, communication with foreign institutions, publications, and research activities, both through the increased involvement of the Faculty in the Erasmus+ programme supporting the mobility of staff and students, and the involvement of the Faculty, staff and students in international professional institutions and organisations and, last but not least, the improvement of mobility of students and academic staff in the framework of other bilateral international projects, agreements and programmes.

### 5.1 Activity of the FFWS in international bodies and organisations

#### 5.1.1 Activity of the FFWS in international institutions

In 2015, as an institution the FFWS continued in its active involvement in the European Forest Institute (EFI), Joensuu, Finland. The Institute is the most important European forestry research organisation, also with a significant outreach outside of Europe in the recent years, which develops important activities also in the field of teaching and education. Academic staff from the Faculty participates in important meetings organised or co-organised by the EFI on the regular basis. In the framework of the EFI, the FFWS also participated in the activities of the EFI Regional Office for Central and Eastern Europe (RO EFI CEEC) in Vienna as one of the core members under a long-term agreement between the CULS and EFI.

The FFWS is also a valid active member of the most important global forestry research organisation – International Union of Forest Research Organisations (IUFRO) – in whose structure many FFWS staff members hold various positions. The position of the FFWS was reinforced in 2015 when Prof. Šišák became the representative of the Czech Republic in the IUFRO International Council. Members of the Faculty participate and directly get involved in organising various activities of the IUFRO, especially conferences, seminars, symposia and workshops in the framework of their specialist research and working groups in individual divisions.

The FFWS is also involved in the activities of the Interuniversity Consortium for Agricultu-

ral and Related Sciences in Europe (ICA) – in particular in the framework of the SILVA Network, and is also active in a major European organisation bringing together representatives of forestry faculties of universities in Europe – Conference of Deans and Directors of European Forestry Faculties and Schools (CONFEST).

In addition to the above, the FFWS student organisation is a member of the highly prestigious international organisation of forestry students – International Forestry Students' Association (IFSA) – in whose activities it is actively involved. The Faculty supports the activity of students in this organisation financially as well.



## 5.1.2 Activity of the FFWS in international bodies and organisations

In 2015, many FFWS staff members worked actively in various international bodies, organisations and institutions, many of them simultaneously in several ones as members, but a number of them also in a variety of organisational and managerial functions. A total of 13 staff members of the FFWS held 10 various organisational and managerial positions in the most prestigious international forestry organisations, IUFRO and EFI. The staff members were actively engaged in various international organisations and working groups, including the COST projects (European Cooperation in Science and Technology). 27 staff members of the FFWS were engaged in the total of 36 organisations based on their specialisation. Besides the above said, 16 staff members held 27 positions in the editorial boards of international scientific journals. A nominal overview of the FFWS staff members' significant organisational management functions in international organisations and institutions in 2015 is given below.

### **Staff with organisational and managerial functions in the IUFRO in 2015:**

Prof. Ing. Ivo Kupka, CSc.: Deputy Coordinator of the IUFRO Subunit 4.01.02 Growth models for tree and stand simulation

Prof. Ing. Milan Lstibůrek, MSc, Ph.D.: Coordinator of the IUFRO Subunit 2.04.02 Breeding theory and progeny testing

doc. Ing. Robert Marušák, PhD.: Coordinator of the IUFRO Unit 4.04.00 Forest management planning

Prof. Ing. Miroslav Svoboda, Ph.D.: Deputy Coordinator of the IUFRO Subunit 8.01.01 Old growth forests and forest reserves

Prof. Ing. Luděk Šišák, CSc.:

- the representative of the Czech Republic in the IUFRO International Council;
- Deputy Coordinator of the IUFRO Unit 4.05.00 Managerial economics and accounting

**Staff members representing the FFWS in EFI and other major international forestry organisations in 2015:**

doc. Ing. Vilém Jarský, Ph.D.: representative of the FFWS in the EFI RO CEEC

Prof. Ing. Vilém Podrázský, CSc.: Chairmant of the UEAA – Union of European Academies related to Agriculture

doc. Ing. Jiří Remeš, Ph.D.: representative of the FFWS CULS in the Silva Network

doc. Ing. Ivana Tomášková, Ph.D.: representative of the FFWS in the EFI RO CEEC.

Prof. Ing. Marek Turčáni, Ph.D.:

- representative of the FFWS CULS in CONFEST – the Conference of Deans and Directors of European Forestry Faculties and Schools

- representative of the FFWS in the EFI, Joensuu, Finland

Compared to the previous period, in 2015, the activity and the representation of the FFWS in the excellent European organisation of seven universities, including the CULS in Prague – Euroleague for Life Sciences Universities (ELLS) – dealing with science and education in the field of life sciences increased substantially. The FFWS was represented in the working groups of the ELLS (Subject Areas) by:

doc. Ing. Miroslav Hájek, Ph.D.: Bioeconomy working group

Prof. Ing. Jaroslav Holuša, Ph.D.: Insect Ecology working group

Prof. Ing. Milan Lstibůrek, MSc, PhD.: Molecular Breeding and Plant Biotechnology working group

Prof. Ing. Vilém Podrázský, CSc., doc. Ing. Jiří Remeš, Ph.D.: Forestry working group

**Staff members with organisational and managerial positions in the editorial boards of international scientific journals:**

doc. PaedDr. Jan Farkač, CSc.: Editor-in-Chief of the Studies and Reports, Taxonomical Series

Prof. Ing. Jaroslav Holuša, Ph.D.: Executive Editor of the Lesnícky časopis – Forest Journal

Prof. Ing. Jaroslav Holuša, Ph.D.: Associate Editor of the European Journal of Entomology

### 5.1.3 The most significant foreign partners

The most significant foreign partners with which an intensive cooperation was implemented on the basis of long-term bilateral agreements included: University of Life Sciences Warsaw, Swedish University of Agricultural Sciences in Uppsala, Technical University in Zvolen, University of Joensuu, Polytechnic University of Madrid, University of Natural Resources and Life Sciences Vienna, University of Alberta, University of Vancouver, Laval University Quebec.

In 2015, intensive cooperation continued also with other universities both in the EU and outside the EU – e.g. with universities of

the Russian Federation (the Saint Petersburg State Forest Technical Academy, the Moscow State Forest University, and last but not least with the Volga State University of Technology, Faculty of Forestry Industry in the framework of the so-called Double Degree Programme / Mari El Republic/. The FFWS also continued cooperating with universities in Kazakhstan (in particular with the Kazakh National Agricultural University in Almaty and S. Seifullin Kazakh Agro Technical University in Astana).

## 5.2 Involvement of the FFWS in international educational programmes, incl. mobility programmes

### 5.2.1 Erasmus+ programme

It is namely the ERASMUS+ programme, launched for the EU programming period of 2014–2020 in the winter term of the academic year 2014/2015, which holds a significant position in the area of internationalisation of education at the FFWS. The FFWS prepared and concluded, or updated a number of bilateral agreements with foreign institutions, whose number amounted to 53. In 2015, all the requirements of students and teachers on trips were satisfied and conditions were created for an increased use of mobility options, especially of our students going abroad in 2016 and subsequent years, which is reflected in a significant increase in the number of FFWS students selected at the end of 2015 in the selection procedure for trips to foreign universities under the Erasmus+ programme for the academic year 2016/2017, i.e. 36 in total, which means a substantial rise in the planned number of students going abroad as against the existing situation. Students have internship options both in foreign and domestic institutions, which plays an important positive role in mobility.



Development in the area of contracts and mobility of students and teachers is captured in the following charts. Both domestic and foreign mobility of students has been supported by a number of incentive measures. In order to enhance the quality of our students and facilitate their trips in 2015, the Faculty further expanded and improved special professional English courses for both students and staff members, commenced already in 2014. In 2015, we organised:

- two English courses for students of Bachelor's degree and Master's degree study programmes at B1/B2 level
- one course for PhD students at C1/C2 level.

The Faculty also had three courses for staff members: one A1/A2 level course, one B1/B2 level course and one C1/C2 level course.

The above courses have significantly proven useful and have been very positively received by students and staff members, and will thus continue in the upcoming period as well.

Last year, internship of students under the Erasmus+ programme, for which space was created in almost all parts of the Faculty, was developed to a greater extent. Internship was reflected in the significantly increased number of incoming students already in the past year as well as in the number of scheduled trips of students, in particular, in the next academic year 2016/2017. Data on student mobility under the Erasmus+ programmes (Erasmus LLP in the academic year 2014/2015 and, subsequently, Erasmus+ starting from 2015/2016) are provided in the following charts.



**Chart 11:** Bilateral contracts made under the Erasmus programmes in the last five academic years

	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017
Number of contracts	43	49	47	50	53
Number of universities	39	44	47	48	53
Number of countries	19	21	20	21	22

**Chart 12:** Participation of students (outgoing) in Erasmus programmes in the last five academic years (including the internships)

	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016*
Students outgoing through FFWS	16	30	27	20	17
Number of months	96	208,5	213,5	113	93
Students from FFWS	10	17	15	18	15
Number of months	59	106	117	127	78

**Chart 13:** Incoming students in Erasmus programmes in the last five academic years

	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016*
Incoming students	29	27	39	46	67
Number of months	225	174	258	309	331

The mobility of academic staff under Erasmus+ is also very important. The number of trips of academic staff over the past five academic years and the number of days spent abroad fluctuated quite markedly between individual years, depending on professional and financial opportunities. We may say that it is close to the optimum limit now given the gradually rising demands on the work activity within this type of mobility. On the other hand, the number of people incoming in the given period raised significantly, both in terms of mobility and the number of days, and probably reaches the ceiling of technical and organisational capabilities of the Faculty (see the chart below).

**Chart 14:** Mobility of staff members under the Erasmus programme in the last five academic years

	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016*
Staff members outgoing	20	20	17	19	30
Number of days	423	263	148	323	353
Staff members incoming	13	16	25	38	23
Number of days	98	119	185	252	126

## 5.2.2 Mobility organised in 2015 under projects and agreements outside the Erasmus+ long-term programme

In case of the said mobility, it is, in particular, the matter of organising and implementing short-term courses, seminars, workshops and conferences funded from various sources. In that context, the following activities have been implemented.

The EU-Canada Programme for Co-operation in Higher Education, Training and Youth – the Transatlantic Exchange Partnerships (TEP) – the European-Canadian programme continued even after the expiration of the period of financing from the EU and Canada also in 2015 on the basis of the agreement between the participating universities (the University of Alberta, the University of Vancouver, the Laval University Quebec, the University of Brasov and the Georg-August University Gottingen) with own funding provided by the said universities. In this framework, two students from the Laval University in Quebec City, Canada came for a study stay for one term.

The short-term course Silviculture in Central Europe – in cooperation with the Faculty of Forestry of the Warsaw University of Life Sciences, in the period of May–June, was attended by 97 students from Poland at the FFWS and 40 students from the FFWS at the FF in Warsaw, and a total of four teachers from the FFWS and seven teachers from the

FF in Warsaw. The course focused on the silviculture in the conditions of Central Europe.

Game management and forestry summer school in Irkutsk – in cooperation with the Irkutsk State Academy of Agriculture, dealing with scientific research and educational activities, in July, the duration of 14 days, the participation of eight students from the FFWS, two teachers from the FFWS, and three teachers from the University in Irkutsk. The course focused on the vertebrate zoology, botany and dendrology, game management, forestry and fishing.



Summer school of forestry zoology in the Czech Republic – was organised in cooperation with the University of Duisburg-Essen in June and September, attended by 60 students from the University of Duisburg-Essen at the FFWS. The course focused on the vertebrate zoology with an emphasis on game and forest ecosystems.

Short-term course on the concept of forestry in the Czech Republic taking the example of forests and forestry in Northern Bohemia – in cooperation with the University in Poznan, the Krkonoše Mountains National Park and Lesy České republiky, s.p., in June, attended by 15 students from Poland, one teacher from Poland, two teachers from the FFWS. The course focused on the state of forests in the Czech Republic, the structure and the concept of forestry in the Czech Republic, and the characteristics of the national forests in the Czech Republic.

In 2015, a total of eight arrivals of foreign experts and one student, two trips abroad of FFWS staff members and one student took place under the CEEPUS programme. The contacts with universities in Krakow, BOKU Vienna, Koszalin and Zvolen are especially active.

In 2015, the international mobility of students supported by the Institutional Plan (IP) also played a very important role in the

process of internationalisation of education, science and research. IP resources have contributed significantly to the development of internationalisation as well as to higher quantity and quality of students' mobility. IP resources were used to support short-term trips, i.e. short courses and field trips of FFWS students to Warsaw and Irkutsk and short-term stays and field trips of students from the Faculty of Forestry in Warsaw, from universities in Essen and Poznan.

Student activities:

An active involvement of FFWS students in international activities, both in the activities of ELLS (Euroleague for Life Sciences) and IFSA (International Forestry Students' Association) is much needed. In addition to that, a representative of the student organisation participated in the first international conference of students of forestry faculties in Serbia organised under the auspices of IFSA, attended by students from universities from Italy, Germany, Turkey, the Czech Republic and Serbia.

### 5.2.3 the Mobility of academic staff outside the Erasmus+ programmes

#### Incoming foreign staff in 2015

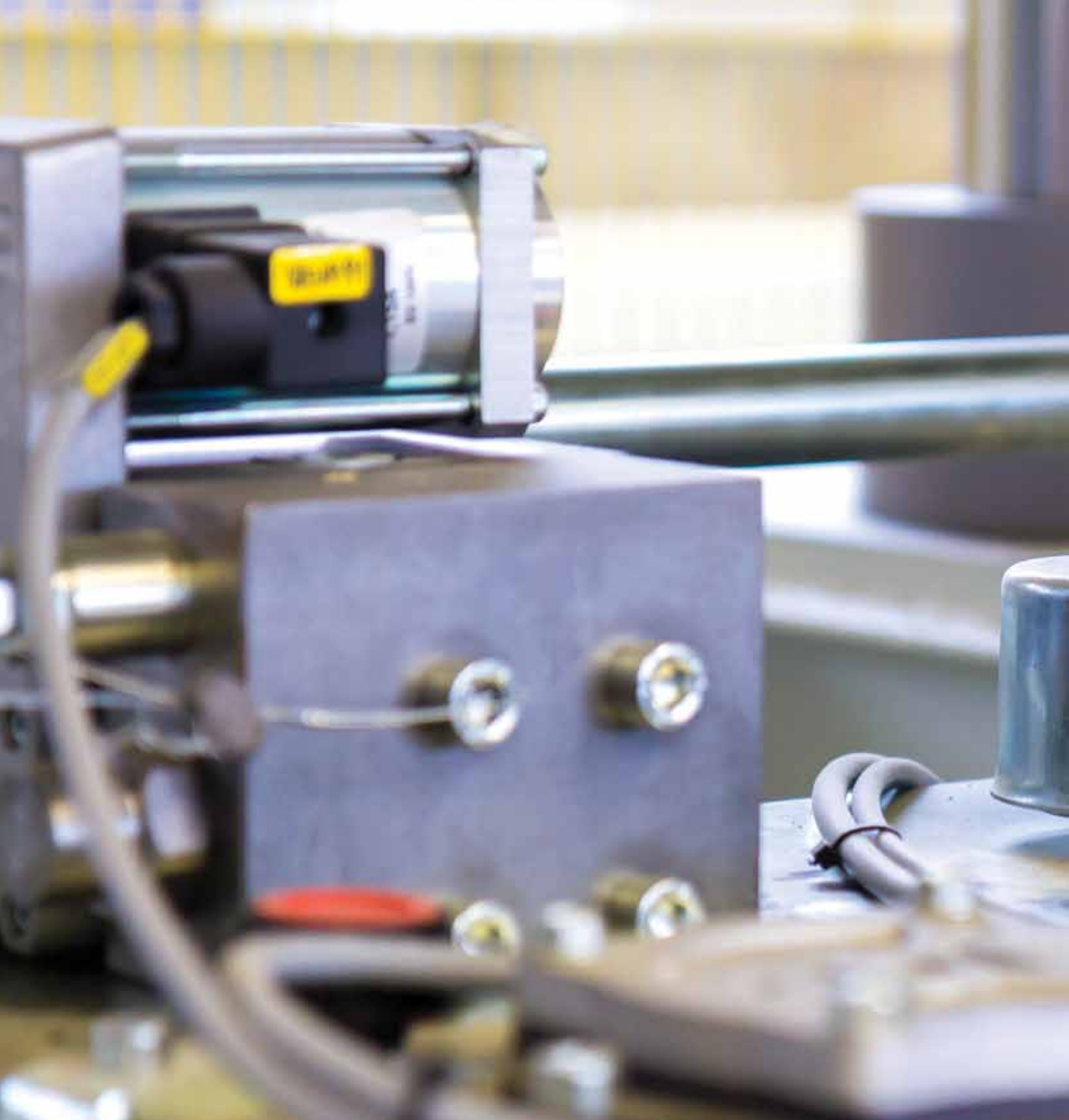
In the calendar year 2015, the FFWS hosted a total of 59 staff members from 14 countries. Most visitors came from Slovakia, Turkey, Spain, the USA, Norway and Poland, Portugal, Sweden, Canada, Italy, Hungary, Great Britain, Germany and Russia. The main purpose of these visits was a cooperation in organising of various types of events (preparation of joint projects, workshops, seminars, conferences, publications, field trips, summer schools and short courses, bilateral agreements, etc.), followed equally by research and teaching.

#### Outgoing domestic staff in 2015

In 2015, overall, 193 trips of staff members to 33 countries, including the Erasmus programme were implemented. Most of the staff went to Slovakia. Outside the Erasmus programme (21 trips of staff in a given calendar year) 172 staff members travelled abroad mainly for the following reasons: business affairs and cooperation, participation in conferences and seminars, and solution of international projects (see the following chart).

**Chart 15:** Staff members outgoing outside ERASMUS+ programme in 2015

Activity	Number
<b>Total short-term trips (up to one month) of staff members outside Erasmus+ programme</b>	172
<b>Out of which: - work on projects</b>	76
- Participation in conferences, seminars, workshops	71
- organizational matters, cooperation	21
- Teaching and lecturing	4



## INVESTMENT ACTIVITIES OF THE FFWS

## 6. Investment activities of the FFWS

In the previous period (2003–2011), the FFWS did not invest in investment development nearly at all. It resulted in a huge debt in the technological equipment, which was partially reduced in 2016 by building and equipping the Pavilion of Wood Sciences and Technologies (PWST) of the FFWS.

The PWST is a result of the project under the Operational Programme Research and Development for Innovations which the FFWS acquired in April 2014. The building process commenced by tapping on the foundation stone on 16 April 2015. The Pavilion was approved for use on 26 November 2015 (with

legal force as of 7 December 2015), and by the end of 2015, the building was fully furnished and equipped. In the construction part of the project CZK 160 million was invested, while the value of the equipment and instrumentation installed in PWST amounted to CZK 86 million. The grand opening was held on 28 January 2016.

The FFWS has lacked investments in improving the space for teaching and research for a long time. Having built the PWST, the Faculty has acquired a technology platform focused on practical training in all FFWS branches of study, but primarily in the Wood Technology and Business in the Wood Processing and Furniture Industry Bachelor's branches of study and in the Wood Engineering Master's branch



of study. PWST facility and instrumentation will also contribute significantly to the development of research activities and improvement of the quality of doctoral studies at the FFWS. The PWST will enable us to more develop cooperation with the forestry and wood technology operations, the development of new materials and technologies and their introduction into the forestry and wood technology operations in order to support an increasing use of wood as a renewable natural resource in the Czech Republic.

From the organisational point of view, most of the PWST is administered by the Dean's Office. Laboratories involved in the practical teaching of the Wood Technology branches of study have been integrated into one centre. Each laboratory has its own guarantor now. Overall, there are 12 laboratories (centres) in the PWST.

### **Nanospider Centre**

This centre has been supplied with the Nanospider NS 1WS500U technology with peripheral equipment. It is a laboratory device for developing various types of nanoparticles, nanofibres and nanofibre layers of organic solutions based on derivatives of cellulose, biopolymers and inorganic polymers. The centre, in cooperation with commercial entities, focuses on the research and development of coating materials, adhesives, wood-based composite materials, cellulose-based medical and sanitary materials, membranes and other



materials with the potential of their modification with nanofibrous structures. The centre enables students to obtain comprehensive skills and knowledge in the area of solution preparation, spinning processes, analytical procedures for the determination of the characteristics and quality of the produced nanostructures and the options of their application in final products.

### **Laboratory of Wood Sciences**

The laboratory instrumentation covers most of the issues that are addressed in the evaluation of wood structure and properties. The key laboratory instruments are the DuraVision-30 table-top hardness tester and the Tira 2850 universal testing machine. The hardness tester allows for evaluating of the hardness of wood





or other wood-based materials. The laboratory is also equipped with a microtome and other necessary devices and pieces of equipment for the evaluation of wood properties. The laboratory will focus on research in the area of wood structure at the macroscopic and, in particular, microscopic level. The scientific and research potential of the laboratory rests with the opportunity to evaluate the links between the wood structure and properties, in particular, with regards to the suitable use of wood and methods of choice of the optimum technological process of processing. It is also used to identify unknown wood samples. The laboratory will enable students to acquire theoretical knowledge about wood structure and practical experience with sample preparation and wood identification.

### **Laboratory of Wood Processing**

The Laboratory of Wood Processing consists of several sites that complement each other, forming thus a single technological unit. Log breakdown, sawn timber storage and its natural and artificial drying takes place in the indoor area called the lumber yard. Machining of solid wood and wood-based materials is carried out in the joiner's workshop, which is equipped with basic machinery, veneering and pressing machines and, last but not least, the CNC technology. Manual processing is done in the handmade wood workshop with the aid of laser technology. The surface finishing is made in the paint shop, equipped with a suction wall. This site is designed to provide the material base for research activities of all departments of the Faculty and other institutions of the CULS. Students use this laboratory in their technical courses.

### **Laboratory of Surface Treatment of Wood**

The Laboratory of Surface Treatment of Wood is equipped with a range of modern appliances. One of them is a confocal laser scanning microscope, which allows for accurate measuring of the material surface roughness. In terms of paints, it allows for displaying and detecting of damage to surface layers caused by weather or other loading. The Laboratory of Surface Treatment of Wood enables students to carry out tests of natural aging of the paint on wood in outdoor conditions and accelerated artificial aging in UV-chambers. This Laboratory has been fitted with Xenotest for these analyses. In the Laboratory, there are also instruments for the determination of the angle of wetting of surfaces of solid bodies with liquids, the determination of surface tension of liquids and solid bodies, devices for semi- and non-destructive testing of damage to wood (or trunks) by rotting, cracks and wood-damaging insects. The Laboratory equipment enables students to deepen their knowledge in the field of wood technology, namely paints, testing of the quality of paints not only on wood, but also on other materials, adhesives, damage detection in the area of wood protection with the use of state-of-the-art measuring technology.

### **Laboratory of Wood Machining and Woodworking Machinery**

The Laboratory of Wood Machining and Woodworking Machinery is designed for ma-

chining of wood and for woodworking machinery. The site, in cooperation with commercial entities, focuses on research and development in the area of determining the optimum engineering and technical parameters of machining of wood and other materials. The laboratory is also used for the detection and assessment of risk factors in the working environment as well as for the industrial building thermography. The Laboratory is used for educational purposes to demonstrate the influence of changes in mechanical parameters on energy intensity, the quality of treatment and other important parameters, which have a significant impact on the quantity of production and its economy.

### **Image Analysis Laboratory**

Research and diagnostics of cells and tissues in the area of pathology, anatomy and cytology, using the modern ECLIPSE Ci-L microscope, is the main focus of the Image Analysis Laboratory. The Laboratory focuses on research of the wood anatomy, the identification and quantification of continuous and discontinuous characteristics of anatomic structures of wood, and the potential of individual assessed features as indicators of stress. The Laboratory will contribute to enhancement of the courses dealing with the wood sciences and wood anatomy.

### **Laboratory of Wooden Products**

The Laboratory of Wooden Products consi-

sts of several partial, interconnected sites. It is comprehensively equipped with technology for the production of test samples made of wood, various types of wood-based materials, furniture, construction and joinery products as well as small wooden buildings and their subsequent physical, mechanical and chemical analysis. There is a glue mixer and spreader, various types of presses and a universal testing machine for mechanical tests in the Laboratory. Furthermore, there is a quantity of instruments for the analysis of physical properties and devices for chemical analyses. The Laboratory has a multitude of mobile devices for assessment of the condition of wood and wooden products directly in the field. The Laboratory is intended for the extension of the practical part of teaching of students of Bachelor's, Master's and doctoral branches of study at the FFWS. The equipment of the Laboratory extends the options of cooperation with professional public in the form of elaboration of expert opinions in the framework of expert activities, but also in the preparation of expert opinions and observations, providing of analyses and on-demand consultations to manufacturing companies.

### **Laboratory of Optical Technology**

The dominant feature of the Laboratory of Optical Technology is the NIRSTM DS2500 spectrometer, which is used primarily for identification and structure characterisation of organic and inorganic substances. The spectro-

meter allows for the performance of the qualitative and quantitative analysis of a wide range of organic substances with only minimal costs. Due to the fact that the device is able to analyse a vast amount of samples in a very short period of time, it is, for example, used to determine the food quality indicators (e.g. nitrogen, pulp fractions) in the diet of game and to evaluate the spatiotemporal variability of these indicators. Besides the research activities, the spectrometer is used in the processing of the material under study in the Bachelor's theses, diploma theses and dissertations of students.

### **Laboratory of Remote Sensing and 3D Modelling**

The Laboratory of Remote Sensing and 3D Modelling of forests focuses primarily on obtaining the spatial data using unmanned air vehicles (UAVs) and ground-based measuring instruments and the subsequent creation of 3D models of trees and forests. It is equipped with several UAVs capable of carrying optical and other apparatuses such as laser scanners. The apparatuses are used mainly in research focused on the collection of spatial data, both in the field (e.g. forest stands), and in the laboratory (e.g. morphological models of branches and roots). Laboratory equipment is used to gain skills in controlling the devices, knowledge and capabilities needed to create 3D models that are used to understand the process of growth of trees and crops. Students gain much experien-

ce that may be very beneficial when applied to science in the Czech Republic and in other foreign scientific institutions.

### **Dendrochronological Laboratory**

The Dendrochronological Laboratory is equipped with instruments and aids for the collection, preparation and processing of samples for the analysis of tree rings, mainly the analysis of wood density and increment. The Laboratory is also equipped with the QTRS-01X Dendroscanner, which uses X-rays and allows for evaluation of the changes in the density and quality of wood over time in various environmental conditions, under various management methods, etc. The Laboratory is used both for the projects of basic research and for analysis of forest stands directly applicable in practice as well as for the teaching of students focusing on the analysis of tree rings.

### **Laboratory of Ecology of Termites**

The laboratory is focused on the research of termites as the globally most important group of wood-damaging insects. Mainly two breeding rooms with controlled temperature, designed for long-term breeding of model species of termites and equipped with a technology for recording of behavioural experiments, are used for this research. The laboratory equipment allows for combination of various methodological approaches, such as structural (optical, fluorescence, electron microscopy), behavioural (observation of the defence mechanisms of termites) and molecular ecological, with the aim of understanding the ecological performance of termites in nature as well as understanding of the destructive potential of certain species. This new Laboratory will contribute greatly to the study of evolution and phylogenesis of termites, but also to the study of the mechanisms of communication and the defence strategies of termites. Teaching at all levels is also an integral part of the activities of the Laboratory.

### **Genetic Laboratory**

Besides the technically-oriented laboratories, the PWST also includes the Genetic Laboratory. Ample instrumentation of the new Laboratory significantly expanded the range of molecular methods which may be implemented at the FFWS. The existing genetic lab shared by the faculties made it only possible to isolate and analyse DNA, i.e. the proper genetic information. It is now, however, possible to study all the three information macromolecules (DNA, RNA, and proteins) that allow for describing also the processes taking place in expressing the genetic essence of an organism – that means the complete gene expression path. The new laboratory is used for the training of students as well in the form of practical exercise seminars in all the subjects based mainly on genetics.





FINANCIAL AND PERSONNEL MANAGEMENT

## 7. Financial and personnel management at the FFWS

### 7.1 Financial management

In total, the FFWS obtained the sum of CZK 95,873,602 into its budget for 2015 within the frameworks of subsidies per student, the institutional support for the Long-term Conceptual Development (DKR), and specific research.

Throughout 2015 the rules for handling the provided funds in accordance with Act No. 218/2000 Coll., on Budgetary Rules, as amended, were consistently and strictly kept in the area of financial management of the FFWS CULS in Prague. The Faculty as a whole kept the budget as planned.

The Faculty managed to have a budget sur-

plus in its main operation – i.e. the operational funds – totalling CZK 6,505,511.86. The said sum was transferred to the Operational fund as at 31 December 2015. The DKR support was increased by CZK 973,282.85 for 2016.

#### Faculty funds

The scholarship fund is created from the tuition fees. Likewise in the previous years, in 2015, the scholarships were awarded in accordance with the Scholarship Rules of the CULS. The development of the fund between 2010 and 2015 is illustrated with the chart in Fig. 27 below..

**Fig. 27:** Scholarship fund development between 2010 and 2015



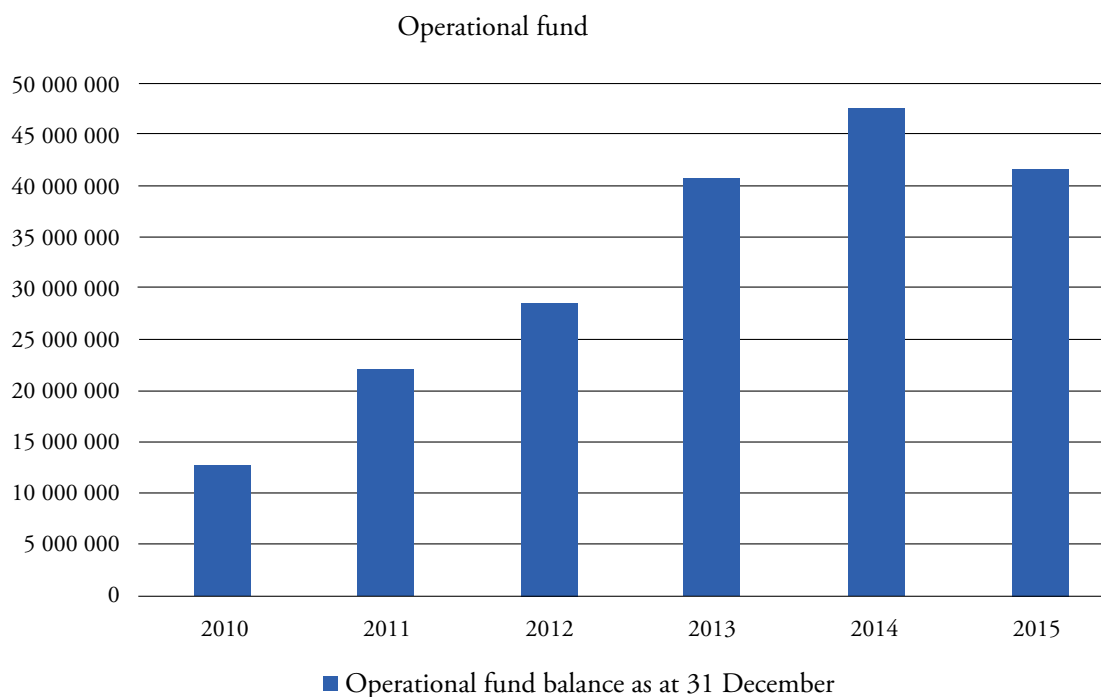
The Reward fund constitutes of transfers of funds from the Operational fund and it is used to cover the salary compensations (leaves, sick leaves) related to already completed projects, see Chart 16.)

From the FRIM fund of capital goods development there were funds drawn for the partnerships in various projects in total of CZK 3 million (exchange of the FRIM fund for own income of KaM CULS – residence and dining halls) and CZK 6.6 million as a direct grant into the FRIM fund for the purpose of acquiring the tangible fixed assets. The FRIM fund was further used in 2015 in order to cover the non-eligible expenditures within the FFWS Pavilion of Wood Sciences and Technologies project.

### Operational funds

The Fund comprises of the balance transfers from the educational activities grant, that is, the balance in the main operation. This fund primarily serves for accumulation of funds designated for further use in the operational and investment development of the Faculty (see Fig. 28).

**Fig. 28:** Operational fund development between 2010 and 2015





The development and condition of the funds, as shown in Chart 16, is continually positive. The cut in the FPP operational funds was caused by financing of the non-eligible expenditures for the FFWS Pavilion of Wood Sciences and Technologies project. The total financial reserve of the Faculty as at 31 December 2015 totalled CZK 45,010,610.32 (FRIM fund + FPP operational fund).

**Chart 16:**

	Scholarship Fund	Bonus Fund	Asset Development Fund	Operating Fund
<b>Balance as at 1. 1. 2015</b>	3 063 873	6 778	62 468	47 525 677
<b>Formation of the fund</b>	4 800 173	249 637	9 738 792	6 941 190
<b>Drawing Fund</b>	4 798 453	199 265	6 304 349	13 010 317
<b>Balance as at 31. 12. 2015</b>	3 065 593	57 150	3 496 911	41 456 549

In 2015, also the funds from investment institutional support in total amount of CZK 601,189.54 were used in acquiring the tangible fixed assets. In total, the balance in the funds of the Faculty (remunerations, FRIM, FPP) decreased in 2015 by CZK 2,584,313.

## 7.2 FFWS organisational structure

At the FFWS constant attention is given by its management to the personnel section. In 2015, the pursuit of the strategic objectives in accordance with the long-term targets of both, the FFWS as well as the CULS, in the area of enhancement of professional skills and qualifications through the habilitation and professorial proceedings compliant with the new regulations of the Faculty which came into effect in October 2014. In 2015, five procedures for the appointment of associate professors (out

of which two associate professors still have to be appointed in 2016), and one procedure for the appointment of a new professor took place at the FFWS (the appointment itself will be performed in 2016).

In comparison with 2015, there has been an increase in the ratio of the number of professors by one full-time contract, the number of associate professors was lowered by one full-time contract, and the number of senior assistants and assistants was cut down by 0.2 of

FTE. The ratio of contracted jobs in the research personnel was lowered by 1 full-time contract down, and in the techno-economic department there has been a decrease by 2.794 of FTE.

The structure of the Faculty in terms of qualifications, expressed by the ratio of the number of professors to the number of associate professors and to the number of senior assistants in 2015 was 16.3% : 24.6% : 59.1%, and is heading towards reaching the objective of 45% share of professorial and associate professorial positions in the overall academic staff numbers. The staff affiliation to the FFWS is documented by their employment loads. Our Faculty has 74% of contracts with workload higher than 0.7, which signifies that for  $\frac{3}{4}$  of the current employees the FFWS is their primary employer.

The share of the FFWS foreign employee numbers remains stable with 12 foreign nationals out of the total of 81 academic staff members. Employing specialist from abroad, especially in case of outstanding experts, is in full harmony with an increase in quality trends in education and research as well as it is in connection with the increasing numbers of foreign students.

The systematic continuous studying, including participation in the educational programmes held by the CULS, forms also an integral part of the academic staff work tasks. The FFWS employees took part in the Technology Transfer, Submission of Projects to OP RDE, and Reporting on Sustainability of OP RDI Projects training sessions.

**Chart 17:** Development in the number of academic staff members of the FFWS and their age structure in the last five years.

Category	FFWS (total)									
	to 31. 12. 2011		to 31. 12. 2012		to 31. 12. 2013		to 31. 12. 2014		to 31. 12. 2015	
	number	average age	number	average age	number	average age	number	average age	number	average age
<b>Professors</b>	10	60	10	61	12	61	12	61	13	58
<b>Associate Professors</b>	20	49	22	49	21	46	19	48	18	49,5
<b>Senior Assistant + Scientists</b>	43	39	67	41	78	41	75	39	51	37

**Chart 18:** Development in the number of the FFWS staff members in the last five years – ratios

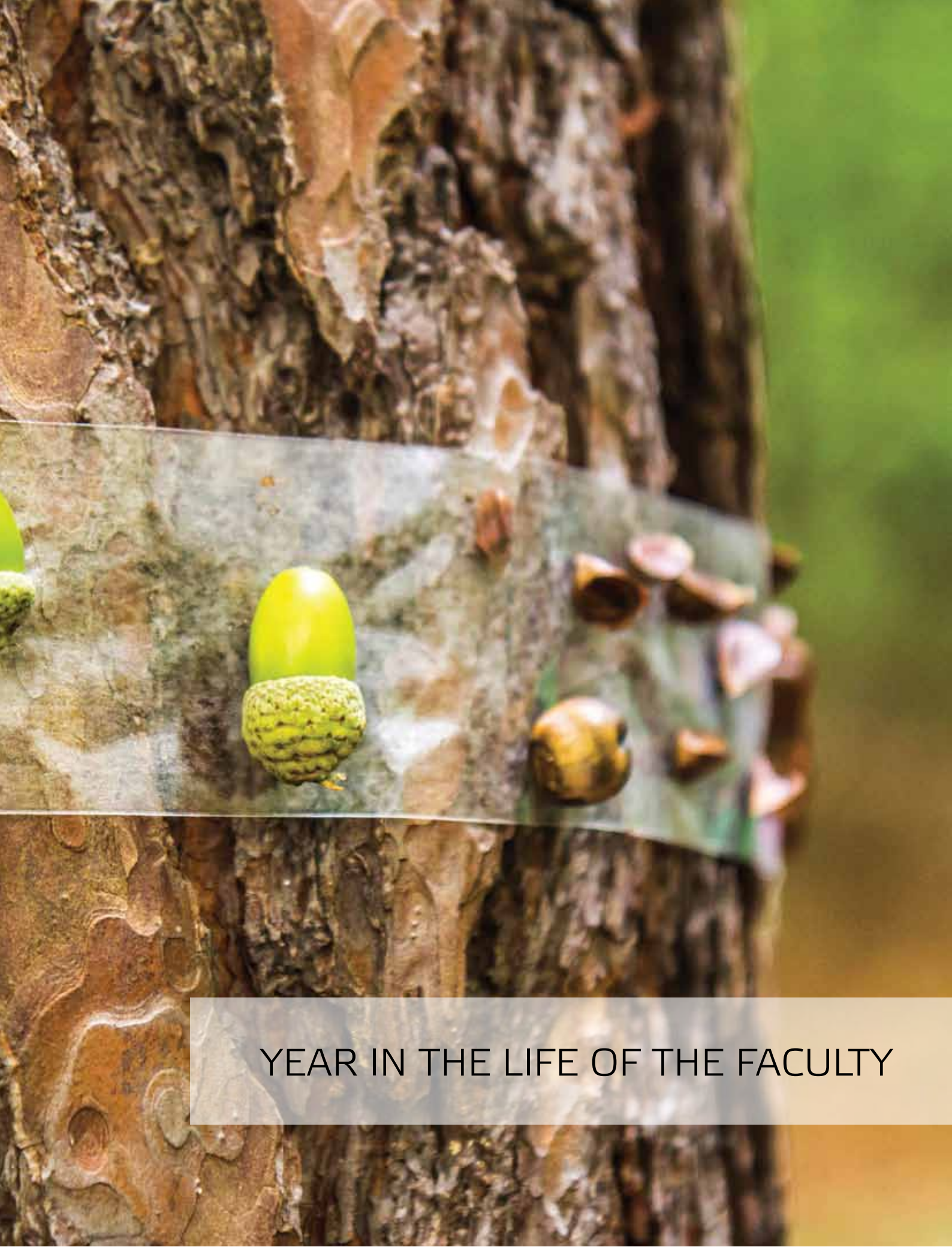
Year	Professors	Associated professors	Senior Assistant	Assistent	Scientists	THP*	Prov. zam.	Total
2011	9,5	19,6	33,1	0	6,4	21,76	4	94,36
2012	8,7	20,6	30,4	0	16,7	28,16	3	107,56
2013	10,8	19,45	37,1	1,6	20,75	28,71	3	121,41
2014	10,5	18,35	41,9	1,2	20,75	31,6	2,94	127,24
2015	11,5	17,35	41,7	1,2	19,75	28,806	3	123,306

\*THP – techno-economic department staff members (part of these staff members participate in direct R&D support not only through data collection but also by their own publishing activities)

**Chart 19:** Development in the number of the FFWS staff members in the last five years – registered records.

Year	Professors	Associated professors	Senior Assistant	Assistent	Scientists	THP*	Prov. zam.	Total
2011	10	20	42		7	29	4	112
2012	10	22	37		30	40	3	142
2013	12	21	44	1	34	42	3	157
2014	12	19	48	1	26	49	3	158
2015	13	18	48	2	39	34	3	157

\*THP – techno-economic department staff members (part of these staff members participate in direct R&D support not only through data collection but also by their own publishing activities)



YEAR IN THE LIFE OF THE FACULTY



## FEBRUARY

### **International Trade Fair of Wooden Buildings, Constructions and Materials 2015**

The Wood Technology departments brought their presentations to the 10th International Trade Fair of Wooden Buildings, Constructions and Materials held at the exhibition grounds in Prague-Holešovice.

## MARCH

### **International student competition in hunting trumpeting and deer calling**

The horn blowers and deer callers from the Czech and Slovak secondary forestry schools and universities met in the students' competition in Kostelec nad Černými lesy. The competition was organised by the buglers from the FFWS.

## APRIL

### **YPEF – regional round**

The regional round of knowledge competition YPEF – Young People in European Forests for Prague and Central Bohemian Region was run at the FFWS. The competition was run in two categories – junior and senior students. In total 24 three-member teams came to compete and took the written test and the wildlife identification quiz.



### **CULS Rector's Cup Shooting Competition**

33 competitors (24 students, 4 CULS staff members, and 5 guests) took part in the 13th annual Shooting Competition held traditionally in Chloumek near Mělník. The competition was held under the auspices of the Rector of the CULS, and was organised by the Faculty of Forestry and Wood Sciences in cooperation with the Hunting Club at the FFWS CULS.

### **The ceremony of tapping on the foundation stone of the FFWS Pavilion of Wood Sciences and Technologies**

The ceremony of tapping on the foundation stone of the Pavilion of Wood Sciences and Technologies took place on the premises of the Czech University of Life Sciences in Prague. The ceremony marked the commencement of the construction of a building with the prospect of providing modern facilities for the forestry and wood science branches of study taught at the FFWS.

### **YPEF – national finals**

The 5th annual national finals of YPEF – Young People in European Forests were held at the chateaux and faculty arboretum in Kostelec nad Černými Lesy. Following the local and regional rounds 12 three-member teams fought their way through into the national finals. The absolute winner prize was awarded to the team of the Czech Academy of Forestry in Trutnov. The same team represented the Czech Republic at the international finals in Brasov, Romania in September of the same year.

## **MAY**

### **MASTER Student Conference**

The second season of the student conference MASTER was held at the Faculty. The Master's degree students from several Czech and Slovak universities contributed to the conference with their specialised papers in Natural Sciences and Techno-economic Sections. In each category, a commission awarded the three most successful students with a financial award. Furthermore, six participants were awarded the Korf's Scholarship.

## **JUNE**

### **Open Days at Kostelec Arboretum**

The general public had the opportunity to see the Faculty Arboretum in Kostelec in the spring season.

### **Summer Gathering at the Arboretum**

The summer get-together for the staff and PhD students of the Faculty was organised at the end of the term in the beautiful grounds of Kostelec Arboretum. The friendly atmosphere of the meeting was not spoiled in spite of the unfavourable weather conditions.

## **JULY**

### **Summer Photography Competition**

The competition of the staff members and the students of the Faculty of Forestry and Wood Sciences for the best nature photograph taken in the Czech Republic was run by the means of the Faculty Facebook account.

## **ZÁŘÍ**

### **Forest Pedagogy Course**

In cooperation with the Secondary Forestry School in Hranice and Lesy hl. m. Prahy, the Faculty organised the Forest Pedagogy Course at the Faculty station Truba in Kostelec nad Černými lesy. After successful completion of the course the total of 28 participants received the Certificate qualifying them in pursuing the forest pedagogy.







### **Bread Basket**

The Faculty participated in the 42nd annual Agricultural Exhibition, the renowned Bread Basket. Besides the information regarding the programmes and courses and also some games for young children, the Faculty also presented samples of music played at hunts.

### **Science Fair**

The Faculty participated in the 3rd year of Science Fair held at Vítězné náměstí in Prague-Dejvice. In an entertaining way the Faculty provided children and also the other visitors to the Fair with information from the areas of forestry and game management.

### **St. Eustace Days**

The Faculty representatives took part in the celebrations of the St. Eustace Days at Křivoklát castle. The event was held for the first time, and was founded on the tradition of the castle being originally a hunting seat.

## OCTOBER

### **Academy & VAPAC Bratislava**

The Faculty representatives presented the courses and provided detailed information to those interested at the fair of study and career in Bratislava, Slovak Republic.

### **Open Days at Arboretum in Kostelec**

The general public had the opportunity to see the Faculty Arboretum in Kostelec in the autumn season.

### **CULS Prague Deans' Cup Shooting Competition**

3rd annual Shooting Competition was held by the FFWS at the shooting range of the Lesní závod Konopiště Vráž supported by other CULS faculties – Faculty of Economics and Management, Faculty of Environmental Sciences, and Faculty of Tropical AgriSciences. The guests not participating in the contest could use the opportunity to try the practice shoot out under the supervision of an experienced instructor.

### **Life Science Film Festival**

The Faculty was active in participating in the international festival of documentary films with the topic of natural and agricultural sciences, and the sustainable development held at the CULS. During the four days of the projections, the audience had the opportunity to watch 16 films depicting forestry topics and to take part in five debates with experts from the Faculty as well as specialists outside the Faculty including the filmmakers.



The festival programme continued in Dejvice throughout the weekend by the street food festival under the title “Food – that is a science”. The Faculty stand focused on the forest pedagogy presentation, also the tasting of home-made fruit juices and baked tea, all produce from the forest, were on offer.

### **WoodTec**

The wood technology departments exhibited again at the prestigious International Fair for Wood Processing and Furniture Industry – WoodTec, held annually at the Brno Exhibition Centre.

### **FFWS Dean’s Cup Shooting Competition with small-bore rifle K4M**

Already the 8th season of the shooting competition was held at the Magnum Prague-Sedlec shooting range in which the students and staff members of the CULS took part. The event was organised by the Hunting Association of the FFWS CULS in Prague.

### **Gaudeamus Nitra 2015**

The Faculty participated in the fair targeting the future university students where they were provided with the necessary information regarding the studies at the Faculty.

### **Days of presentation**

The Faculty opened for the general public for the second time in the year. The individual departments offered, among numerous other presentations, the opportunity to try operating a harvester simulator, show of the breeding facilities of exotic beetles and spiders, and also presented drones used in aerial photography.

## **NOVEMBER**

### **Gaudeamus Nitra 2015**

The last of the higher education fairs in 2015 was held in Brno.

### **Sales Event**

The students and staff members of the CULS had the opportunity to purchase outdoor clothing for themselves or as a Christmas present for their family members and friends at the Faculty premises.



## DECEMBER

### **Sales Event**

The second sales event before Christmas was this time organised by the Hunting Association of the FFWS CULS in the FFWS meeting room.

### **The FFWS Christmas Concert**

Traditionally held Faculty Christmas concert took place at St. Salvator (Holy Saviour) Church in Prague. The invitation was accepted by the guests, staff members as well as the students of the Faculty. The programme contained the trumpeting and organ tones and also the performance of the choir and orchestra consisting of the students and staff members of the Faculty.

### **Christmas Party at the FFWS**

Getting together before Christmas of the staff members and PhD students took place on the premises of brewery in Únětice. Games and photo show from the past year in the life of the Faculty were prepared for one and all; some of the colleagues contributed to creating the right atmosphere by playing musical instruments and singing.





DEPARTMENTS

## 9. Departments

### 9.1 FFWS Arboretum

The FFWS Arboretum is a department related not only to the students and staff members of the Faculty of Forestry and Wood Sciences of the CULS, it is also the base for the pedagogy and scientific pursuits fully funded from the government subsidies per student and other Faculty subsidies. Part of the operational costs was covered by the CLSU Rector's Office. The Arboretum premises served, besides the practical seminars in several subjects taught at the FFWS, also for various observations carried out within the framework of the Bachelor's and Master's thesis preparations, terrain practical exercises in different branches of study, the Forests through the ages course of the FFWS University of the Third Age and a comprehensive as well as individual practical training of the students of the Forestry and Wood Technology courses.

Last year we succeeded in enlarging the collections of the arboretum approx. by 124 taxons, primarily through own gathering of seeds and international exchange of seeds via Index seminum. From so

far not grown, very rare taxons, they are, for instance, *Glycyrrhiza yunnanensis* Cheng f. et L.K.Tai ex P.C.Li, *Sageretia paucicostata* Maxim. or *Dipteronia sinensis* Oliv.

In May and October last year, the traditional Open Days were held. Besides guided tours, grown products and souvenirs, such as brochures and memory stamps, were prepared for several hundred visitors who came there. An exhibition of cones was arranged by the staff and volunteers for the autumn Open Days and dendrology classes. Arboretum staff prepared an array of educational guided tours, for instance for the after school club affiliated with the elementary school in Kostelec n. Č. l. and for the secondary school of forestry in Křivoklát. The Arboretum was also visited by guests from abroad, e.g. by the participants of the 6th „Silviculture in Central Europe“ summer school from the Warsaw University, or the dendrologist Mrs Tang from the Beijing Botanical Garden. Three-month internship of students from Turkey took place at



the site as well.

The FFWS Arboretum staff members take part in the preparations of events held at the Arboretum and the surrounding areas. In the last year, the practical skills part of the YPEF competition national finals, the forest pedagogy course with the Night Forest programme, and the summer get-together party of the staff were held at the Arboretum. Some of the staff members participated in the general meeting of the Union of Botanical Gardens of the Czech Republic of which the Arboretum of FFWS is a member. The staff members actively participate in exhibitions in which the FFWS CULS takes part.

The Arboretum was afflicted by the unfavourable weather in 2015. Frosts and wet snow in the winter, extremely high temperatures and drought in sum-

mer implying extended time periods for the staff in attempts at reducing the impacts of those difficulties. Within the scope of regular routine the decoding of the seed material of forest woody plants, the grounds maintenance and care for the plants are performed. Experimenting with *Sequoiadendron giganteum* (Lindl.) commenced. Bucholz and support for some other projects of the other Forestry and Wood Technology departments. After finishing the spring planting tasks performed as a part of the practical training of students, the stocktaking jobs and shadow pavilion remodelling were performed. Also a partial remodelling of the cottage in the Arboretum and renovations of some parts of the utility buildings at the Cultivation Station Truba.

## 9.2 Department of Wooden Products and Structures

The Department of Wooden Products and Structures underwent restructuring in 2015 and has now five in-house full-time staff members, three part-time staff members, and several contracted in parallel part-time employment. Educational staff is involved in securing the smooth running of the educational process at three levels of education (Bachelor's degree, Master's degree and PhD) in the Wood Technology, Wood Engineering and Business in the Wood Processing and Furniture Industry branches of study at the FFWS in the full-time and combined type of study.

In the process of supervising of thesis development in the Master's degree programmes the Department staff members were appointed as advisors of 16 such theses. Mr Miloš Pavelek, one of the students, participated in the „Stavby s vůní dřeva“ (Buildings with the Scent of Wood) competition, finished in the third place, and his thesis was granted the award of the Minister of the Environment of the Czech Republic.

In 2015, some of the Department employees were members of the project team in the OP RDI project Pavilion of Wood Sciences



and Technologies of the FFWS (Mr Bomba, Ms Kalousová). Other Department employees participated in the final stages of preparations of instruments in the specialised Department laboratories. All the employees and PhD students participated in the training in operating of the new instruments and devices.

In 2015, the PhD students were working on several projects in the area of research projects of the Internal Grant Agency. The Department members were part of the two projects of the National Agency for Research in Agriculture (DFPE and DFE teams), and in the contracted research projects. One of the Department staff members spent half of the year 2015 in the USA in the Fulbright Program. In 2015, the endeavour of the Department to raise more funds through project preparations within the project calls and also through contracted research continued.

The publishing activity of the Department

increased in comparison with 2014. Department members published as authors or co-authors eight papers in journals with an IF, all of those within Q1 quartile.

In the area of the promoting events and activities the members of the Department prepared an array of specialised articles in various journals in the Czech Republic and abroad, and they also actively participated in the preparations and carrying out of lectures at specialised fairs and exhibitions (Wood-Tec, International Trade Fair of Wooden Buildings, etc.).

In 2015, a laser engraving machine was purchased for both the Wood Technology Departments from the Faculty funds; the machine was frequently used for the educational purposes and in the diploma theses. It was further used in serving the Marketing Department, interest associations, etc. in production of promotional materials.



## 9.3 Department of Forest Ecology

The DFE secured a large portion of the lecturing and educational activities not only at the Prague venue, but also in Kostelec nad Černými Lesy (FFWS Arboretum). Due to the need for improvement of study materials, an electronic catalogue of cones has been created within the framework of the IRP funds. The said catalogue is accessible for students as well as for expert groups via the Internet. There has been also an electronic study material dealing with the Forest typology classification created in order to be used in teaching and further expert use; significant material crucial for the understanding of creation and structure of the said classification not published thus far has been collected into the said compilation.

In the area of research the staff members and the students secured the work on the GA CR projects in whose frameworks the field work operations in terrains of the whole of Central Europe are carried out. In 2015, a number of articles with an IF were published by the staff members of the Department. Some of those were published in the prestigious journals such as *Nature*, *Journal of Ecology*, *Forest Ecology and Management*, or *Journal of Ecology* – all of the named in Quartile 1 on the Web of Science. The article by Mgr. Černý et al., devoted to the ecological classification of the temperate forests of the Korean Peninsula, was granted the Editors' Award of the *Applied Vegetation Science* journal for the best article of 2015.

The GA CR project programmes continued in 2015 when the Department acquired two new

grants from GA CR.

The PhD students participated in the CIGA projects preparations with positive results. The acquired projects will aid in developing new areas of forest ecology studies in the future. In 2015, one dissertation was defended at the Department. Two PhD students were also granted the Rector's Award in the University publishing competition of PhD students for outstanding publishing activity.

At the end of the last year, the Department acquired new premises for the dendrology laboratory at the Pavilion of Wood Sciences and Technologies of the FFWS. The laboratory was equipped with instruments for sampling, preparation and analysis of samples of growth ring series. In the laboratory, the LINTAB measuring systems can be found enabling the measurements of tree ring width and thus obtaining the exact information about the age, tree growth intensity, wood production, and the forest vegetation dynamics. Another new piece of equipment is represented by the densitometer using X-rays and thus facilitating the evaluation in density and quality alterations of wood in correlation with time.

Work on the said projects requires also physical fitness in sample collecting. The physical condition of members of the DFE is very good. It can be proven, among other things, by the 1st place of Mgr. J. Lábusová (she is a PhD student at the DFE) in the traditional academic "Rector's Cup 2015" run in its 54th season.

## 9.4 Department of Economics and Management of Forestry

Staff members of the Department of Economics and Management of Forestry taught in all study programs in which students are educated at the FFWS. In the context of the development of wood technology branches of study a new name of the department was proposed close to the end of the year and approved as of 1 January 2016 – Department of Forestry and Wood Economics. Besides teaching at the FFWS, the Department staff members also provide teaching of a number of economic subjects at the FES. To make the profile complete – the Department also includes the Section of Forestry and Environmental Policy.

In 2015, the Department either guaranteed the solution or participated in a number of scientific research projects. E.g. the following NAZV project continued: „Differentiation of intensity and management practices in relation to ensuring forest biodiversity and economic viability of forestry“; the Department staff further participated in the project titled „Stabilisation of forest ecosystems by balanced ratio of natural and artificial forest regeneration“. The year 2015 saw the launch of the following NAZV project: „Topical and strategic possibilities of the forest functions and multifunctional forestry services sustainable providing to the public from socio-economic, political and legislative viewpoints in the Czech Republic“ and of the following project of the Ministry of Education, Youth and Sports:

„Analysis of the national forestry policy in the Czech Republic as a tool for the preparation, formulation and implementation of the European forestry policy“. The major activities of the Department included the organisation of the international scientific conference „Economic viability in the forestry and wood technology sector“. Furthermore, as traditionally, the Department organised the meeting of the Economic Commission of the Department of Forestry of the Czech Academy of Agricultural Sciences.

The Department cooperated with the sphere of practice both at the level of direct cooperation and on the basis of contractual research. The engagement of Department staff in working groups of LČR (Social aspects of forestry contracts, Correctness of the contractual framework, Forms of indexation of contractual prices) may be included in the direct cooperation. The following outputs were implemented in the framework of contractual research: „Development of the system of derivation of the economic potential of forests for the purposes of restoring regional plans of forest development“ (Ministry of Agriculture of the Czech Republic) and „Analysis of the causes of damage to crops by insect and fungal pests in the area of military domain Libavá and the proposal for a long-term management strategy“ (VLS, s.p. Prague).

The staff of the Department also actively par-

ticipated in international conferences and symposia: e.g. „Wood Processing and Furniture Manufacturing Challenges on the World Market“ (Dubrovnik: WoodEMA) or „Business Economics and Management 2015“ Conference, BEM2015 (Technical University in Zvolen).

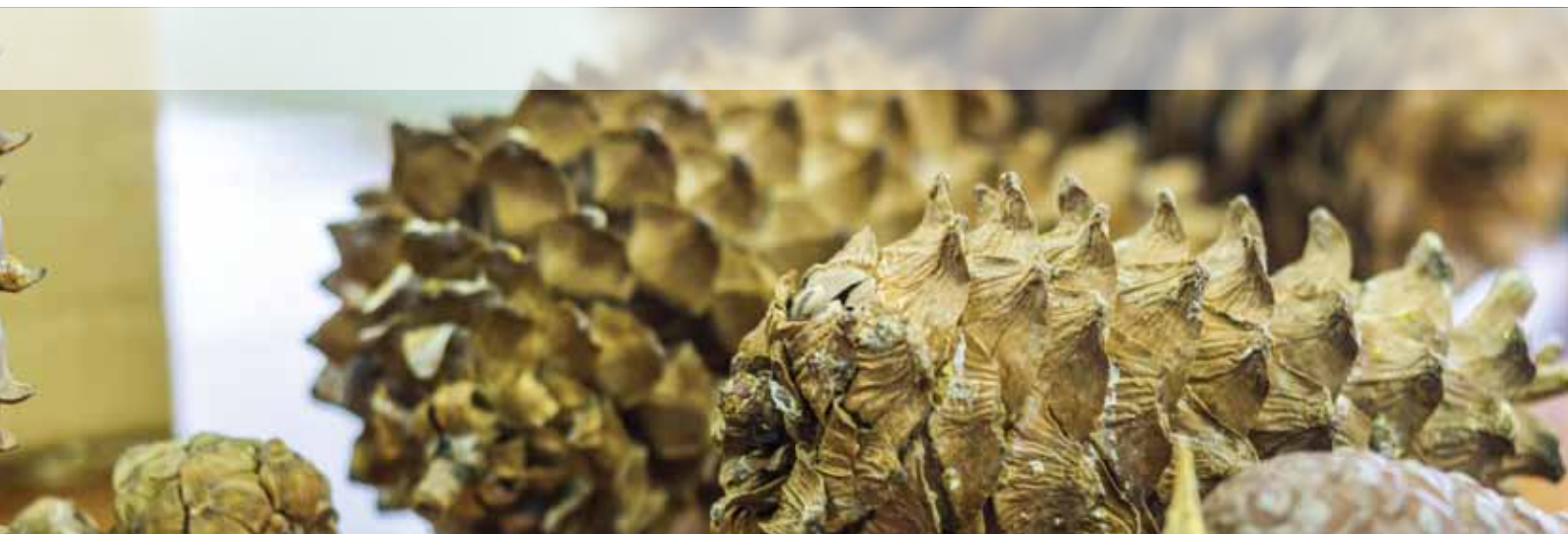
## 9.5 Department of Genetics and Physiology of Forest Trees

In 2015, the Department acquired two additional scientific projects: NAZV (Securing high-quality gene resources with regard to the requirements of the society and climate change, the principal investigator Prof. Lstibůrek) and CIGA (Analysis of gene expression and accumulation of dehydrins in Norway spruce, the principal investigator RNDr. Čepl). The international Interreg project (the principal investigator on behalf of the FFWS doc. Tomášková) in collaboration with other partner organisations in Central Europe further advanced to the second round of evaluation. The results of the public competition will be known in April 2016.

A year-long collaboration with the Faculty of Science of Charles University in Prague concerning the genetic variability and heritability of Scotch pine in relation to the fluorescence parameters was successful. In the spring of 2016, a common article was accepted for publication in the magazine *Tree Physiology*.

During 2015, most members of the Department used the options to go on internship with the goal to establish working relationships with prestigious foreign departments, to foster common articles and to draw up proposals for joint projects (Dr. Stejskal in the research institute of Mission Galicia (Spain), Prof. Lstibůrek in the North Carolina State University (NCSU) in the USA, doc. Tomášková in INRA in France and Dr. Korecký in the Norwegian Forest and Landscape Institute (Norway)). At the turn of August and September 2015, Prof. Lstibůrek and Dr. Stejskal participated in the SFTIC (Southern Forest Tree Improvement Conference) with a lecture and a poster.

The Forest Tree Breeding Section carried out a project of excellent research focused on the proposal for a new methodology for estimating heritability. The Technical University of Liberec and



NCSU also partake in the research which still continues.

The Molecular Genetic Laboratory conducted an extensive field project involving 450 trees across the populations of Norway spruce in order to find the relationship between the genotype and the adaptability of various ecotypes to abiotic stress.

The Department has acquired new premises in the FFWS PWST, where a new genetic laboratory was set up in two rooms. The staff members of the Department were heavily involved in the competitions regarding the purchase of various instruments and then attended operation training sessions at the end of the year.

The Physiological Section held field measurements focused on the study of water potential and transpiration stream in selected tree species and the creation of a review article regarding the rare types of earth in relation to forest tree species. The publication outputs from these measurements are provided in the review proceedings.

## 9.6 Department of Forest Management

In 2015, the Department of Forest Management (DFM) continued in the successful development of its core areas. In addition to the classical fields of forest management, such as dendrometry, wood production or cutting control and temporal arrangement, it was mainly the area of remote sensing and data collection through modern methods of laser and photogrammetric imagery. The second area consisted of the support for decision-making and planning of main felling with the use of modern mathematical methods and geographic information systems.

In 2015, the Department continued in the development of strategic partnership established in previous years. Intensive cooperation was initiated with the Norwegian University within the project of Norwegian funds called the „Framework and options for the forestry

adaptation measures and strategies related to climate change“ (FFWT MENDELU as the project coordinator). Thanks to the resources obtained in the projects and from the budget of the Faculty it was possible to purchase additional hardware necessary for further development of remote sensing. Thanks to the established cooperation with the CTU the purchased equipment is used with success and valuable data are thus obtained.

In 2015, the software developed by the Department was further applied to support the planning of main felling in other forest management units. Research in the area of decision-making support and further development of decision-making support tools, however, continues in the Department with another NAZV project whose goal is to develop a more comprehensive system that could

include also non-wood-producing roles of the forest at the level of main felling and advance felling in the decision making.

By their active involvement, the staff members of the Department also reinforced their positions in international and national organisations and groups, such as the ForestDSS Community of Practise, which brings together prominent experts in the area of decision-making support, planning, and decision support systems, or the Czech Society for Operations Research. Staff members of the Department experienced considerable achievements at international conferences which they attended.

In 2015, cooperation with the Portuguese Institute of Mediterranean Agricultural and Environmental Sciences also went on. The Department also continues in cooperation with the Institute of Statistical Mathematics in Tokyo, which gave rise to several reciprocal exchanges and joint publications. The contacts with the Swedish University of Agricul-

tural Sciences, specifically, with staff members of the Department of Forest Management present a new and promising cooperation. In the upcoming years, several exchanges of academic staff and doctoral students of both Departments and new joint projects are planned.

Staff members of the Department were also the authors of several important articles in renowned international journals. One article written by authors from the Department was even granted the Award of the Minister of Agriculture for Young Scientists.

The year 2015 was successful for the Department of Forest Management not only from the academic and scientific, but also educational perspective. In 2015, the Department saw a successful defence of the dissertation which was granted the prestigious award of Prof. Stoklasa for the best students of doctoral programmes at the CULS.



## 9.7 Department of Wood Processing

In 2015, the staff members of the Department of Wood Processing managed to successfully fulfil their tasks in the area of science and research. The staff of the Department published a total of 30 articles with an IF, which is an increase by 20 articles in comparison with the year 2014. The fact that also those staff members of the Department who had not been active in publishing in the past partook in the achieved publication outcome may be considered beneficial too. The most successful and prolific authors were Ing. Gašparík (18 publications with an IF) and doc. Gaff (16 publications with an IF). Team cooperation of staff members of the Department improved significantly. The result points to the fact that the task to stabilise the staffing of the Department was successfully fulfilled.

Hiring of Ing. Ruman for the position of a post-doc (five publications with an IF) contributed to personnel development. Due to his previous practical experience he was able to improve the introduction of software into the creation of project documentation of wooden buildings (Dietrich's software) and the use of Solid Works. Other important events included participation in a NAZV project, acquisition of a IGA – B and the Excellence publishing project. In relation to these projects the student Ing. Kaplan was granted the CULS Rector's Award for outstanding diploma thesis.

The support of the Faculty in the preparation of study materials was a substantial benefit for the area of education. Thanks to this support the staff

of the Department prepared five textbooks for the following subjects: Technical Imaging, Designing of Furniture Manufacturing, Handling and Transportation Machinery, Wood Properties in Examples, and one textbook for the subject of Wood Machining. The Department also regularly published science popularisation articles in the Wood-working Magazine (*Dřevařský magazín*). IMOS was included in the educational process in the framework of cooperation with the sphere of practice.

Establishment of cooperation with the prestigious University in Sopron – University of West Hungary Simonyi Károly, the Faculty of Engineering, Wood Sciences and Applied Arts – was an important step. Besides the said University, we started cooperating with other universities in Turkey and Spain. Four students from Spain visited the Department under the Erasmus+ Traineeships.

In 2015, the Department of Wood Processing intensively worked on the application for nomination for organising of the SWST (Society of Wood Science and Technology) Conference on the premises of the FFWS CULS in Prague in 2018.

The main objectives of the Department of Wood Processing for the next year include maintaining of the status quo and the acquisition of grants and projects which would help improve the quantity and quality of scientific and educational outputs of the Department.

## 9.8 Department of Game Management and Wildlife Biology

The third year of an independent operation of the Department of Game Management and Wildlife Biology saw a few major events. The Accreditation Commission of the Ministry of Education, Youth and Sports extended the accreditation of the Bachelor's branch of study titled the Operation and Game Management for another eight years and the curricula included more professional and specialised subjects. Prof. Červený participated in the publication of *Hunting Zoology*. 18 standing skeletons (from least weasel to red deer), a unique addition to the dermo-plastic preparations, were purchased for the zoological collections, which will be used for teaching of students of the Faculty of Forestry and Wood Sciences. The collections, which are installed on the new premises of the FFWS PWST, were extended not only by skeletal preparations, but also by more than 150 preparations of birds and mammals.

Seven new doctoral students were admitted for the PhD study programme. In 2015, two PhD students passed the state doctoral examination and began to prepare for the defence of their dissertations. The PhD students from the DGBWB (Kateřina Benediktová and Jana Adámková) were awarded the first prize in the competition for the best poster at the ZOO Days conference. Ing. Ježek became a member of the Hunting Council of the Czech – Moravian Hunting Association and leads the Commission for International Cooperation. Other staff members of the Department, doc. Hanzal, Ing. Kušta and Ing. Hart, became members of selected hunting commissions, which started the close cooperation of the De-

partment with the umbrella Hunting Association in the Czech Republic.

It was for the second time already that staff members of the Department held two seminars under the auspices of the Ministry of Agriculture of the Czech Republic the main topic of which was the issue of wild boar catching; the seminars were attended by over 130 persons from the sphere of practice. The Department also organised two summer schools for students of the FFWS. The first took place in South Africa, the second was organised at Lake Baikal as usual. It was agreed here that the summer school in 2016 would take one month and would be more focused on joint research and teaching of game management and zoology.

In 2015, 25 articles with an IF were published of which two were published in the highly prestigious *Scientific Reports* journal (IF = 5.578). The staff of the Department obtained a grant from the GA CR (Magnetosensitivity of dogs and other animals: magnetic alignment, cognitive maps and selective sensory attention) and as team members the TA CR grant (BLACKSPOTS: The places of crossing of the green and transport infrastructure).

At the end of the year, two young staff members of the Department successfully defended their habilitation dissertations in the Forest Protection and Game Management branch of study (Ing. Kušta and Ing. Hart).



## 9.9 Department of Forest Protection and Entomology

The year 2015 may be evaluated for the Department of Forest Protection and Entomology as successful, especially in the area of science, publications and teaching.

In the area of teaching, the staff of the Department got involved in teaching of subjects in the newly accredited branch of study – Preservation of Natural Objects and Taxidermy. In addition to teaching of students of the FFWS, staff members of the Department are also engaged in the education of students of the Phytopathology branch of study at the Faculty of Agrobiolgy, Food and Natural Resources (FAFNR). Education is supplemented with field exercises, which are carried out both at the School of Forest Enterprise and also in organisations of Lesy České republiky, s.p. and Vojenské lesy a statky ČR, s.p. as well as in private forestry organisations. Special subject exercises are also conducted in specialised laboratories – phytopathological and entomological laboratory.

Efforts to improve teaching and raise the level of Bachelor's and diploma theses bore fruit in the form of awarding of the Bachelor's thesis with the first prize at the SVOČ (Students' Scientific and Professional Activity) conference in Zvolen. The award was granted to student Michal Samek for his Bachelor's thesis „Phytophthora alni in riparian stands of the brook Mastník“.

Teachers and PhD students are involved in 16 scientific grants of which two are supported by the GA CR, four by the Ministry of Agricultu-

re of the Czech Republic, six by CIGA and four internal grants are provided by the FFWS GA. During 2015, the Department staff published more than 50 scientific papers in journals with an IF and 10 other articles in the Scopus database.

The staff members of the Department participate in conferences at the national and international level, maintain long-term cooperation with the University of Natural Resources and Life Sciences in Vienna (BOKU) and with the Jagiellonian University in Krakow.

The Department and the Faculty are promoted at exhibitions (e.g. the exhibition Paths of Wood in Prague), but also at professional competitions (e.g. Competition in Forestry Versatility organised by VLS, s.p., the Division of Karlovy Vary). Staff and PhD students promote the Faculty at a number of secondary schools throughout the Czech Republic.

The staff members of the Department of Forest Protection and Entomology answer many questions relating to their specialisation each year. In the past year, many questions of the general and professional public were related to unusually strong needle fall of blue spruce trees, which was caused by the outbreak of green spruce aphid. Many questions also relate to parasitic fungi, such as gemmamyces bud blight on blue spruce or heavy drying up of pine trees caused by fungi *Cenangium ferruginosum* or *Sphaeropsis sapinea*



## 9.10 Department of Silviculture

The Department of Silviculture currently offers 48 subjects for the Bachelor's, Master's and doctoral degree studies. The subjects are related to the fundamentals of forest ecology, forest establishment and silviculture in various conditions. The Department is also engaged in the teaching of tropical forestry while a substantial proportion of teaching load is also devoted to other CULS faculties, specifically to the FES, FTAS and FAFNR. There are three professors, two associate professors, one senior assistant and two technicians in the Department. Furthermore, there are 12 active doctoral students and three young scientists here. One PhD student from the Department placed second in the Rector's competition for young scientists in 2015.

The teaching of the Department takes place to a significant extent in the field; in particular, when it comes to profile subjects, block field exercises and seminars are quite common. These are concentrated mainly in the territory of the School Forest Enterprise in Kostelec nad Černými lesy, on FR Klokočná (LCR) while the forest establishment is mainly taught at the Truba field station, where there have been educational and laboratory facilities built with a substantial financial contribution from the Department and the Faculty in the long term. The Department also provides a week-long final field trip to various regions of the Czech Republic and in recent years

even to Poland in cooperation with SGGW in Warsaw.

The research projects are principally focused on forest management and silviculture in protected areas, on natural forestry, nursery technology, forestation of agricultural land, monitoring of the impact of fertilisers, including wood ash, and also on the research of introduced tree species, in particular, the Douglas fir. In 2015, there were two TA CR projects, six NAZV projects and four IGA projects carried out with success. Two contractual research projects were performed as well.

The output of research activities included, inter alia, seven articles in journals with an IF, 24 articles in journals in the SCOPUS database, and the results of the Department were presented in scientific journals and at conferences. The Department released four textbooks.

In 2015, the Department also participated in the organisation of one international and two national conferences and staff assisted in securing the national round of the YPEF competition. In the context of building of relationships with the operation, the staff members provided a number of consultations to forest owners and administrators and worked in several professional and scientific organisations. Česká lesnická společnost, Czech Academy of Agricultural Sciences and the Czech Academy of Sciences are the top ones.

## 9.11 Department of Forest Harvesting

In 2015, staff members of the Department of Forest Harvesting (DFH) taught 38 subjects for all forestry and wood technology branches of study, including encyclopaedic forestry subjects for agronomic, technical and environmental branches of study accredited at the relevant Faculties of the CULS. Three subjects were taught in the English language. The Department also provided for the mandatory practical training of the FFWS students. The educational and scientific activities of the Department were executed by: one professor, two associate professors and four senior assistants.

The Department participated in the international cooperation. The FFWS coordinated all the three international networks within the „Central European Exchange Program for University Studies“ (CEEPUS) in the framework of which the Department hosted eight persons (teaching staff) from universities in Poland and Slovakia in 2015.

In the area of research and development, the Department sought to increase performance in publishing activities. Two textbooks were issued and the staff members of the Department were authors and co-authors of six articles in scientific journals. In 2015, the DFH increased its participation in scientific research and applied projects. It participated in one TACR project and two NAZV projects and also worked on one NAZV project with the Department of Forest Protection and Entomolo-

gy. In 2015, 14 certified methodologies were approved.

Staff members of the DFH successfully participated in research and development of several forestry machines in 2015. In the framework of the project „Design and Development of the ENTRACON Combined Machine“ (TACR) a new device was developed in 2015 for which a patent application was filed. The second device, a special forest winch developed by the DFH staff in 2015 under the „Stromotr“ project (NAZV), has a patent pending.

In the context of its complementary activities, the DFH prepared the material „Supporting materials for the revision of CSN 73 6108“. It is a Czech technical standard dealing with the designing of forest roads.





CONCLUSION

## 10. Conclusion

The objectives of the Long-term Plan of the Faculty and its Update were fulfilled in 2015 as planned. The year 2015 was an exceptional year – for several reasons. The first reason was the construction and equipping of the Pavilion of Wood Sciences and Technologies of FFWS, which is for the time being the only investment activity since the re-establishment of the Faculty in 1989. The built spaces and installed technology provide for substantial improvement of educational and scientific potential of the Faculty and at the same time offer a great opportunity for more effective cooperation with the forestry and wood technology operations. Another important event was the fact that the Faculty for the first time in its history actually fulfilled the vision of multi-resource financing as the volume of funds obtained from project resources and institutional support resources exceeded the volume of funds from the per capita subsidies.

In 2015, there was a slight increase in the number of students and with regard to the paid number of students set for the year 2016 we consider the Faculty's position as stabilised. At the same time, throughout 2015, work on the system changes in access to financial resources of the Faculty continued with the aim of their effective exploitation to the maximum extent. From mid-2015, the Faculty worked intensively on preparation of projects under operational programmes – at the beginning,

mainly on the establishment of strategic priorities, later on the detailed elaboration of the philosophy of the Faculty and the compilation of the requirements of the departments. In the autumn of 2015, the Faculty commenced the preparation of the project of building a team of excellence, which was filed no sooner than in 2016.

The head of the Department of Forest Harvesting was exchanged with the aim to streamline and reorganise the Department's personnel. The Faculty is still trying to reinforce the personnel structure in those branches of study in which there is a shortage of high-quality candidates for scientific and pedagogical positions. Wood technology departments did not have their own scientific research project, but in 2015, staff members of these departments were members of NAZV projects led by the departments of forestry. We expect another increase of performance of the Faculty in science and research in the area of hard, mainly excellent results in 2016. All these facts and more intensive work aimed at the finalisation of streamlining of institutional processes should contribute to the FFWS being, in terms of education and science, a renowned faculty in the field of forestry and wood technology in the Czech Republic and abroad in 2016.