

An aerial photograph of a lush green landscape with a river, forest, and fields. A jagged, torn-paper-like white line runs diagonally from the top right towards the bottom right, separating the vibrant green scene on the left from a dark, grayscale forest on the right.

# RMK ANNUAL REPORT 2018





**RMK**  
**ANNUAL REPORT**  
**2018**

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# FOREVER FORESTED LAND

**Aigar Kallas**  
*Chairman of the Management Board of RMK*



Similarly to our Republic, Estonian state forestry is also celebrating its 100th anniversary. At no time during that century has our country been as rich as it is now – in terms of the size of its forested area, timber surplus and, in many ways because of the above, natural diversity.

While RMK already became a millionaire a year ago in terms of the area of the forestland owned by it, then in 2018 the area of forestland under RMK’s management increased by 17,000 hectares. An area of that size is nearly the equivalent of two Vormsi sized islands. RMK’s forest reserves recovered by 3 million cubic meters over the year, reaching a total of 190 million cubic meters. Forests are something we have plenty of, more are coming, and the work we are doing helps to ensure that future generations also have enough forest of every age at their disposal.

Prices on the timber markets were high, which made it possible to earn a decent profit even when selling 100,000 cubic metres less than before. A total of EUR 41.6 million from the profit earned in 2018 is being directed to the state budget, and through that to all of the people of Estonia.

Our anniversary gift – a network of hiking trails covering the entire country, the last branch of which,

in the direction of Penijõe-Aegviidu-Kauksi, was opened with a ceremonial great group hike – is also meant for everyone in Estonia. Based on my experience, I can assure you that the Northern Estonian Klint is truly unique and at the same time so inherently Estonian and homelike, a place where you can dangle your feet, gaze far out across the sea, and dream of reaching your Ultima Thule.

In addition to being admired, nature also needs to be protected. More nature conservation works took place than in previous years, with the focus continuing to remain on restoring habitats. A large-scale inventory of key biotypes was carried out in managed forests, resulting in a 3000 hectare increase in the key biotype areas under strict protection. Forest management and nature conservation are not mutually exclusive, the state forest is in good hands.

And to all those who still don’t believe it, I recommend that you read the newly released book *Sada Aastat Metsa Lugu (100 Years of Forest History)* and visit the exhibition *100 Sammu Metsateel (100 Steps in the Forest)*, which can be seen at the Sagadi Forest Museum by anyone that is interested. RMK’s Sagadi headquarters awaits you!

<div>5</div> <div>important tasks performed by RMK are growing forests, preserving natural values, earning a profit for the state through the management of the forest, offering opportunities for moving around in nature and promoting awareness of nature.</div>	<div>1%</div> <div>of RMK’s forest land is clear-cut each year. All clear-cut areas are reforested.</div>	<div>6300</div> <div>people were employed in the state forest during the course of the year. Of those, approximately 700 are employed full-time at RMK, with the rest employed by partner companies or working as seasonal workers.</div>
<div>47%</div> <div>of Estonia’s forests are maintained by RMK.</div>	<div>10 FACTS ABOUT RMK</div>	<div>31</div> <div>offices are maintained by RMK across Estonia. Its headquarters are located in Sagadi.</div>
<div>28.6%</div> <div>of RMK’s forests are strictly protected. The area has increased by 11% over the last five years.</div>		<div>0 €</div> <div>is the cost of every man’s right – camping along RMK’s trails, spending the night in forest cabins, or sleeping in a tent within recreation areas.</div>
<div>21.3</div> <div>million forest plants were planted in RMK’s forest.</div>	<div>4</div> <div>certificates prove that RMK adheres to high standards in its activities. These are the sustainable forestry certificates FSC® (FSC-C022757) and PEFC, and the environmental and quality management certificates ISO 14001 and ISO 9001.</div>	<div>2.7</div> <div>million visits were made to RMK’s recreational and protected areas.</div>





## ABOUT THE ORGANISATION

RMK manages  
1,425,427 ha  
of state land,  
of which  
1,023,620 ha  
is forest land

Full-time  
employees  
693

Turnover  
EUR 209.1  
million

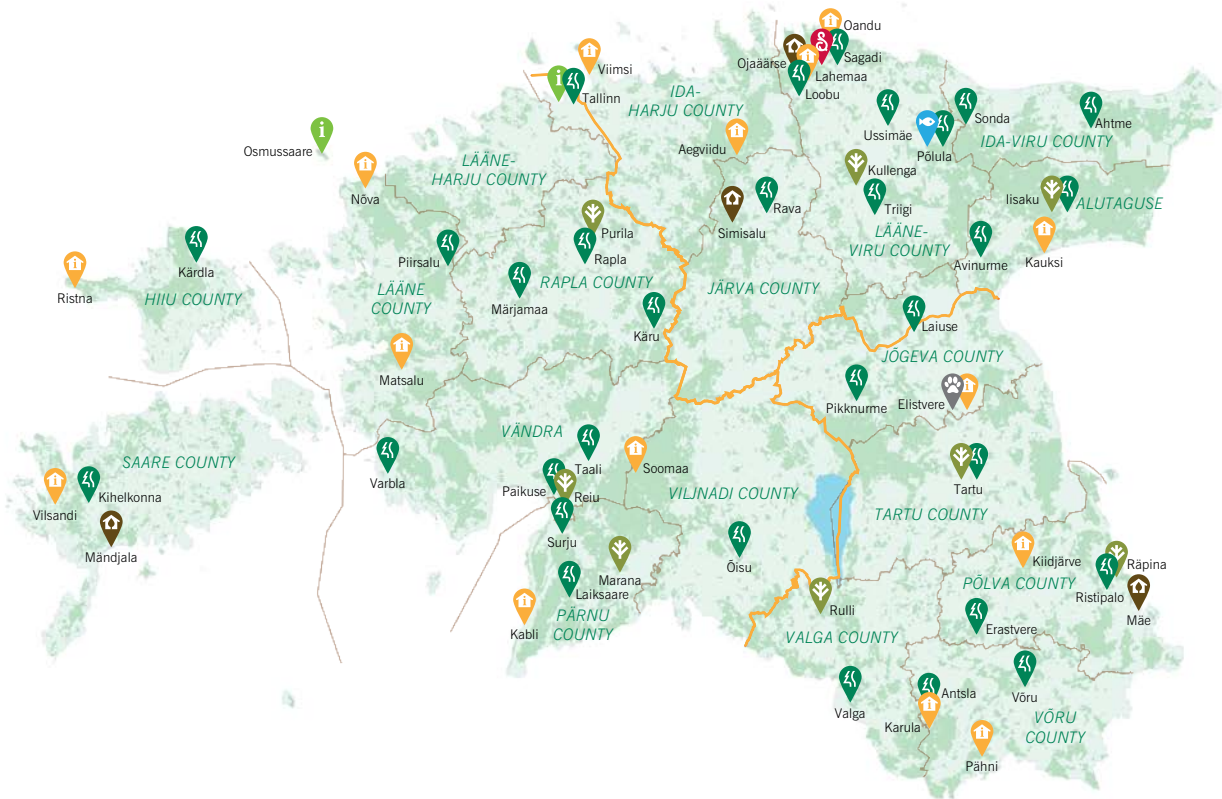
Operating profit  
EUR 88.9  
million

Dividends and  
income tax paid  
into state budget  
EUR 26.9  
million

Land tax  
EUR 4.9  
million

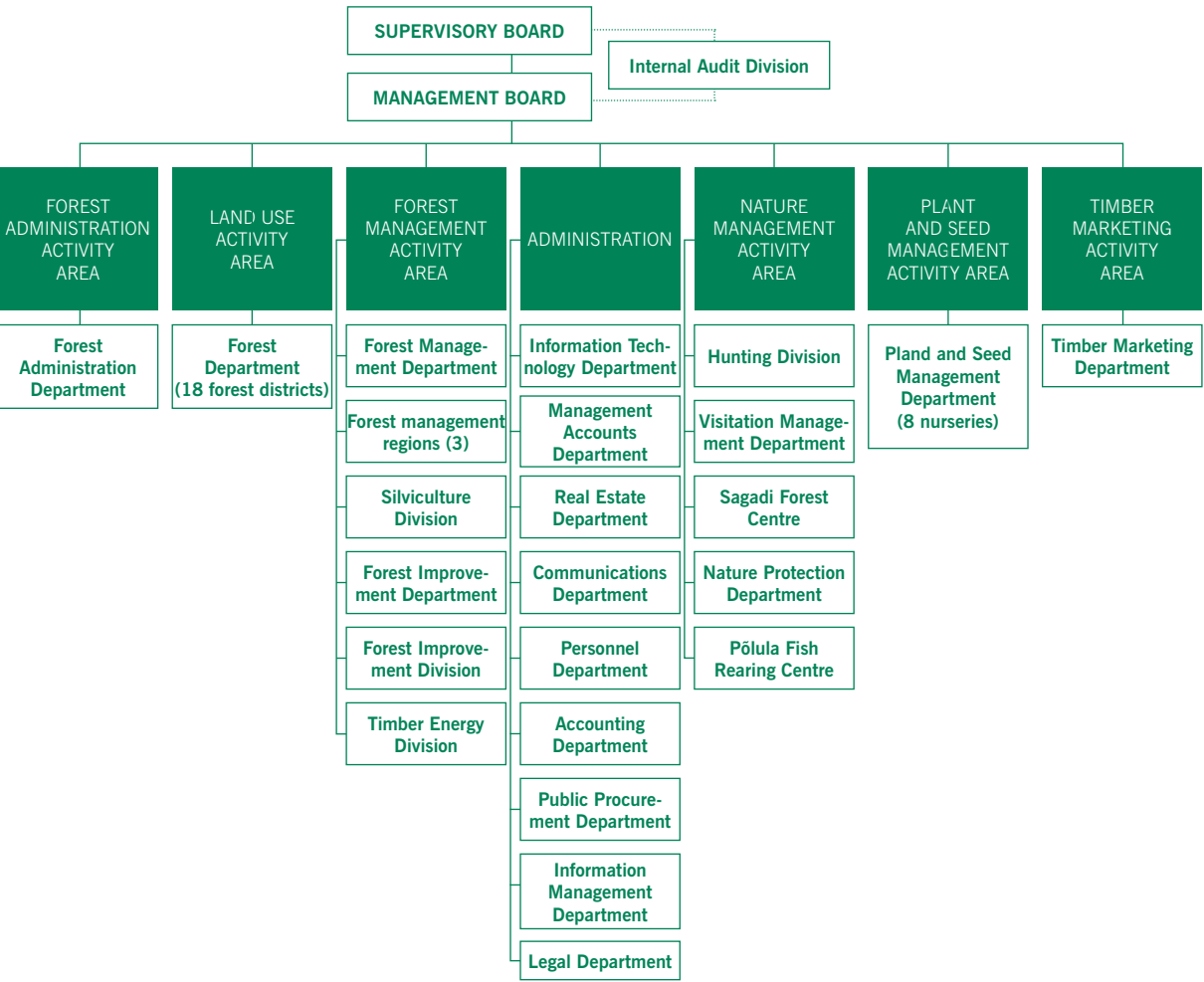


# ALL OVER ESTONIA

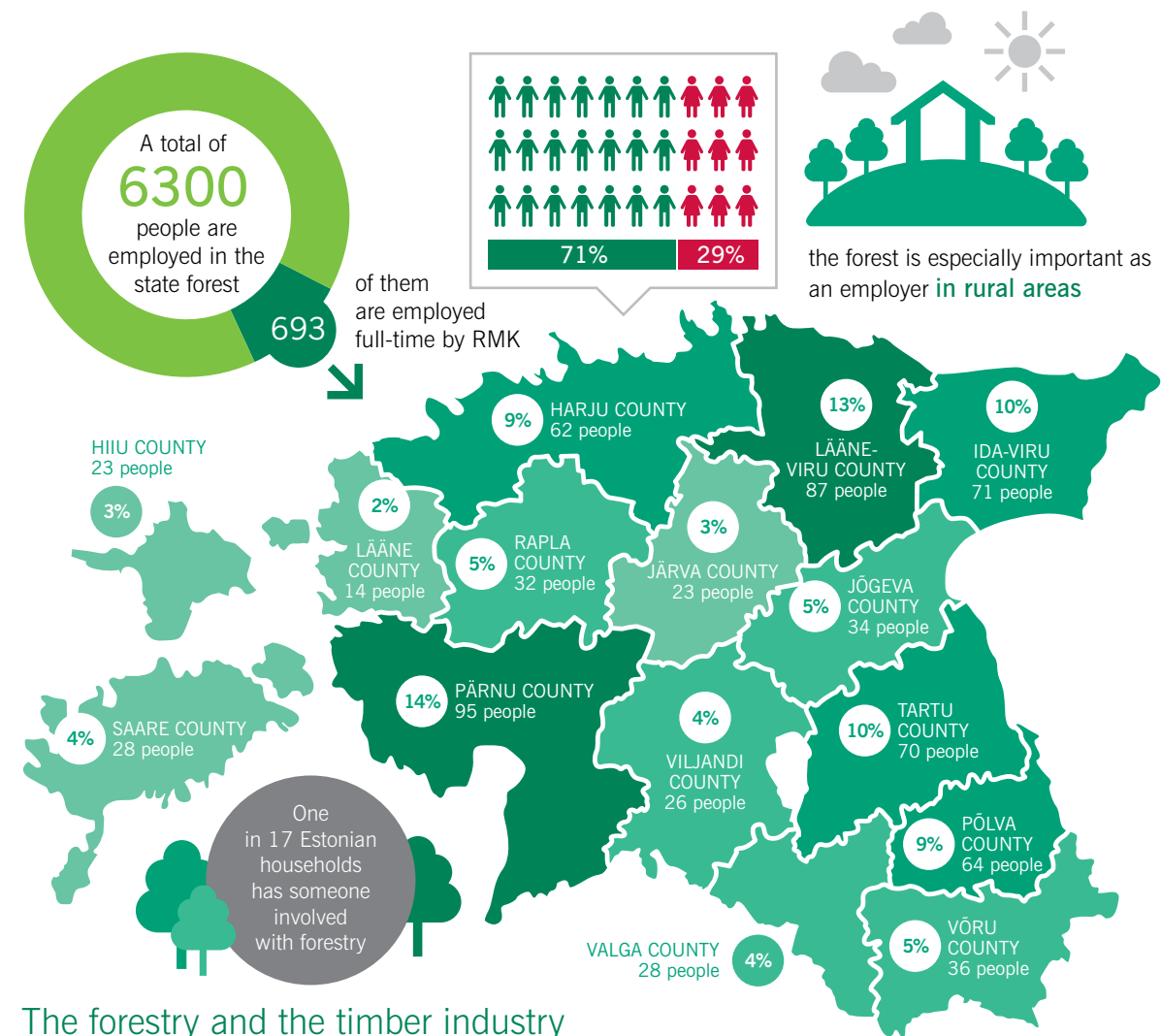


- Area managed by RMK
- 🏠 Visitor centre
- 🏡 Nature house
- 🏢 Office
- 📍 Information point
- 🌱 Nursery
- 🐟 Põlula Fish Farm
- Forest district border
- Forestry region border
- 🏠 Sagadi Forest Centre
- 🐾 Elistvere Animal Park

# STRUCTURE



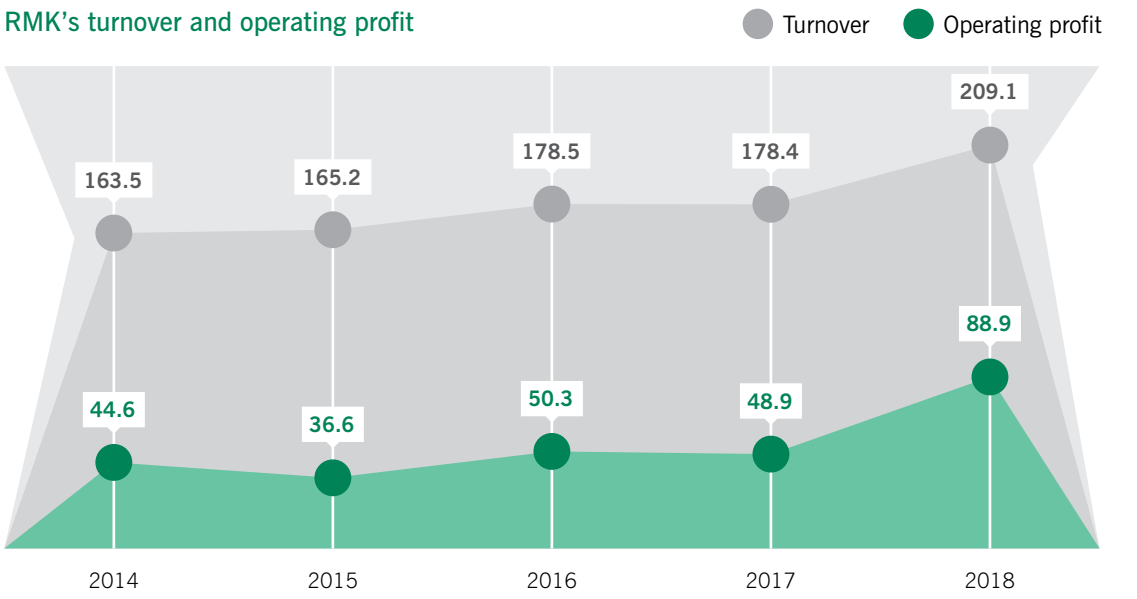
# STAFF



The forestry and the timber industry provide jobs for **36,000** people in Estonia.

# CONTRIBUTION TO THE ECONOMY

RMK's economic indicators (EUR million)	2014	2015	2016	2017	2018
Turnover	163.5	165.2	178.5	178.4	209.1
Operating profit	44.6	36.6	50.3	48.9	88.9
Dividends and income tax paid into state budget	18.5	18.3	24.5	28.1	26.9
Land tax	4.5	4.6	4.7	4.8	4.9
Labour taxes	5.7	6	6.1	6.9	6.6



# COOPERATION PROJECTS

## Forestry and timber use

- In Kolga-Jaani Rural Municipality, Viljandi County, MTÜ Vanaajamaja is working with the Estonian Apostolic Orthodox Church and the local community to restore the main dome and the wooden roof structure of the four corner towers of the Lalsi Church. RMK also helped with the wood materials.
- The Estonian Woodhouse Association held a professional contest for the builders of handicraft log houses in Räpina, and RMK provided the necessary materials.
- xCUT Cup logger competitions took place – the Spring Cup, at the time of Tartu Maamess; TOP 10 at the Türi Flower Fair; and the Estonian logging championship, in Valga. RMK sponsored the competitions.
- Forestalia, the joint choir of foresters, continued its series of joint singing events with support from RMK.
- With the support of RMK the *Bioajastu – Puidust Tulevik* (*Bioera – Wooden Future*) travelling exhibition visited every county in Estonia to introduce the growing importance of timber and the forest.

- In cooperation with the Estonian Forest and Wood Industries Association and guidance councilors from Tartu County Rajaleidja Centre, a day of study took place at the Stora Enso Imavere sawmill. The guidance councillors and teachers learned about the forestry and timber sectors, the professions and workforce needs therein.
- RMK forests gave substitute homes across Estonia nearly 50 free Christmas trees.
- MTÜ Raudlaeva Maja started building two traditional Estonian coastal sailing boats. RMK provided the necessary timber.
- MTÜ Suitsusauna Selts Suss created a smoke sauna in the centre of Seljaküla Village. RMK helped out by providing the timber.

- RMK provided the birch plywood blocks needed for conducting the practical portion of the international doctoral school at Tallinn University of Technology.

## Healthy living and visiting nature

- More than 335 RMK Estonian orienteering days took place all over Estonia, in which more than 7700 enthusiasts participated more than 55,000 times.
- To offer campers a place to rest their feet or hide from the rain, students from the Estonian Academy of Arts (EKA), Interior Architecture Department, built the landmark SILD (Bridge) at the Nikerjärve recreational site.

## Environmental and nature protection

- Indrek Ilometsa won the Bloodless Hunt photography competition with his photo of a green sandpiper.
- RMK offered a special prize for the photography contests *Nature Photo of the Year* and *Animal of the Year*.
- The atrium of RMK's Tallinn Office housed exhibitions showcasing the lynx – the animal of the year; Kamille Saabre's exhibition, *An Apple like an Estonian*; an exhibition of student works on the

Haabersti white willow; EKA student works *Dozen Journeys*; the best photos from the bloodless hunt; and an exhibition about Estonian forests based on the book by Anneli Palo, landscape ecologist.

- RMK supplied firewood to the Estonian Union for Child Welfare camps at Remniku and organised nature study programmes for campers.
- RMK was a co-organiser of the Nature Festival, which invites people to notice nature in urban spaces and promotes sustainable consumption and behaviour habits.

# RECOGNITION

## HAPPINESS PROVIDER

RMK is the brand that contributes the most to the happiness of Estonians. This was the result of the survey, Meaningful Brands, carried out by Havas Estonia, which asked respondents to rate their subjective sense of happiness, insofar as how much brands contribute to it.

Intensive fieldwork (7600 respondents) revealed that, in addition to money, other aspects, like children, education, the ability to prioritise learning and noticing the little things, also make Estonians happy. Brands that were rated as contributing the most to happiness were RMK, followed by Apollo and Rahva Raamat. When it came to rating different aspects of responsibility, RMK ranked highest in the categories of transparency and honesty.

RMK also maintains a high ranking in Kantar Emor's surveys – RMK ranks fourth on the list of the most preferred employers and ninth in the large company reputation survey.

Many RMK employees were recognised. The Minister of Rural Affairs, Tarmo Tamme, rewarded Toomas Kivisto, Head of the Forestry Improvement Department, with an agriculture and rural development promoter silver award. The Stock Manager of RMK's South-West Region, Einart Kask, was awarded the proud title of Father of the Year 2018.





## FOREST MANAGEMENT

State forest  
surplus  
190 million m<sup>3</sup>

Renewed  
forest area  
11,500 ha

New forest  
plants  
21.3 million

Cleaning  
41,700 ha

Thinning  
8,500 ha

Regeneration  
cutting  
11,200 ha

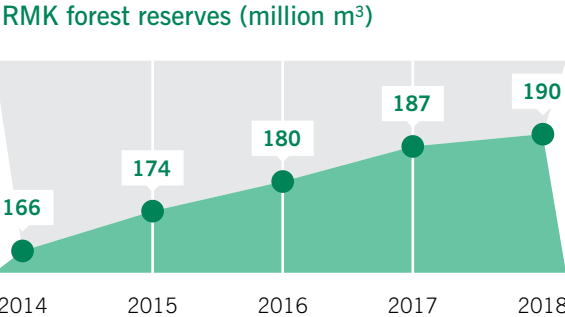
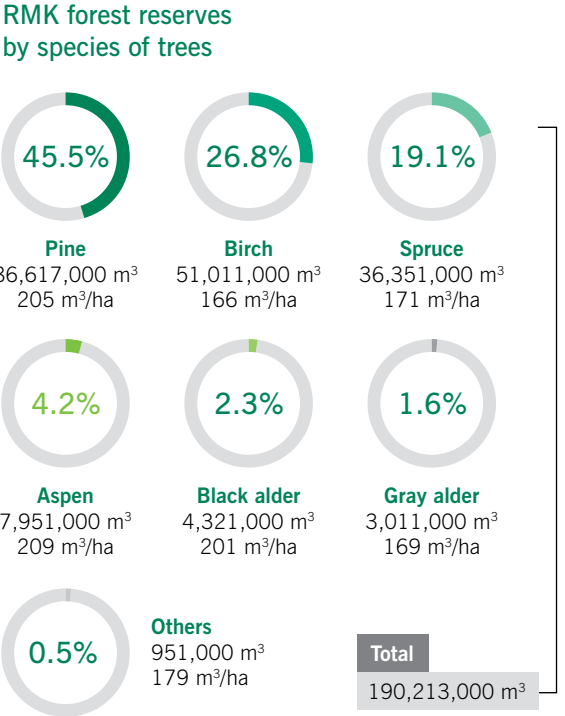
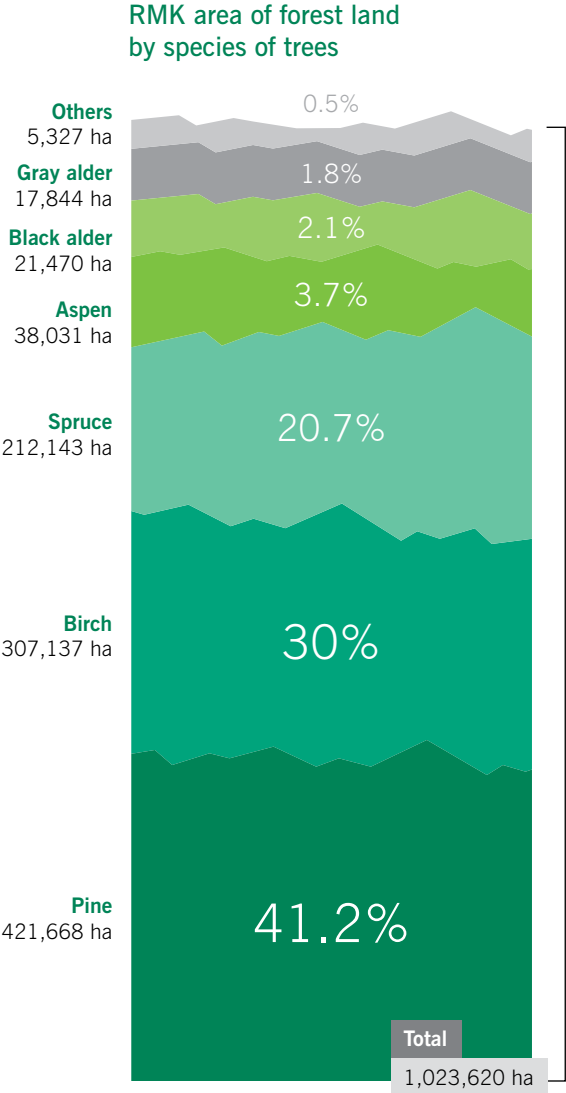
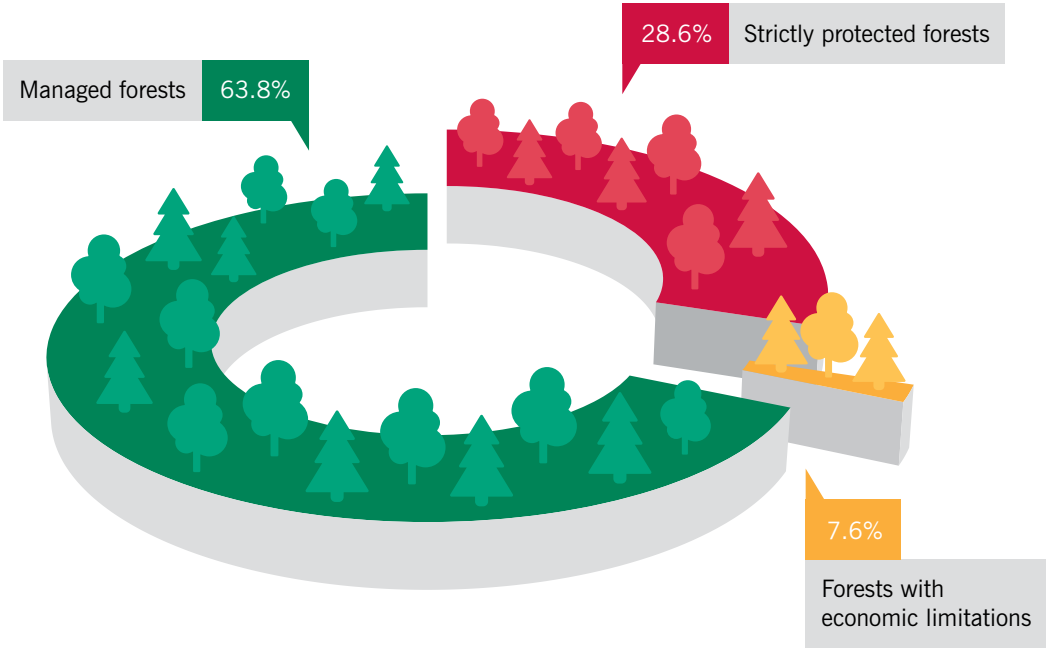
Timber sold  
3.7 million m<sup>3</sup>

Revenue from  
the sale of timber  
EUR 205  
million



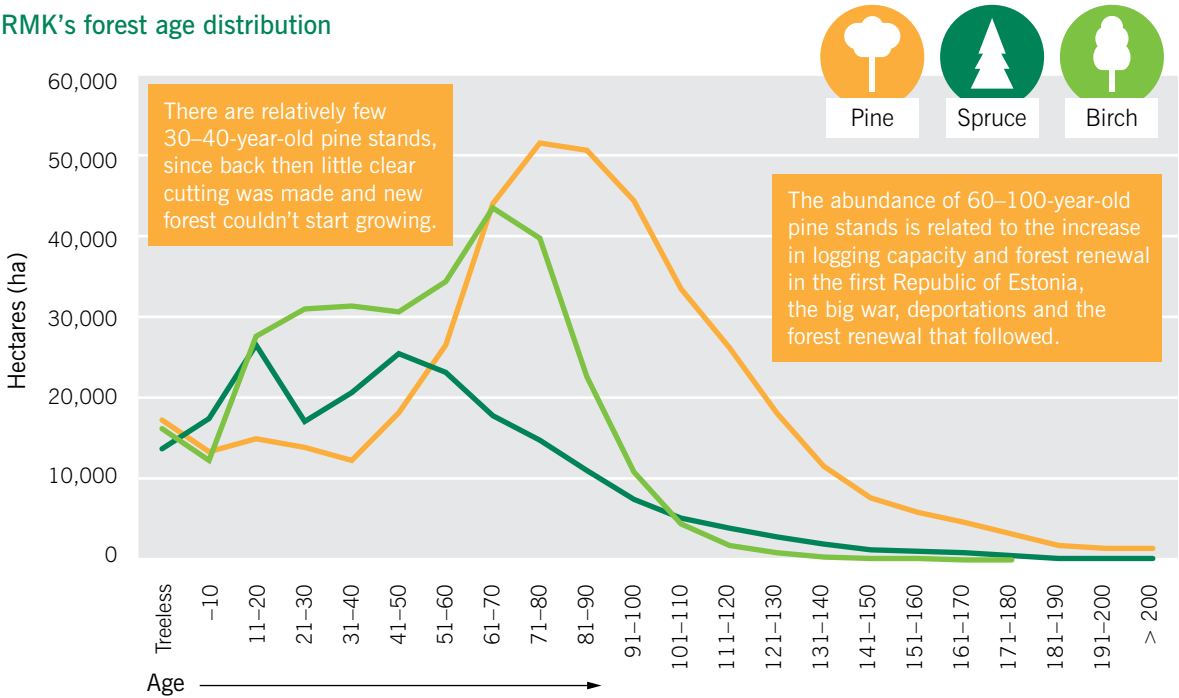
# OVERVIEW OF THE RMK FOREST

Division of the RMK forests (%)	2014	2015	2016	2017	2018
Strictly protected forests	18	18.8	19	25.3	28.6
Forests with economic limitations	20.5	20.6	19.8	11	7.6
Managed forests	61.5	60.6	61.2	63.7	63.8



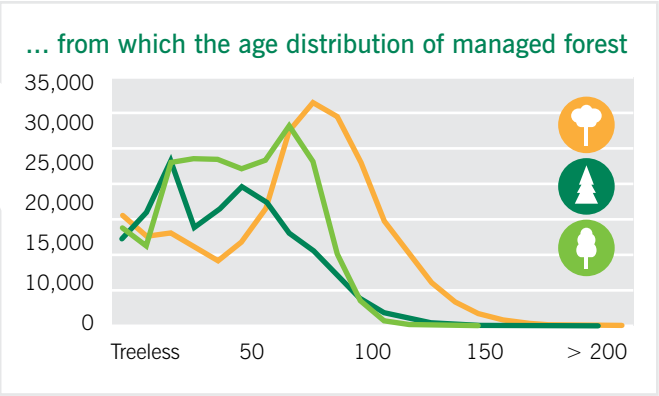


RMK's forest age distribution



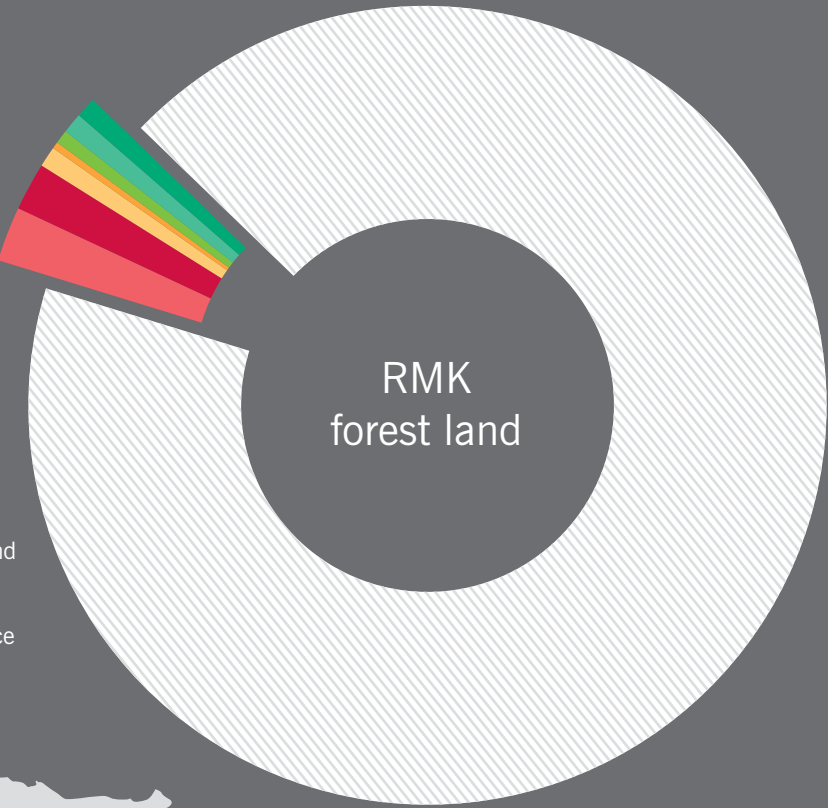
The abundance of 60–80-year-old birch stands indicates afforestation of lands where human activity was abandoned.

On average, the scarcity of 25-year-old spruce stands coincides with the restoration of Estonia's independence, when there was no time for forest management. The rise following the fall shows increased logging capacity and increased forest renewal.

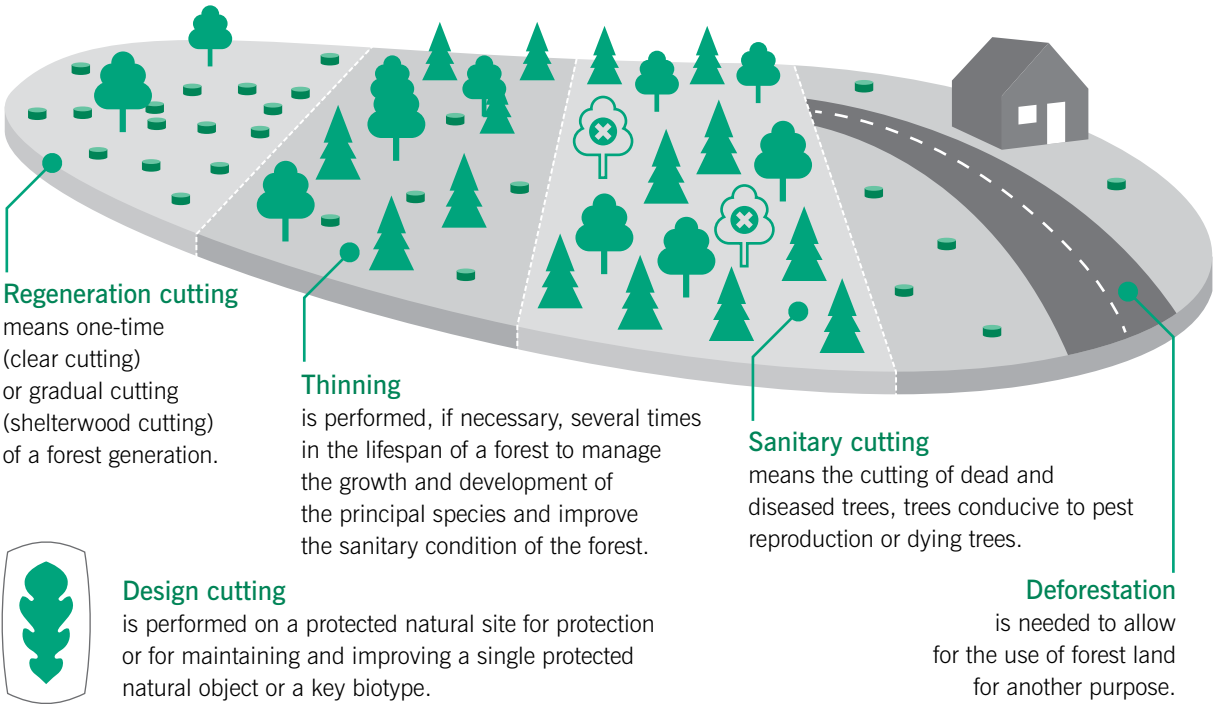


RMK's FORESTRY WORKS

- 1.1% Regeneration cutting
- 0.8% Thinning
- 0.4% Sanitary cutting
- 0.2% Deforestation
- 1.1% Forest renewal
- 1.8% Maintenance of young stand
- 2.3% Forest renewal maintenance



Cutting in RMK forest (ha)	2014	2015	2016	2017	2018
Regeneration cutting	9,513	10,471	11,920	10,866	<b>11,227</b>
... of which clear cutting	9,394	10,387	11,799	10,797	<b>11,083</b>
... of which shelterwood cutting	119	84	120	69	<b>144</b>
Thinning	9,909	9,339	9,079	9,944	<b>8,478</b>
Sanitary cutting	10,280	6,342	6,017	3,980	<b>3,906</b>
Deforestation	680	969	869	725	<b>1,605</b>
Design cutting	68	392	332	149	<b>72</b>



IN AGREEMENT WITH THE COMMUNITY

RMK introduces the necessity of the action to the local community, before starting cutting works in a forest with heightened public interest. A total of 41 engagement meetings were held for managing heightened public interest (HPI) areas in 2018. Jobs being planned in Haapsalu, Narva-Jõesuu and Viimsi RMK forests were also entered in the decade-long forest management plans for those areas.

In 2018, RMK mapped 837 HPI-areas, with a total area of 51,100 hectares. This is 5% of RMK’s forest area. Harju County has the most HPI-areas, followed by Viljandi County, Saare County and Ida-Viru County.

RMK has set specific principles for managing HPI-areas. For example, in the majority of cases the forest is renewed through the use of smaller lots that are fitted into the landscape. In places where the soil allows, and the new trees can manage with tighter lighting conditions, shelterwood cutting is performed instead of clear cutting. Working at night is avoided and local people can voice their opinion when picking out old seed trees. Regeneration cuttings are needed to keep the forests viable, of different ages and diverse for the following generations to come.

Forests that are actively used by local communities are defined as HPI-areas by RMK. These are usually located in cities, recreational forests, adjacent to cities and villages or places that are relevant from the perspective of local culture, archaeology, religion or history.



<b>Forest renewal</b>	2014	2015	2016	2017	<b>2018</b>
Mineralization of the land for planting (ha)	5,653	6,739	6,403	7,918	<b>7,924</b>
Mineralization of the land to aid natural renewal (ha)	1,202	1,343	1,419	1,686	<b>1,604</b>
Forest sowing (ha)	617	466	272	311	<b>335</b>
Forest planting (ha)	5,785	6,069	6,443	7,140	<b>7,177</b>
Aiding natural renewal with planting or sowing (ha)	408	397	261	434	<b>705</b>
Leaving for natural renewal (ha)	2,017	2,089	1,455	2,021	<b>1,680</b>
Contribution to the forest renewal (ha)	3,102	3,611	3,597	2,940	<b>2,959</b>
Plants planted (million)	18.5	19.3	20.2	21.2	<b>21.3</b>
... out of which pot plants (%)	42	50	42	52	<b>52</b>
Forest renewal maintenance (ha)	23,048	24,559	23,966	24,607	<b>23,201</b>

<b>Maintenance of young stand (ha)</b>	2014	2015	2016	2017	<b>2018</b>
Clearance	19,375	19,769	19,366	19,072	<b>18,462</b>

<b>Planting and sowing by tree species (ha)</b>	2014	2015	2016	2017	<b>2018</b>
Pine	3,329	3,061	3,101	2,925	<b>3,241</b>
Spruce	2,885	3,197	3,015	4,046	<b>4,267</b>
Birch	578	631	809	469	<b>683</b>

## INNOVATIVE MACHINE PLANTING

RMK carried out forest renewal maintenance on 11,500 hectares – mostly planting, but also sowing or leaving for natural renewal or contributing to the process. A total of 21.3 million trees were planted, 1.4 million of them in autumn. In total, 10.1 million pines, 9.6 million spruces and 1.6 million birches were planted. Some alders and oaks were also planted.

Extreme drought during spring and summer made forest cultivation works harder. The carefully performed job achieved good results, although in some places the forest renewal needed a follow up. In addition to heat, pine weevils also harmed the plants in some areas. The growth of conifer trees planted in previous years also remained moderate.

For the first time, RMK used machine planting. In this case, both ground preparation and planting are performed as a single action – firstly, a special digger attached to the excavator's jib creates a mound suitable for planting, and then a potted plant is placed in a mound with the planter head. Machine planting is convenient in places where it is difficult for a person to perform the task, where the land is waterlogged or the terrain is uneven. Machine planting covered about 100 hectares.

## PROTECTING FOREST PLANTS



RMK adopted several measures to protect forest plants from insects and game. A total of 3.5 million forest plants were treated with wax and glue in the nurseries prior to being planting; the

layer that formed will prevent pine weevils from damaging the young tree. In autumn, young trees across almost 3000 hectares were sprayed with a natural remedy consisting of sheep fat, which repels animals from eating the trees. The repellent is effective from six to eight months, covering the most dangerous time from late autumn until early spring.

## RENEWING NICELY

A record area of 9768 hectares was considered as renewed. This shows the success of forest renewal – in areas where trees were cut in previous years, followed by planting and maintenance, the purpose of forest renewal has been accomplished; the desired numbers, varieties and heights of trees are growing in these areas.

# PLANT CULTIVATION

Growing forestry plants (million)	2014	2015	2016	2017	2018
Pine	11.6	10	11.8	10.8	10.2
Spruce	9.5	10.1	9.1	10.7	9.6
Birch	1.1	1.6	1.9	1.2	1.6
Other (black alder, oak)					0.1
Total	22.2	21.7	22.8	22.7	21.5

## ESTONIAN FOREST PLANTS

In RMK’s greenhouses and open nurseries, 21.5 million small trees became suitable for planting in the forest. RMK grown spruces, birches and soon alders too, are mainly grown using the pot-field system. RMK grows pines as pot plants.

RMK’s nurseries are located in the City of Tartu, Marana and Reiu, Räpina, Purila, Rulli, Kullenga and Iisaku. The area occupied by nursery in Tartu and at the Rulli Nursery, in Valga County, is expanding. The year 2018 marked the end of the growing of ornamental trees in Tartu, and the vacant land will be used for growing forest plants in the future. As a result of forest clearing, the Rulli Nursery gained 13 hectares of open fields.

## NATIONAL SEED SURPLUS GUARANTEED

As at the end of the year, the forest tree seed surplus was 8245 kg. The spruce seed surplus will last for at least eleven years, pine seeds for six and white birch seeds for three years.

## DESCENDANT TEST AREAS

In order to have strong trees in the future, RMK is establishing descendant test areas in cooperation with the Estonian University of Life Sciences. Pine test areas have been established, plus-tree descendant seeds with good qualities are being selected and planted in the spruce test areas until 2020. Researchers from the Estonian University of Life Sciences are selecting silver birch plus-trees to establish a test area, and it is hoped that the first birch trees will be planted in 2021.

At the beginning of 2019, RMK and the Estonian University of Life Sciences entered into a contract, according to which RMK will fund the forest tree improvement programme for a period of five years in the amount of EUR 300,000.

Estonian  
seed stock



Pine  
3070 kg



Spruce  
4934 kg



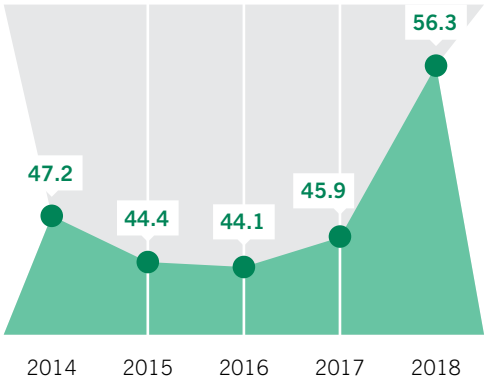
Silver birch  
239 kg

# TIMBER MARKETING

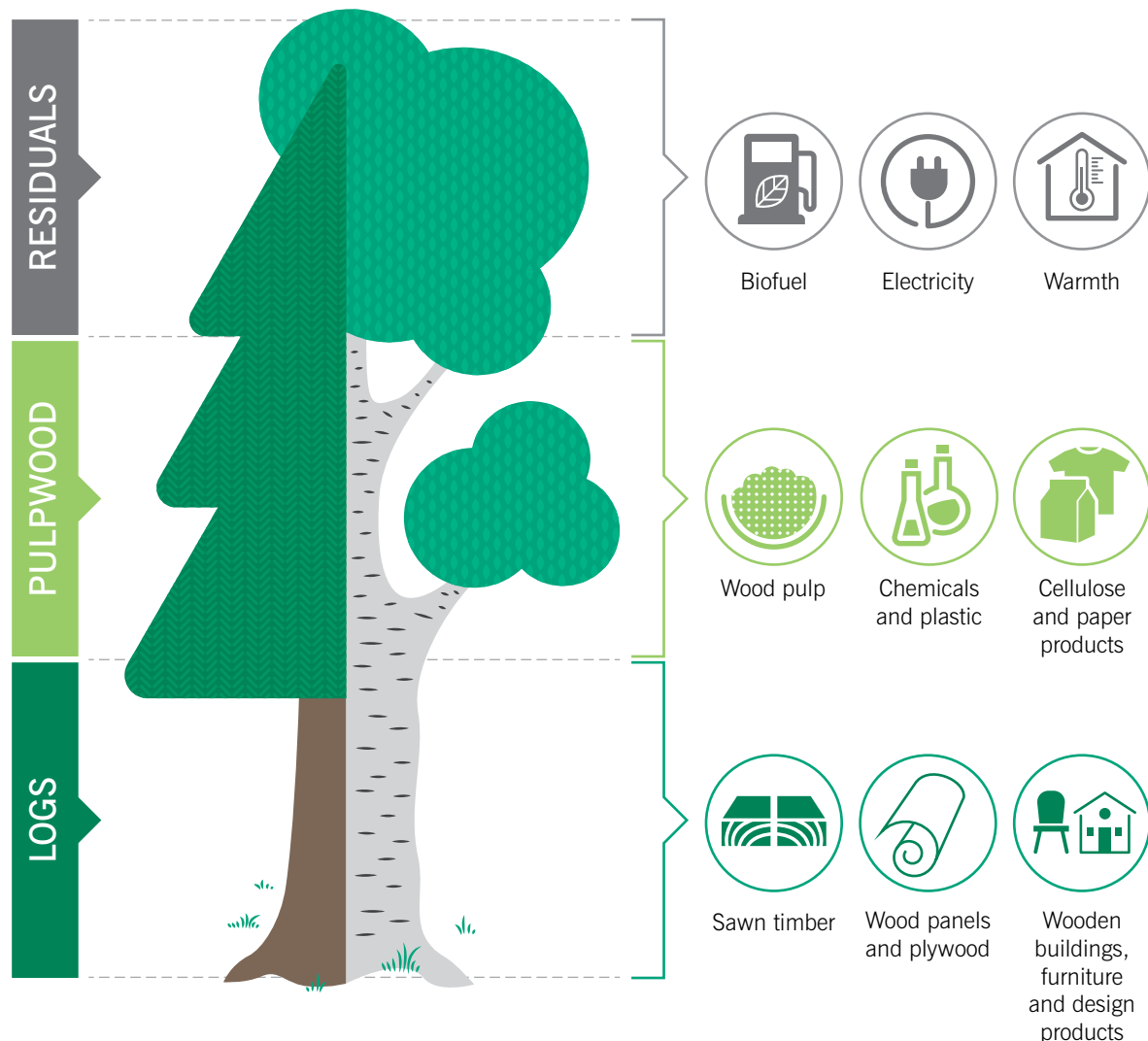
Sale of timber (m³)	2014	2015	2016	2017	2018
Logs	1,492,000	1,596,000	1,819,000	1,798,000	1,795,000
	45%	44%	46%	48%	49%
Pulpwood	1,216,000	1,292,000	1,352,000	1,213,000	1,200,000
	36%	36%	34%	32%	32%
Firewood	487,000	558,000	602,000	579,000	565,000
	15%	16%	15%	15%	15%
Wood chips and residuals	138,000	148,000	183,000	205,000	150,000
	4%	4%	5%	5%	4%
Total	3,333,000	3,594,000	3,956,000	3,795,000	3,710,000

Biggest clients by the amount purchased	m³	%
Stora Enso Eesti AS	283,000	8
Horizon Tselluloosi ja Paberi AS	229,000	6
Estonian Cell AS	205,000	6
Toftan AS	195,000	5
Graanul Invest AS	173,000	5
Osula Graanul OÜ	170,000	5
Metsä Forest Eesti AS	170,000	5
Laesti AS	148,000	4
BillerudKorsnäs Estonia OÜ	125,000	3
Aegviidu Puit AS	117,000	3
Total	1,815,000	49

Average price of the sold timber (EUR/m³)







## PRICE RALLY

RMK sold 3.7 million m<sup>3</sup> of timber in 2018, 2% less than in 2017. Logs made up 49% of the sales volume, pulpwood 32%, firewood 15% and wood chips 4%. The timber market was on a strong roll, which was reflected in the increased sales prices.

Baltic Sea countries faced a deficit of industrial timber due to heavy rainfall in the second half of 2017. A lack of confidence and knowledge about whether and how the bad weather would improve the possibilities for stocking timber during the winter prevailed. Demand exceeded supply in all assortments. Summer and autumn were dry and warm, which meant a fire hazard. In Sweden, extensive forest fires halted logging for several months. This kept the market from normalising.

The price rally, which began in the autumn, continued throughout the first half of the year. The average price of conifer tree logs increased by 13.2% in the first half of the year, compared to the second half of the previous year, while birch logs rose by 7.8%. The increase continued in the second half of the year; overall, the annual increase in the price of conifer tree logs was 17.1% and 11.8% for birch logs.

On the pulpwood market prices remained high at Estonian ports throughout the year, developing into the longest lasting price anomaly of the past few decades. A dry summer and high prices motivated forest owners to do more thinning. Prices, which were kept high mainly at the initiative of exporters from Sweden, and to a lesser extent Finland, exceeded the opportunities of local processors and the share of cut

pulpwood exports increased. The average price of spruce and pine pulpwood increased by 64.6% and the price of birch pulpwood increased by 63.1% over the period of a year.

The firewood market continued to show positive progress throughout the year. The fulfilment of sales contracts had failed in the autumn of 2017, hence they were extended into 2018. Thankfully, winter and the dry period following it made it possible to get back on track with sales by summer. The price range increased sufficiently and forest owners were greeted with the storing of firewood becoming profitable. The average price of firewood increased by 11.8% during the year.

The only segment of goods where the sales volume decreased significantly was wood chips. The reason for this was waterlogging in 2017, when cutting waste was used more for strengthening the forest roads and the amount of wood chips collected for production decreased. Increased demand was reflected by the entering into of new contracts with clients, when the price range of the second half of 2018 turned out to be 18.9% higher compared to the first half of the year. The average price of wood chips increased by 12.7% during the year.

RMK continued selling cutting rights in the form of sanitary cuttings for private persons to store firewood. Cutting rights were also sold for design cutting to recover semi-natural biotic communities and for the clearing of several peatlands. Cutting rights were sold for 20,000 m<sup>3</sup> with an average price of 14.7 euros/m<sup>3</sup>.

# FOREST IMPROVEMENT

Forest improvement indicators	2014	2015	2016	2017	2018
Forest roads built, reconstructed and renewed (km)	268	495	361	348	316
Reconstructed and renewed drainage systems (ha)	7,100	23,800	13,200	22,600	25,700
Investment into forest roads and drainage systems (million euros)	23.2	22.9	23.5	23	23.5

## ROAD NETWORK IN ORDER

RMK owns 9080 km of forest roads, with an additional 2000 kilometres of roads that are located on other owners’ lands, but which RMK uses, and therefore also maintains. Forest roads are simplifying forestry and nature protection works, making it easier to put out fires and making it more convenient to move around in nature. Forest roads are constantly maintained and new roads are also built when needed.

There are 500,095 hectares of drainage systems, with no new ones being built. However, the already existing ones do require maintenance and reconstruction. Nearly half of RMK forest lands have been drained, which increases the increment of RMK forests by half a million cubic metres every year.

# WASTE COLLECTION

Waste collection in RMK forests	2014	2015	2016	2017	2018
Amount (kg)	270,600	572,000	247,000	281,800	290,200
Expenses (EUR)	52,000	145,000	53,000	92,000	100,000

## HOMO NEGLIENICUS CONTINUES

During the course of the year, 290 tonnes of waste – at a cost of EUR 100,000 – was collected from RMK’s forests. The amount represents an increase of eight tonnes over the previous year. Ida-Viru County, Harju County, Lääne County and Rapla County stand out as the most problematic areas.



Household and construction waste, furniture, as well as glass and metal, and hazardous waste are all dumped in the forest. Leaves packed in plastic bags are left in nature by active rakers. If organic

material was spread around in the forest, it would become a part of nature, but left in plastic bags it simply smells and serves as an eyesore. Taking furniture and construction waste to the waste dump seems to be too expensive and complicated for many people. Arranged waste management can be a problem in places where many families live on a single property, for example cottage co-operatives.

RMK has installed cameras at sites where the dumping of waste is most problematic. During the four years that cameras have been in use, a fair number of people have been justly punished thanks to the help of the cameras. A private person can be fined up to EUR 1200, and a legal person can receive a fine of up to EUR 3200, for dumping waste in the forest.

While setting up waste cameras, RMK, in cooperation with the environmental ethicist Mattias Turovski, came up with a new human species – the common litterer or *Homo neglienicus moronicus*. Unfortunately, it must be noted that this wretched species is still quite viable.



# FOREST FIRES

Forest fires in RMK forests	2014	2015	2016	2017	2018
Number (pcs)	24	10	9	1	45
Area (ha)	37.8	15	96.7	4	269
Average fire area (ha)	1.6	1.5	10.7	4	6

## THE BIGGEST FIRE IN THE MANAGED FOREST

Fire was a serious concern during the summer dry spell, with 45 fires ravaging a total of 269 hectares of RMK’s forests. Fires that were greater in scope than this occurred ten years ago; however, never before has so much managed forest been consumed by fire.

In June a fire started in the managed forest near Aegviidu and spread to 180 hectares over a period of 11 days. Forest of every age was burning, and the situation was exacerbated by a rare treetop fire. A total of 37 brigades and hundreds of volunteers took part in putting out the fire.

In order to cut the fire damaged timber, foresters completed special training. Blackened and un-blackened timber was sorted separately, and 17,400 cubic metres of timber were gathered from the area.



New pines and spruces are planted in the burnt area in the spring of 2019, with birch shoots already sprouting up from blackened soil a few weeks after the fire. In the future, nearly 150 hectares of same

age forest will be growing around Aegviidu, which is not exactly an everyday sight.

After the fire, RMK placed two new key biotypes, near the fire area and on its borderline, under strict protection. Fire even added value to the areas, since it created suitable conditions for species that love dead timber and a post-fire natural environment.

# HUNTING

RMK hunting grounds usage price	2014	2015	2016	2017	2018
Average price (EUR/ha per year)	2.16	3.02	2.93	3.76	2.26

## MORE MODEST HUNTING REVENUE

RMK earned EUR 178,000 from their activities in the field of hunting, with the lion’s share coming from the revenue earned from the sale of hunting licences in public auctions. In a yearly comparison, hunting revenue decreased by a third; the reason for this is marginally decreased elk hunting quotas in the Kilingi-Nõmme hunting area, and due to African swine fever, which has nearly eradicated wild boar from the forests.

On average, RMK was payed EUR 2.26 per hectare for hunting. RMK shared EUR 9500 of the revenue from public auctions with land owners who permit hunting on their private lands.

RMK manages the Kilingi-Nõmme, Kuressaare and Väätsa hunting areas. Within those areas where RMK itself is not administering the hunting activities, RMK has concluded agreements for the use of state land for hunting with 329 hunting district users. Among other things, the contract also states when hunters have to compensate damage caused to the forests by game.



In 2018, RMK presented a damage claim to 33 hunting associations for damage caused by game animals. In total, this affects 80 hectares, where game animals have damaged forest renewal in

a way that the area needs to be restored or supplemented. The total amount of the claims is EUR 24,833 euros and instead of paying, hunters can perform the planting job themselves. Seven hunting associations have requested the option to do so. The job performed by hunters is deducted from the claim and so the final total amount of the claims is EUR 20,333. Compared to previous years, the area of damaged forest renewal has grown significantly.





## NATURE PROTECTION

Protected  
species  
490

Sites with  
protected species  
36,254

Total area of  
key biotopes  
18,617 ha

Semi-natural  
biotic communities  
maintained  
21,585 ha

Cost of nature  
protection works  
EUR 4.9 million



# PROTECTED AREAS

## NEW PROTECTED AREAS

At the beginning of 2019, the Ministry of the Environment approved the creation of 58 new nature protection areas, for the protection of mesoeutrophic, nemoral and paludifying forests. The areas were proposed by RMK in 2017, to contribute to the country’s goal to ensure strict protection of all Estonian forest types at a level that creates the prerequisites for the preservation of species native to such types of old forest and ensures the growth of biodiversity in forests in general.

A total of 26,715 hectares of forests were placed under protection. All protected areas belong to a special management zone where economic activity is forbidden. Substantively, RMK already considered the forests in question to be part of strictly protected forests in 2017, and stopped all kinds of economic activity within.

In addition to new protection areas, a stricter protection procedure has been established for already existing protection and preserve areas in nemoral and mesoeutrophic forests. The limited management zone protection regime is being transformed into a special management zone on nearly 13,000 hectares, and by doing so RMK’s proportion of strictly protected forest will increase in the future, particularly at the expense of forests with economic restrictions.

## BUYING PROTECTED AREAS

At the beginning of 2018, RMK was assigned the obligation to buy areas with nature protection limitations from private owners. During the year, RMK acquired 22 properties with a total area of 89 hectares, spending EUR 570,000 to do so.

The purchasing of lands with high natural value for the state was previously the task of the Land Board, which performed the transactions within the limits of the funds granted to it by the state budget. In this way, compensating public interests for private land owners was not sufficient or fast enough. RMK was given the right to earn funds for buying nature protected areas, by selling lands which are not necessary for the principal activity of RMK. For example, these lands may be hard to access, too small, separated from the rest of RMK’s land or located in between properties with buildings.

In 2018, RMK held five written auctions to sell such land areas. A total of 139 properties covering 1178 hectares found their way to new owners, with mainly forest land being sold. Revenue from the sales was EUR 5.6 million.

The required preliminary work prior to selling is carried out by the Environment Agency. Due to changes in the system, the number of transactions in 2018 was not as big as RMK’s financial status would have permitted.

Protected Areas in RMK forests (ha)	
Special mgmt. zone of the Protected Area	165,904
Limited mgmt. zone of the Protected Area	70,344
Limited mgmt. zone of Species Protection Site	29,605

Special mgmt. zone of Species Protection Site	23,788
Special conservation area	20,124
Strict nature reserve of a Protected Area	3,316
Protected Area without protection rules	699
Single object in nature	115

# PROTECTED SPECIES

## NEW SPECIES

There are 490 protected species registered in the territory of RMK. Of these, 53 belong to the most strictly protected category I, 231 to category II, and 206 to category III.

Over the year, the number of protected species increased by six on RMK’s lands. In many cases it is family class observation, which for certain species has not yet been specified. As new species, the category II pimpled kidney lichen (*Nephroma resupinatum*), bitter cep (*Boletus radicans*) and (*Carex rhynchophylla*) can be identified.

There are 36,254 sites with protected species on RMK’s lands, with the number increasing by 4403 during the year. A discovery site is understood, in the case of one specimen of a species or, in the case of plants growing in groups, as being the habitat of the group, the nesting area for birds, etc.

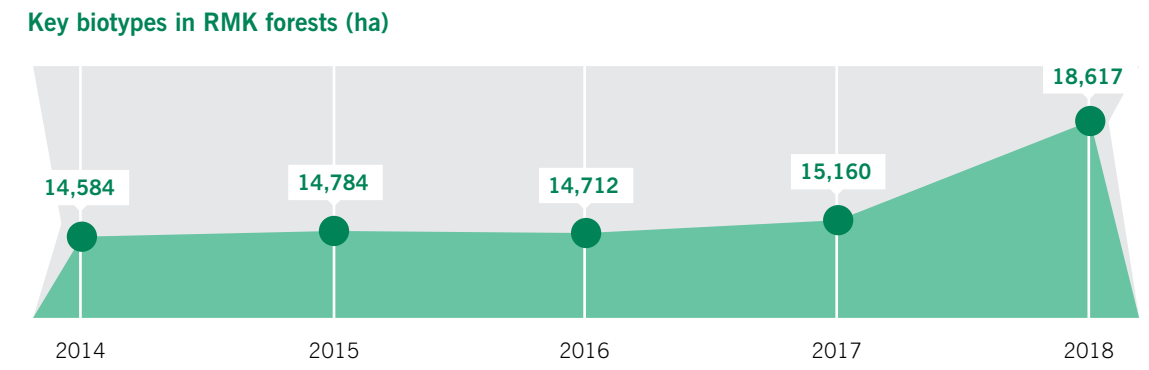
## EURO PROJECT FOR PROTECTION OF THE FLYING SQUIRREL

RMK joined the joint Estonia-Finland project started to improve the living conditions of the flying squirrel. During the project, suitable habitats for the flying squirrel are inventoried, artificial nests are installed and maintained, and forest design plans and a predation pressure reduction plan are created.

RMK has been paying careful attention to the flying squirrel for years. Movement corridors, which connect known habitats of flying squirrels, have been placed under RMK’s protection. It is hoped that the cooperation project will yield additional information about the preferred habitats and spreading ecology of the flying squirrel. Also communal works are being carried out and a permanent exhibition introducing the flying squirrel is being set up at the Iisaku Visitor Centre.

The flying squirrel is a protected category I species found only in Estonia and Finland. The project will continue until 2025, funded mainly by the European Union LIFE-programme.

# KEY BIOTYPES



## EXTENSIVE INVENTORY

On RMK lands, 18,617 hectares of key biotypes have been taken under protection, with the area increasing by 23% over the year. Behind the big increase is the extensive inventory, which began in 2017.

In the first phase, 65 RMK forest administrators having the corresponding key biotype licence inventoried the oldest forests. This resulted in 3128 hectares of new key biotypes being registered. The inventory continues.

Key biotypes are suitable habitats for rare and endangered species on managed forest land where structures inherent to natural forests have been preserved, for example, very old trees, big lying and dead or burnt trees, and these areas lack significant human influence (cuttings, drainage). Since forest lands like these are rare and sparsely located in the managed areas, it is important to preserve forest lands with these qualities for the survival of rare and endangered species.

Key biotypes strictly fall under protected forest, which altogether comprises 28.6% of RMK’s forest.

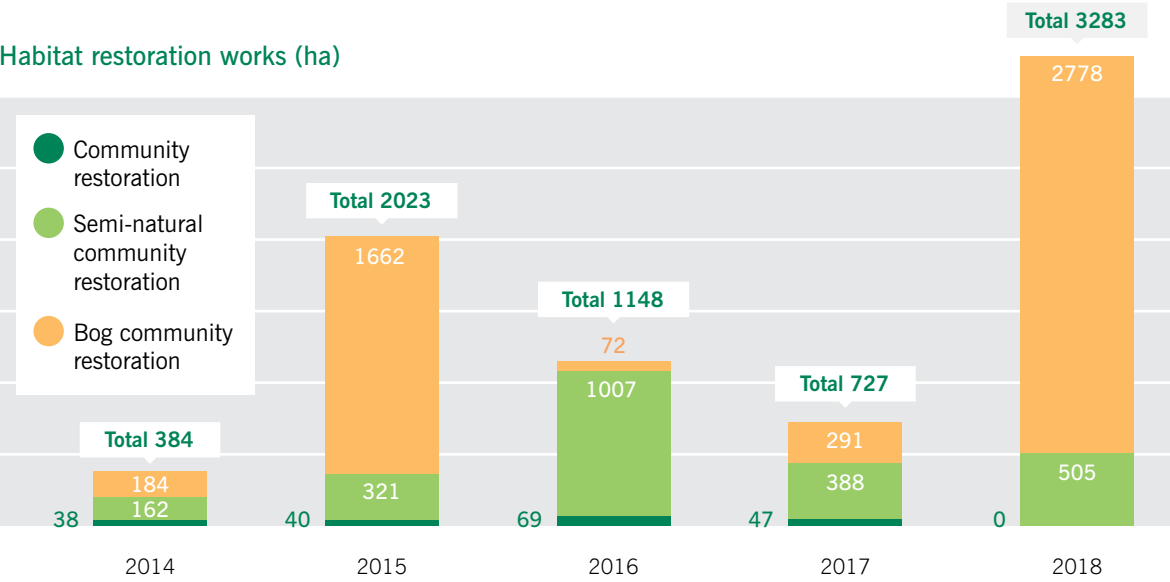
# NATURE PROTECTION WORKS

Expenditure on nature protection works (EUR)	2014	2015	2016	2017	2018
Self-financing of RMK	1,037,200	1,447,300	665,000	901,000	1,126,000
Other financing (from state budget, UCITS)	1,722,000	1,403,000	1,417,000	2,351,000	3,767,000
Total	2,759,200	2,850,300	2,082,000	3,252,000	4,893,000

## RECORD VOLUMES OF RESTORATION WORKS

In order to ensure natural diversity, the most important thing is that species have sufficient habitat in good condition. Creating and maintaining suitable combinations is a cornerstone of RMK’s nature protection actions. In 2018, habitat restoration works were performed on nearly 3300 hectares.

## Habitat restoration works (ha)





SEMI-NATURAL BIOTIC COMMUNITIES

Lands rented out for maintenance of semi-natural biotic communities (ha)	2014	2015	2016	2017	2018
Total	18,266	21,000	22,462	23,355	23,962
...new lands rented out during the year	3,757	2,734	1,462	893	607

RMK restored semi-natural biotic communities on 773 hectares. A total of 505 hectares were made maintainable with cutting and milling works; in order to improve the conditions of previously restored areas, 268 hectares of the grass layer were chopped or cut.

Most restored areas were flooded meadows, alvars and wooded meadows. Most semi-natural biotic communities were restored in the Saaremaa (203 hectares) and Alam-Pedja Nature Reserve (119 hectares).

RMK has entered into land use contracts with 378 natural or legal persons, to maintain semi-natural communities. An area of 23,962 hectares has been covered with the contracts, with semi-natural communities found on 21,585 hectares. Renting of communities has been made easier with an app ([www.maaamet.ee/rmk](http://www.maaamet.ee/rmk)), from which information about vacant and rented out areas can be found and a wish for renting can be made known.

RMK is maintaining the semi-natural biotic communities on the 29 hectares of the Pirita River Valley Nature Reserve.

A total of 14 roads were created to better maintain heritage communities. Larger scale road reconstruction and renewal took place on Abruksa Island, within protection areas on Saaremaa and in the Alam-Pedja Nature Reserve. Access was improved in order to help maintain an area in excess of 2000 hectares.

Semi-natural biotic communities are areas characteristic of the Estonian landscape, that have been used as pastures and meadows, where moderate human intervention is required to preserve their biodiversity.

BOG HABITATS

Restoration works in bogs were completed on 2778 hectares. Works lasted many years at the larger sites – for example, the Endla Nature Reserve (700 ha), Rubina Nature Reserve (500 ha), Soomaa National Park (600 ha) and Sookuninga Nature Reserve (447 ha). A total of 60 hectares of residue bog – bog that had been damaged by peat extraction – and an old excavation site were recovered within the Määvli Bog, on Hiiumaa.

In 2018, recovery works for larger bog habitats began at the Tolkuse and Maarjapeakse bogs, in the Luitemaa Nature Reserve and at the Kikepera Bog, in Soomaa National Park. In cooperation with the Estonian Fund for Nature, works began at the Laukasoo Bog, in Lahemaa National Park, and the Sirtsu Nature Reserve, where RMK mainly performs cutting works. Restoration of the water regime in the former peat excavation sites will be performed on a scale that exceeds anything done before.

To recover the bogs, once dug drainage ditches will be filled in and the forest that has grown in the bog due to drainage will be cleared, where necessary. To assess the results of the restoration, RMK will be observing changes to the water level.

Bogs are crucial, since they help to ensure biodiversity, preserve clean water, fight against flooding and droughts and bind carbon from the atmosphere.

WORK FOR THE PROTECTION OF SPECIES

In 2018, RMK worked towards improving the condition of the habitat of 20 protected species. The biggest object was a 14 hectare large, permanent natterjack toad habitat, in Võiduküla, Pärnu County. The bodies of water where the great crested newt and spadefoot toad spawn were improved at 11 sites, along with the condition of different plant habitats at 14 sites. At the Kurtna Landscape Protection Area, control operations took place against the invasive species *Caragana arborescens*. Bushes were milled across a total of 36 hectares.



**PARKS AND LANDSCAPE VIEWS**

Maintenance and restoration works were carried out in 14 parks. In Keila-Joa Manor Park, trees posing a hazard to visitors were cut and stumps were milled. In other parks, the grass level was chopped and brushwood was cut, and isolated trees posing a hazard to visitors were cut in order to maintain the general appearance.

Landscape was maintained over 40 hectares, with the biggest being the opening of the view at Linnulahe, located near Kuressaare.

# PÕLULA FISH FARM

Fish populated to rivers from Põlula							
Year	Species	Larva	One-summer-old	One-year-old	Two-summer-old	Two-years-old	Total
2014	Salmon	97,750	107,154	15,368	9,442	35,394	265,108
2015	Salmon	98,500	127,541	40,638	3,580	41,885	312,144
2016	Salmon		86,157	44,755	5,393	36,796	173,101
2017	Salmon		54,682	60,851	21,186	42,795	179,514
2018	Salmon	75,000	118,355	79,497	9,256	32,767	314,875
2014	Sea trout		9,569	6,978		5,403	21,950
2015	Sea trout		10,308	3,617		5,686	19,611
2016	Sea trout					3,247	3,247
2017	Sea trout					2,467	2,467
2018	Sea trout					Restocking ended	
2016	Whitefish		33,810				33,810
2017	Whitefish		6,885				6,885
2018	Whitefish		43,774				43,774

## ALL IN ORDER WITH THE SEA TROUT

The recovery of the sea trout population in recent years in the rivers of the Gulf of Finland has allowed Põlula to discontinue the farming of this fish species. All vacant pools are now reserved for salmon and whitefish, the numbers of which in northern Estonian and Pärnu rivers is not yet sufficient.

Altogether, 315,000 young salmon from Põlula were introduced into rivers in May and October. Salmon were released into the Valgejõgi, Pühajõgi, Pärnu, Loobu, Purtse, Selja, Jägala and Pirita rivers. Along with one and two summer and one and two year old fish, larvae were also taken to the Purtse and Jägala rapids, since the incubating of fish eggs was so successful that there was not enough room in the hatchery to keep growing all the larvae. Under natural conditions, only a small percentage of salmon larvae survive; however, the surviving fish are much better survivors once they've grown to adulthood, compared to fish that are accustomed to the safe conditions of the hatchery.

Põlula has grown whitefish for three years, with nearly 44,000 being introduced into the Pärnu River.

Põlula Fish Farm is the only national fish farm in Estonia working to rebuild fish stocks. To improve its operation, a cryobank has been built for Põlula and preparations to create a quarantine building have begun.

A quarantine building is necessary, since fish or eggs brought from rivers to refresh broodstock can also bring along fish diseases. In the future, they can be held in quarantine for control purposes. The construction project for the quarantine building is ready and EUR 1.3 million has been applied for from the European Maritime and Fisheries Fund for the construction of the building and infrastructure. Hopefully, construction can begin in 2019.

The cryobank was built in Põlula to deep freeze fish roe of endangered fish species, to maintain their original genetic material for the future. The first salmon roe to originate from the Keila River are in cold storage inside liquid nitrogen.

Frozen roe can be stored in the cryobank for several decades.





## VISITING NATURE AND NATURE AWARENESS

Visits to RMK's  
recreational areas  
and protected areas  
2.7 million

Visitors at the  
information desks  
96,000

Visitors  
to Elistvere  
Animal Park  
61,400

Visitors to Sagadi  
Forest Museum  
34,600

Participants in  
nature education  
programmes  
51,600

Expenditures  
on visitation  
infrastructure  
and promoting  
nature awareness  
EUR 7.8 million



# VISITING NATURE

## Visits to RMK’s recreational areas and protected areas



## FOREST PEOPLE REJOICED IN HIKING

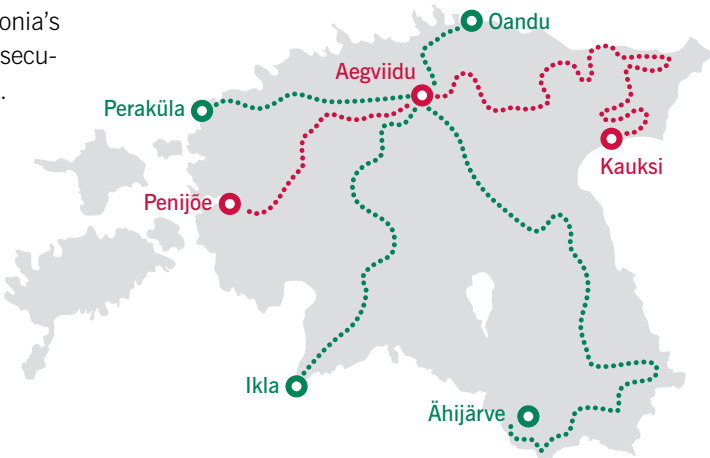
RMK recreation and protection areas were visited 2.7 million times, which is 300,000 times more than last year. People were brought to nature by the warm weather, the anniversary of the republic and related events – mostly great group hiking, but also the inaugural celebration of Estonian nature day.

The great group hiking event, dedicated to Estonia’s centennial, took place over a period of 20 consecutive days in August, and 369 people took part. The youngest participant was only 21 months old, and the eldest was 74 years old. Hiking groups travelling along six different hiking routes met in Aegviidu, the hiking capital.

Completed as an anniversary gift, the third branch of RMK’s long hiking trail covers 614 kilometres, from Penijõe to Kauksi.

With another two branches, the trail now covers the whole of mainland Estonia and offers adventure across 1800 kilometres.

RMK offers opportunities for visiting nature in 13 recreational areas, five national parks and protected areas across Estonia.



## TIDYING UP VISITATION INFRASTRUCTURE

In order to improve visitation infrastructure, reconstruction works were carried out on 36 sites. Fourteen of these sites were finished: II stage of the Majakivi-Pikanõmme educational trail, Majakivi lookout, Ojaäärse forest trail, Riisa educational trail and lookout, Iisaku lookout, Seljamäe educational hiking trail with fire pit, Selisoo hiking trail with fire pit, Kurtina hiking trail with fire pits, Emajõe and Luhasoo educational trails, Pühajärve and Murru-metsa nature trails, and the Elistvere Animal Park’s wolf yard.

## HISTORICAL BEAUTY

The Estonian-Finnish cooperation project *Lights On!*, during which four historical sites were reconstructed, came to an end. Views were opened and accessibility was improved in Keila-Joa Manor Park and the Neeruti stronghold, and the Lõhavere and Varbola fortresses. A total of 7500 people took part in the Light Festival at Keila-Joa Park, celebrating the ending of the project.



328

covered fireplaces



224

nature trails, with a total length of 3100 kilometres



59

campsites, a total of 455 sites with camping facilities



27

forest cabins



20

forest houses



3

off-roading areas



# NATURE AWARENESS

Nature programmes and nr of participants	2014	2015	2016	2017	2018
Nature programmes organised	2,455	2,695	2,766	2,667	2,594
Participants in programmes	47,500	48,500	52,800	52,000	51,600

A total of 2594 nature education programmes for 51,600 people were carried out during the year at RMK visitor centres, nature houses and the Sagadi Nature School. Kindergarteners and school children are able to take part in organised campaign projects that take place three times a year for a symbolic EUR 1 participation fee.



More than 270,000 enthusiasts took part in different nature awareness activities, which is 30% more than the year before. RMK information desks gave advice 96,000 times.

# ELISTVERE ANIMAL PARK

## AWAITING THE WOLVES



Lynx, the animal of the year for 2018, performed deeds at Elistvere Animal Park; unfortunately, the story with a happy beginning came to a bitter end. The joy was great when, at the end of July, little lynxes started moving around in the lynx enclosure. The female lynx, Gella, had given birth to three kittens. Unfortunately, the male lynx, Lars, who had a lung malformation, died in August, and in September the kittens also passed away. They were afflicted by intestinal parasites, which unfortunately were discovered too late.

In August, an American mink arrived at Elistvere from the Tallinn Zoo. The animal is white-grey-black-coloured, uncommon for its species, and is very communicative with visitors.

At the end of the year, a long-time dream came true – a wolf enclosure. When the wolves will move in is not yet known, as young socialised animals are still being sought.

The animal park was visited by a record 61,400 people.

# SAGADI FOREST CENTRE

Number of visitors to the Sagadi Forest Centre	2014	2015	2016	2017	2018
Visitors at Forest Museum	34,000	28,500	32,800	31,400	34,600
Accommodation clients	9,800	9,500	9,100	7,100	8,200



The exhibition *100 Steps in the Forest* was set up in the attic of the manor house in the Sagadi Manor complex. This is a tribute to the Estonian forest and to all those people who, over the last 100 years, have contributed to the development of forestry here. The exhibition presents an overview of the most important trends and events that have taken place in forestry, brings together valuable photos and stories about the forest, and presents iconic tools and symbols for examination. The exhibition is also open in 2019.

Cooperation with the Russian Theatre brought classical drama to the Sagadi Manor Park in the summer. The play is the Russian writer Ivan Turgenev's *A Month in the Country*. The play fits beautifully into the environment and primarily increased the number of visitors of Russian nationality, many of whom found their way back to Sagadi later on, during different events. The play, *A Month in the Country*, was performed 17 times and seen by more than 4000 people. Due to audience interest, the play can also be seen in June 2019.

Sagadi Forest Centre also hosted the traditional events of a hundred costume days, night museums, family days at nature school, tree days, a mushroom exhibition, and a week of Lahemaa flavours.

# NATURE CAMERA

## ADVENTURES AT THE BADGER'S HOUSE

Animals, birds and fish could be observed via a nature camera. Deer and badgers were active in Saare County. The badger den, with its nineteen holes, had never experienced so much bustle before. The den accommodated a racoon family with at least seven kits and a badger couple with two cubs. For the first time it was possible to see how a mother badger took her two cubs from one den to the other between her jaws. A potentially life threatening event also took place at the badger den, when an old racoon fiercely attacked one of the badger cubs. The mother badger, who was close by, saved her cub from the worst.

A herd of about fifteen bulls was constantly seen in front of a deer camera. In midwinter, deer cows with calves came to munch on silage and carrots. The antler shedding period began at the end of February. It would have been interesting to see, how many antlers were left on the ground by spring; unfortunately, antler-goblins had discovered the location of the camera.

In the first months of the year a jackal camera was placed near the shore of Matsalu Bay, in Metsküla. Since autumn, a camera has been located at Saastna Peninsula. When the Bay froze at the beginning of the year the movement of the jackals in front of the camera lessened; however, in late spring four animals were suddenly spotted in the frame.

The spring migration of anseriformes and other birds was observed by a nature camera at Sassi Peninsula, summer migration of charadriiformes at Noarootsi Havers Beach, and autumn migration at the Haeska coastal meadow.

A fish camera was set up along the little stream in Põlula. It turned out that the river trout remained at their spawning grounds until the end of January.

# CHRISTMAS TREES

For the past 10 years RMK has offered the opportunity to select your own Christmas tree from the state forest. This time, a total of 9700 trees were picked up. As is common for the modern Estonian, payment for the tree is eagerly made using a mobile telephone.

# HERITAGE CULTURE

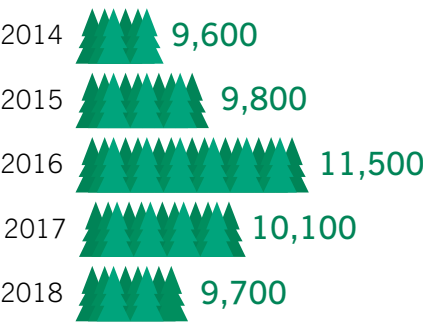
## UNIQUE IN THE WORLD

The heritage culture database, created at the initiative of RMK, saw 500 new objects added to it during the year. The database currently contains information on 38,679 objects, in total.

In the area of heritage culture, 2018 will be remembered for a hundred trilingual information boards, which introduced cultural historical objects near the RMK hiking trail. The heritage culture database served as an important source of information in selecting them.

At the end of the year, RMK, in cooperation with the Austrian Forest Society and Czech Academy of Sciences ethnological institute, organised a conference *European Forests – Our Cultural Heritage*.

## Christmas trees from RMK forest



The conference is a part of the work by the forest culture work-group from the International Union of Forest Research Organizations (IURFO). Over a period of four days, scientists and practitioners from 16 countries introduced different aspects about the forest's cultural values. Presentations at the conference ensured, among other things, that nationwide mapping of unprotected cultural objects at such a volume probably makes Estonia unique in the entire world.

In order for the theory to be applied in practice in the field of heritage culture, training of RMK foresters took place on the preservation of heritage culture in forest management.





## RESEARCH

Applied research  
projects supported  
17,  
including  
3 active

2008–2018  
budget for applied  
research  
EUR 2.3 million

Forestry  
scholarships  
5

Scholarship  
spending  
EUR 33,000



# APPLIED RESEARCH

In 2018 three science projects funded by RMK came to an end. The Research Council has selected two new process-orientated research projects to be supported.

RMK started its targeted financing of research in 2008. During this time, funding decisions have been made for 17 applied research projects in a total sum of EUR 2.3 million.

## THE RMK RESEARCH COUNCIL

### University of Tartu

- Asko Lõhmus
- Krista Lõhmus
- Ülo Mander

### Estonian University of Life Sciences

- Hardi Tullus
- Kalev Jõgiste
- Kalev Sepp

### RMK

- Aigar Kallas
- Kristjan Tõnisson

## FINALISED SCIENCE PROJECTS

### Smart protection of biodiversity in Estonia’s natural and economic forests: applied ecology solutions based on the example of Southern Estonia

**Duration:** 2015–2018

**Project Manager:** Meelis Pärtel, from the University of Tartu

**Project’s main executives:** Meelis Pärtel, Hardi Tullus, Aveliina Helm, Tiina Randlane

**RMK funding:** EUR 146,250

In order to assess forest diversity, a system of metrics was worked out: indexes of the community’s completeness and characteristics. For this, plants, mosses and lichens of natural forests were described based on the dark diversity concept. The connection of forest protection areas to the distribution of biodiversity was assessed. A community’s totality was influenced most at a range of 2 km from a coherent forest. Biodiversity metrics were tested in different commercial forest systems and a prototype for a smart device app was created. The results help to develop nature-friendly forest management. The project was carried out in cooperation between the University of Tartu and the Estonian University of Life Sciences.

## Impact of cutting on the carbon cycle

**Duration:** 2015–2018

**Project Manager:** Veiko Uri, from the Estonian University of Life Sciences

**Project’s main executives:** Veiko Uri, Jürgen Aosaar, Mats Varik, Hardo Becker, Gunnar Morozov, Kristiina Aun, Mai Kukumägi, Krista Lõhmus, Kaido Soosaar, Ivika Ostonen, Kaie Kriiska, Katrin Rosenvald

**RMK funding:** EUR 150,000

The science project assessed the impact of clear cutting and thinning on the carbon cycle of the stands as well as the impact on the major flows of some nitrogen cycles. It turned out that the successfully upgraded pine clear-cut area became a carbon-binding ecosystem in the seventh post-harvest year. As carbon capture is determined by the increase in trees, it is important to update the clear-cut areas quickly and efficiently. The clear-cut area of the fertile site was a weak source of carbon in the second post-harvest year and also became carbon-bound in the seventh post-harvest year. The results obtained by different methods were very consistent with each other, which increases the reliability of the study. The project was carried out in cooperation between the Estonian University of Life Sciences and the University of Tartu.

## Converting hardwood into high-value chemicals

**Duration:** 2015–2018

**Project Manager:** Lauri Vares, from the University of Tartu

**Project’s main executives:** Aleksei Bredihhin, Piret Villo, Ilme Liblikas, Urmas Johanson, Lauri Toom, Peter Somfai, Nicholas Gathergood, Omar Parve, Lauri Vares

**RMK funding:** EUR 190,473

During the course of research, a solution for creating novel polymers based on isosorbide from wood biomass was discovered. Wood-based polymers can be used, for example, in paints, protective layers of paper and cardboard packaging and high temperature plastics, where fossil styrene and methyl methacrylate are currently in use. The methodology developed in the laboratory can also be applied in manufacturing, with companies continuing to test the solution in different products. The project was carried out in cooperation between the University of Tartu and Tallinn University of Technology.



SCIENCE PROJECTS STARTED

Increasing the purpose of protected forest fragments

**Duration:** 2018–2021  
**Project Manager:** Kadri Runnel, from the University of Tartu  
**Project’s main executives:** Anneli Palo, Piret Lõhmus, Raul Rosenvald, Indrek Tammekänd  
**RMK funding:** EUR 152,517

A considerable proportion of Estonia’s protected forests are small fragments of less than 15 hectares surrounded by commercial forest. Such forest fragments are important because they provide a habitat for many scattered endangered species. At the same time, they do not form a self-regulating natural whole and are threatened by external impacts, which is why the natural values therein are also at risk. The project will examine whether the preservation of natural values in protected forest fragments depends on how the forests surrounding them are managed. As a result, management recommendations are drawn up to improve the conservation of natural values. The project will be carried out in cooperation between the University of Tartu and the Estonian University of Life Sciences.

Biocontrol efficiency and the use of antagonistic fungi to control root nesting in spruce stands and the infestation of different plant types in fertile site types

**Duration:** 2018–2021  
**Project Manager:** Tiia Drenkhan, from the Estonian University of Life Sciences  
**Project’s main executives:** Kadri Põldmaa, Tiit Maaten, Kalev Adamson, Leho Tedersoo, Rein Drenkhan  
**RMK funding:** EUR 194,213

The growth of the common spruce in fertile site types is inhibited by the wide spread of root rot. The use of the Rotstop ® Biopreparate helps to mitigate the damage caused by root washing. The project analyses the efficacy of the preparation and the effects of the treatment on the biota, as well as studies of other antagonistic fungal species and their effects on root washing. Root rot agents are aggressive in fertile types of growth and can infect young trees at an early age. Testing areas with different plant types shall be established for the analysis of root rot infestations of young trees. The project will be carried out in cooperation between the Estonian University of Life Sciences and the University of Tartu.

SCHOLARSHIPS

In support of forestry training, RMK offers scholarships.

Endel Laas Scholarship

- for doctoral students at the Estonian University of Life Sciences
- EUR 4800 per year
- Recipients in 2018: Kristiina Aun and Elisabeth Rähn
- shared since 2011

Heino Teder Scholarship

- for master’s students at the Estonian University of Life Sciences
- EUR 3200
- Recipients in 2018: Kristjan Täll and Marek Uri
- shared since 2008

Toomas Ehrpais Scholarship

- for students of the Luua Forestry School
- EUR 1917
- Recipient in 2018: Ralf Elfenbein
- shared since 2008

GOOD MASTER’S THESIS

RMK rewarded Estonian University of Life Sciences forest industry specialist MA Martin Kõks with EUR 700, for producing a model based on data from remote sensing, which helps to plan thinning.

The purpose of the Master’s thesis was to produce a model based on a laser scan of the forest, which would allow for the estimation of the pre-thinning fracture of the trees. In order to achieve this objective, the existing pre-logging calculation model, based on the logging data, was modified with input parameters of the average diameter and height index of the stand.

First, forest fragments were separated from the register of forests, which, in terms of age, diameter and bonity, might require thinning, and the model found the wood that is too dense and that would require primary attention in the planning of thinning. As a result of the testing, 14 working models were obtained.





## FINANCIAL SUMMARY

Asset value  
EUR 1.8 billion

Operating profit  
EUR 88.9 million



# BALANCE SHEET

(in thousands of euros)

ASSETS	31.12.2018	31.12.2017
<b>Current assets</b>		
Cash	93,498	51,047
Receivables and prepayments	13,131	12,260
Inventories	23,821	18,416
Biological assets	48,794	47,898
<b>Total current assets</b>	<b>179,244</b>	<b>129,621</b>
<b>Fixed assets</b>		
Investment properties	1,662	1,739
Tangible assets	536,222	524,312
Intangible fixed assets	1,391	1,520
Biological assets	1,093,838	1,348,864
<b>Total fixed assets</b>	<b>1,633,113</b>	<b>1,876,435</b>
<b>TOTAL ASSETS</b>	<b>1,812,357</b>	<b>2,006,056</b>

LIABILITIES AND EQUITY CAPITAL	31.12.2018	31.12.2017
<b>Liabilities</b>		
<b>Short-term liabilities</b>		
Debts and prepayments	18,604	19,054
Short-term provisions	3,185	2,706
<b>Total short-term liabilities</b>	<b>21,789</b>	<b>21,760</b>
<b>Long-term liabilities</b>		
Long-term prepayments	9	0
Long-term provisions	766	766
<b>Total long-term liabilities</b>	<b>775</b>	<b>766</b>
<b>TOTAL LIABILITIES</b>	<b>22,564</b>	<b>22,526</b>
<b>Equity capital</b>		
State capital	1,178,835	1,211,674
Retained profit	750,356	620,767
Accounting year profit (loss) with profit (loss) from the revaluation of biological assets	-139,398	151,089
<b>TOTAL EQUITY CAPITAL</b>	<b>1,789,793</b>	<b>1,983,530</b>
<b>TOTAL LIABILITIES AND EQUITY CAPITAL</b>	<b>1,812,357</b>	<b>2,006,056</b>

# INCOME STATEMENT

(in thousands of euros)

	2018	2017
Revenue	209,070	174,847
Other operating revenue	10,227	3,567
Gain (loss) from biological assets	851	1,093
Changes in inventories of finished goods and work-in-progress	5,465	1,666
Work performed by an entity in the production of fixed assets for its own purpose and capitalised	117	221
Goods, raw materials and services	-91,082	-86,584
Miscellaneous operating expenses	-10,393	-10,327
Labour costs	-25,432	-26,664
Depreciation and impairment of fixed assets	-9,852	-8,903
Other operating expenses	-94	-35
<b>Operating profit</b>	<b>88,877</b>	<b>48,881</b>
Other financial income and expenditure	-29	-29
<b>Profit before income tax</b>	<b>88,848</b>	<b>48,852</b>
Income tax	-5,375	-5,625
<b>Profit for the accounting year</b>	<b>83,473</b>	<b>43,227</b>
Revaluation of biological assets	-222,871	107,862
<b>Accounting year profit (loss) with profit (loss) from the revaluation of biological assets</b>	<b>-139,398</b>	<b>151,089</b>

# AUDITOR’S REPORT



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INDEPENDENT AUDITORS' REPORT

To the supervisory board of Riigimetsa Majandamise Keskus (RMK)

The accompanying summary financial statements on pages 58 to 60, which comprise the balance sheet as at 31 December 2018 and the income statement for the year then ended, are derived from the audited financial statements of RMK for the year ended 31 December 2018. We expressed an unmodified audit opinion on those financial statements in our report dated 6 March 2019. The summary financial statements and audited financial statements do not reflect the effects of events that occurred subsequent to the date of the auditor's report on the audited financial statements, which may require adjustment of, or disclosure in, the audited financial statements.

The summary financial statements do not contain all the disclosures required by the Estonian Financial Reporting Standard, which was applied in the preparation of the audited financial statements of RMK.

Reading the summary financial statements, therefore, is not a substitute for reading the audited financial statements of RMK.

**Management's responsibility for the summary financial statements**

Management is responsible for the preparation of the summary financial statements derived from the audited financial statements in accordance with the accounting and measurement requirements of the Estonian Financial Reporting Standard.

**Auditor's responsibility**

Our responsibility is to express an opinion on the summary financial statements based on our procedures, which were conducted in accordance with International Standard on Auditing (ISA) 810 *Engagements to Report on Summary Financial Statements*.

**Opinion**

In our opinion, the summary financial statements derived from the audited financial statements of RMK for the year ended 31 December 2018 are consistent, in all material respects, with those financial statements, in accordance with the accounting and measurement requirements of the Estonian Financial Reporting Standard.



Andrus Jõgers

Certified Public Accountant No. 171

KPMG Baltics OÜ

Audit firm activity licence No. 17

Narva mnt 5, 10117 Tallinn

16 April 2019

KPMG Baltics OÜ, an Estonian limited liability company and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. Register 10080902.



REGISTER OF PHOTOGRAPHS

Front and back cover	A view from the Tellingumäe viewing tower. © Jarek Jõepera
4	Portrait of Aigar Kallas. © Arno Mikkor
6	Students of Voltvet Forestry School, preparing planting fields. 1934. ERM Fk 2977:818, Estonian National Museum.
6–7	Planting of the Centennial Forest, in Kohila. 18.05.2018. © Stanislav Moshkov
14	Typical protective clothing worn by a logging laborer in the first half of the 1980s. The collection of RMK Sagadi Forest Museum.
14–15	Harvester cuts straight the end of a notch. © Kaupo Kikkas
32	Smoothing ditch slopes at Tudu Forest Farm, in the 1950s. The collection of RMK Sagadi Forest Museum.
32–33	Bog restoration. Ditches closed with swells in the Alam-Pedja nature conservation area, the Soosaare Bog. October, 2018. © Leevi Krumm
42	Campers at Kauksi Beach. 1975. ERM Fk 2644:9873, Estonian National Museum. © Viktor Salmre
42–43	Alumati camp fire site. © Jarek Jõepera
50	Anne Laas, an employee of the Estonian Institute for the Scientific Research of Rural and Land Correction, controlling the plantations. 1985. EFA.204.O.139154, The National Archives film archive. © Endel Tarkpea
50–51	The planting of the Ootsipalu valley giant and the descendants of Kingpine. June, 2017. © Are Tralla
56	The joinery brigade, from the Rakvere Forest Farm’s forest point, controlling the end product. In the foreground Ants Lutsepp, Einar P.rtna and Jüri Valem. During the mid 1980s. The collection of RMK Sagadi Forest Museum.
56–57	Viewing tower “Trepp” in Tuhi Bog, constructed by the Interior Architecture students from the Estonian Academy of Arts. October, 2017. © Päär Keedus







