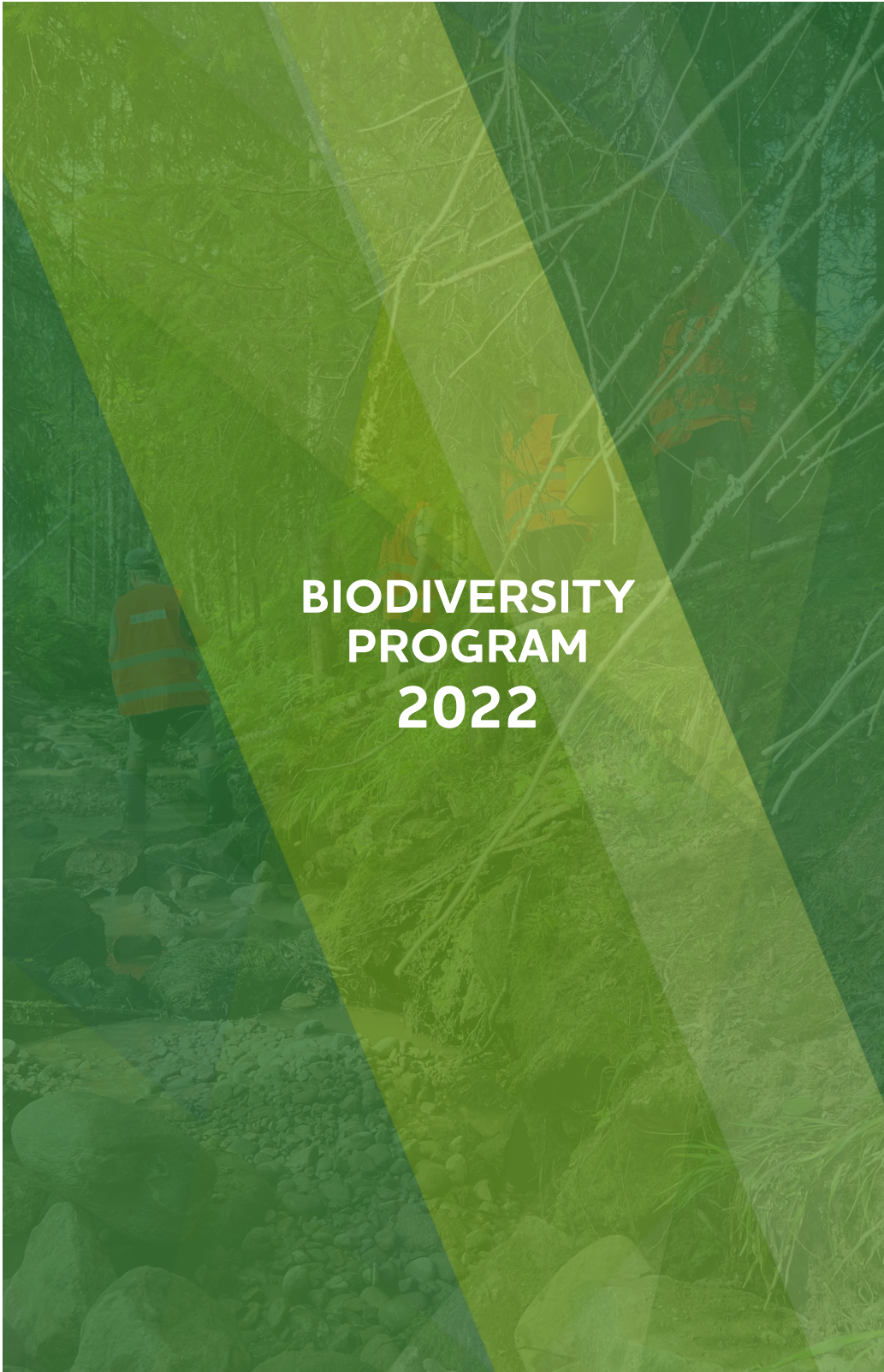


Bio-
diversity
2021  2030

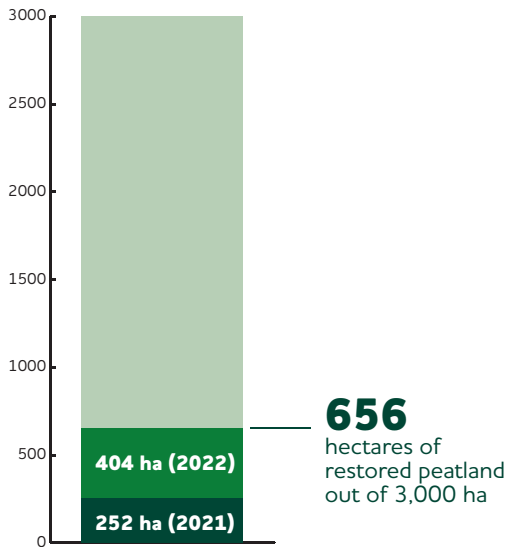


**BIODIVERSITY
PROGRAM
2022**

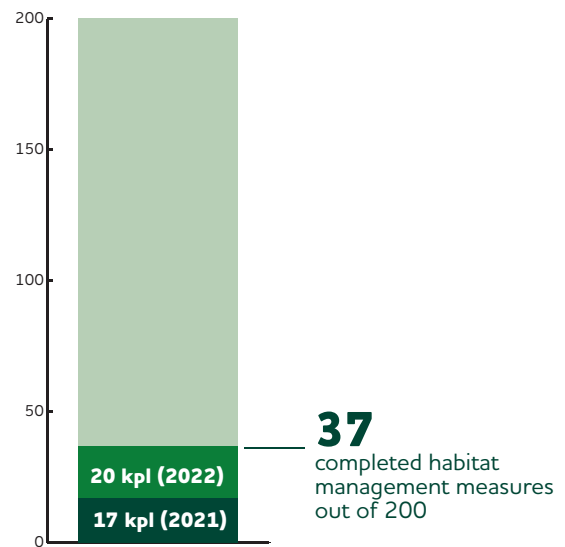


ACTIVE NATURE MANAGEMENT MEASURES

PEATLAND RESTORATION

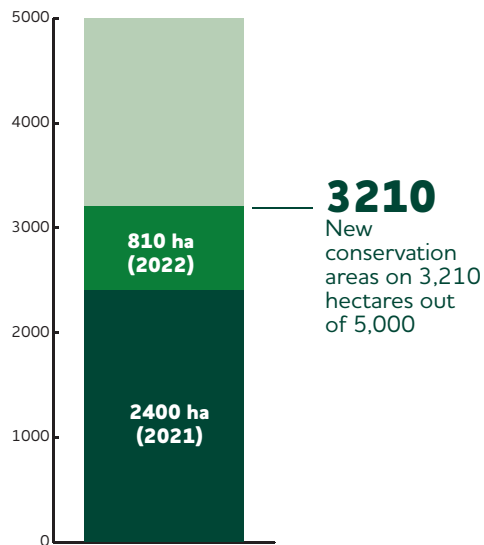


ECOLOGICAL MANAGEMENT

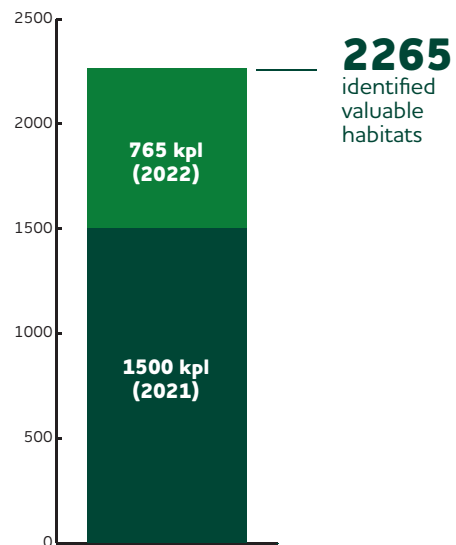


CONSERVATION

NATURE CONSERVATION AREAS



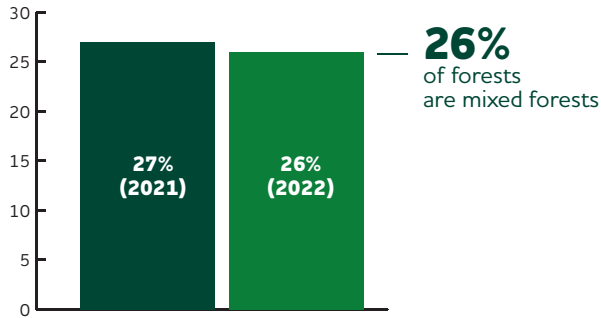
NEW VALUABLE HABITATS





NATURE MANAGEMENT OF COMMERCIAL FORESTS

TREE SPECIES MIXING



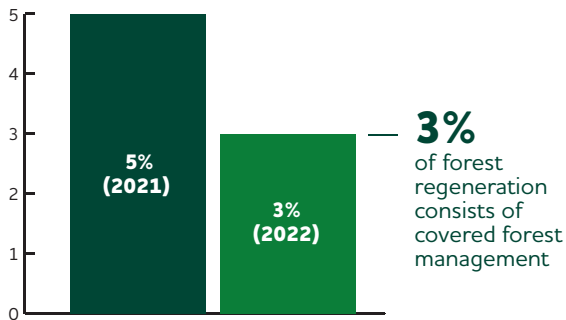
ASPEN AND DECAYING TREES

Of the total volume of deciduous trees,

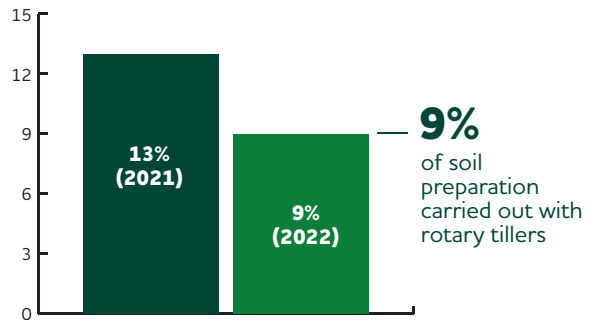
5% is aspen
(Natural Resources Institute Finland national forest inventory 2012)

3,9m²/ha decaying trees
(Natural Resources Institute Finland's national forest inventory 2012)

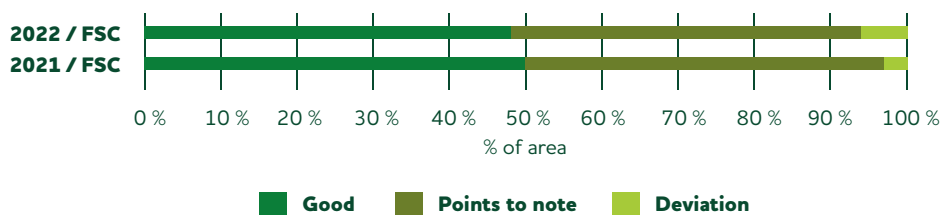
FOREST STRUCTURE



SOIL PREPARATION



NATURE MANAGEMENT QUALITY ASSESSMENT (TAPIO PALVELUT OY)



NATURE CONSERVATION AREAS ON 810 HECTARES

A total of 285 hectares of new private nature conservation areas were established on Tornator's lands, and 525 hectares of new areas were transferred to nature conservation in connection with land exchanges with the Finnish state. A total of 13 private nature conservation areas were established in five regions.

Click on the link below to watch drone video footage of the nearly 100-hectare Koukosuo HELMI conservation area established in Veitsi-syrä, Ilomantsi https://youtu.be/_9a42vJMdRs

At the end of 2022, Tornator agreed to transfer the 1,330-hectare Löytynsuo area to the Finnish state as part of the Tiilikkejärvi National Park expansion project at Rautavaara in northern Savo.



A stream was restored to its old natural channel on the Niemelänmäki farm in Polvijärvi in the autumn of 2022. Photo: Veli Laakkonen

RESTORATION IN DIFFERENT KINDS OF HABITATS

Active peatland restoration continued in 2022. The restoration projects progressed in accordance with the goals of the programme. The marshes to be restored vary greatly in size, and the sites selected were the most ecologically high-quality peatland areas where the measures could restore the lands as closely as possible to their natural state in accordance with previously set goals. At a few sites, we also experimented with combining restoration of the water resources of the marsh with covered forest management measures. The restoration of Paltasensuo marsh in Pieksämäki made headlines as a result of two successful media days. The media events were organised and held in collaboration with Stora Enso.

Active ecological management was carried out at very different types of sites in many different kinds of habitats. Although

the sites are often small, they are highly important for biodiversity, and nature management measures are essential to preserve endangered species living in the area. The nature management measures implemented in 2022 included, among other things, the restoration of streams and springs, as well as management of groves, hardwood deciduous tree stands, and burnt areas.

Restoring endangered stream habitats and re-establishing waterways facilitates the recovery of different species, such as endangered water mosses. These measures also decrease the amount of suspended solids and nutrients in the lower waterways. The planning experts working in the field at Tornator play a key role in mapping out potential restoration and nature management sites.



Stream restoration in Loviisa in summer 2022. Photo: Mikko Nikkinen

PARTNERSHIPS ARE AN IMPORTANT PART OF TORNATOR'S WORK TO PROMOTE BIODIVERSITY

Long-term and sustainable partnerships are prioritised in Tornator's strategy. Seamless collaboration between several operators is essential for a well-implemented nature management or restoration project.

Photo: Rauli Perkiö



PROPERLY IMPLEMENTED TIMBER HARVESTING IS A PART OF MARSH RESTORATION

Timber harvesting on peatlands are undergoing restoration requires both professional harvesting planning and experienced harvesting entrepreneurs with special equipment at their disposal. With the help of its own partner network, Stora Enso has been able to manage demanding timber harvesting projects on these boggy lands with tenacity and on schedule. As a part of its own Biodiversity Program, Stora Enso also participates annually in the restoration of water resources in a selected collaboration area.

RESTORING RUNNING WATERS AS PART OF THE “METSÄPUROJEN PUOLESTA” PARTNERSHIP TO IMPROVE THE CONDITION OF FOREST BROOKS

The collaborative work to improve the brook habitats on Tornator’s lands started in the spring of 2022. WWF Finland and Stora Enso are also involved in the project. During the past year, voluntary workers from the three partnership organisations gathered to work hard to improve the condition of running waters at four locations: Särkjärvenpuro in Loviisa, Peukalojoki in Puumala, Koirajoki in Tuusniemi, and Kalapuro in Nurmes. As a result of the collaboration, the

redds (spawning grounds) and restored running water channels needed by the endangered trout were created over a distance of hundreds of metres of forest brooks. The restorations focused on improving the condition of forest streams and the living conditions of different species, and removing any factors preventing the movement of migratory fish.

WWF Finland brings to the partnership expert knowledge of treatment of running waters. Together with Tornator, WWF Finland maps out and prioritises the most ecologically effective locations to be renovated on the company’s lands. As part of the project, Tornator’s personnel has received training from WWF on identifying and managing potential running water sites even outside of collaborative projects.



TORNATOR IS INVOLVED IN SEVERAL COLLABORATIVE PROJECTS AS A LANDOWNER

In the “Metsälähde” (forest spring) joint initiative with WWF Finland, Tornator is creating on its lands several exemplary and educational locations related to forestry water protection, peatland restoration and small water bodies. Stora Enso trains its operators at Tornator’s locations to identify valuable small water bodies and implement water conservation measures also on private lands in connection with timber sales. The parties involved in the project also communicate actively with each other, which contributes to the acceptability of the measures and the increased uptake of the measures among other landowners as well.

In collaboration with the Snowchange Cooperative, we are restoring more than 280 hectares of peatland in North Karelia. This is part of the restoration of the Koitere area, a historically large project. There are sites on Tornator’s lands in the Koitajoki catchment area that are suitable for the restoration of peatland and are significant in terms of water conservation. The project also serves as an example of marsh restoration for private forest owners.

The restoration of the Piitsonsuo marsh continued during 2022, in partnership with the Hiilipörssi carbon exchange. In the “Rahkasammalen paluu” (return of the peat moss) project organised by the Finnish Association for Nature Conservation (FANC), various marsh restoration methods are being piloted in Piitsonsuo. For instance, moss is being transferred to dammed ditches, puddle surfaces and pools in the restored marsh. Piitsonsuo is one of Finland’s largest unified, restored peatland areas. You can read more about it on Hiilipörssi’s website.

<https://hiiliporssi.fi/info/kohteet/>

The biodiversity of conservation areas must also be ensured. Restoration work in Tornator’s private conservation areas is carried out by Metsähallitus, and Tornator is actively involved in this work as a landowner. In 2022, one of the largest nature conservation site was the restoration of a 53-hectare marsh in Tornator’s private conservation area in Luhtapohja, Joensuu.

Last year also saw the completion of restoration of Vuokattisuo marsh, which was carried out by Vuokatin Matkailukeskus tourism centre and Tornator. The development of the more than 50 hectares of restored peatland is monitored by the so-called marsh agents of the local primary school throughout their primary school years.

In the Turvahiili restoration research project of the University of Eastern Finland, research related to the restoration of peatlands is carried out on low-yielding, forest-drained marshes in particular. Among the goals of the project are to define the criteria for a good restoration site, compile good restoration practices, study the restoration of functional biodiversity and the effects of restoration on the carbon stock, as well as the carbon dioxide and methane levels of various barren marshes. The project also aims to organise restoration shows for industry operators, students, teachers and journalists. Tornator has already chosen a restoration site in eastern Finland for this purpose.

In addition, joint land management associations and other associations have carried out active nature management on Tornator’s lands. We are involved in supporting and enabling active parties at the local level to do voluntary work for the benefit of biodiversity.





The Huuhanrinne ridge in Ruokolahti, where a prescribed burning was carried out in connection with the “Kulotuskoulu” prescribed burning training project, is one of the most beautiful ridges in Finland.

PRESCRIBED BURNING HAS SIGNIFICANT BIODIVERSITY BENEFITS

Five prescribed burnings were carried out on Tornator’s lands during 2022, and the total burned area amounted to 50 hectares. Prescribed burning gives a natural start to the growth of a new generation of trees, but nowadays, its significance in promoting the biodiversity of forest nature is emphasised. Prescribed burning creates the required conditions for the survival of fire-dependent species in commercial forests. In addition to fire-dependent species, prescribed burning benefits species that depend on rotting wood.

In recent years, Tornator has carried out a good deal of prescribed burning. In the 2020–2022 period, a total of 26 Tornator employees graduated as burning specialists from the Finnish Forest Centre’s three-year “Kulotuskoulu” prescribed burning project. As our expertise on the subject has increased, we have been able to get numerous burning experts to participate in the prescribed burning measures on-site and find safe burning sites that are important for biodiversity also for the coming years. In addition, we have invested in prescribed burning equipment. Our goal is to carry out prescribed burnings continuously in the long term.

The benefits prescribed burnings have for different species become evident quickly. In 2021,

at the prescribed burning site in Tolpangan- gas, Luumäki, species monitoring was carried out by researcher Petri Martikainen. The regeneration felling area of about four hectares burned well, and the prescribed burning also proved successful in terms of species monitoring. Among the endangered species of insects found there were the *Aradus laeviusculus* bug and the *Acmaeops marginata* longhorned beetle. Among the other species of insects that are scarce in nature found in the area were the black fire beetle (*Melanophila acuminata*), the *Phaenops cyanea* beetle, and the *Dicerca moesta* beetle. All of these and many other species depend on burned forest habitats.

One of the gems of the natural ridges in Finland can be found in Huuhanrinne in Ruokolahti, where a prescribed burning was carried out on a burnt ridge slope for the second time in the last decade. In places like this, repeated management measures are necessary to preserve the exceptional species found in the area. Endangered plant species found in burnt slopes include rare spring sedge (*Carex ericetorum*), breckland thyme (*Thymus serpyllum* ssp. *serpyllum*), spring pasqueflower (*Pulsatilla vernalis*), and the sand pink (*Dianthus arenarius*).



A WIN IN THE SUSTAINABILITY REPORTING COMPETITION

Tornator had great success in a sustainability reporting competition that has been organised by the Finnish Association of Authorised Public Accountants, Aalto University, Hanken School of Economics, Nasdaq, the Climate Leadership Coalition, Finnish Business & Society (FIBS), Finland's Sustainable Investment Forum (Finsif), the Association for Environmental Management (YJY), the Ministry of the Environment, and the Finnish Innovation Fund Sitra since 1996. A total of 46 companies participated in the competition. Tornator won in the biodiversity category. In explaining their grounds for granting the award, the jury noted that Tornator reports its long-term plans and goals related to biodiversity and places high importance on the transparency of the entire value chain. They added that Tornator also links its biodiversity goals to the company management's long-term performance bonuses.



OUR WORK TO PROMOTE BIODIVERSITY CONTINUES

The future of Tornator's Biodiversity Program looks promising. Through partnerships, Tornator has been able to create a firm foundation for its program in line with its strategy. The impressive increase in the number of nature conservation areas is based on long-term and close collaboration with the environmental administration. Restoration has long been carried out with pioneers in the field, and the management of aquatic habitats has been taken to a new level in the company with the help of WWF's expertise. With the help of its networks, Tornator has been one of the most significant practitioners of prescribed burning in Finland for almost a decade, and recent species monitoring carried out by the company shows the success and importance of these measures.

Tornator made many important decisions to promote its Biodiversity Program in 2022, but perhaps the most significant one was the appointment of forest manager **Rauli Perkiö** as a nature management expert in April 2022. The appointment decision is historic for the private sector, as full-time experts positions in active nature management are very rare in forest industry companies. As with nature management in general, the task has typically been seen as a side job and a mandatory part of preventing the potential harm of forestry measures. At Tornator, on the other hand,

the nature management expert is employed full-time to identify locations, means and resources that can be utilised to improve the biodiversity of the company's forests and thus the sustainability of the company's forestry operations. For example, the active stakeholder collaboration described above in various biodiversity projects would not be possible without this type of solution.

The Biodiversity Program has also been well received by Tornator staff. The company's personnel is committed to promoting biodiversity, and matters related to it are well taken into account in the various processes that are part of their day-to-day work. When it comes to the main goals of the Biodiversity Program, we are already ahead of our target regarding the amount of protection and restoration, and we are making progress in the target time in terms of the number of nature management sites. We have had plenty of proposals for suitable nature conservation sites from planners, forest workers and stakeholders, and there are already about a hundred projects in our project reserve for the coming years.

The progress of the Biodiversity Program is monitored in the biodiversity section of Tornator's website and on our social media channels.

TORNATOR'S BIODIVERSITY EFFORTS WERE FEATURED IN THE MEDIA IN 2022

PEATLAND RESTORATION	
Stora Enso and Tornator begin collaboration to restore peatlands	A forestry trade journal, 20 January 2022
Tornator is restoring a drained marsh in Paltanen, Pieksämäki	Pieksämäki local newspaper, 24 February 2022
Soon there will be a marsh here again	Kauppalehti, 25 August 2022
Restoring peatland is now part of the strategy of forest companies, and excavator operators are given hands-on training if necessary – This is how marshes that have been drained for growing forests are restored to their natural state	Kauppalehti, 28 August 2022
A restored marsh returns to its natural state	Pieksämäki local newspaper, 28 October 2022
Back to square one	Metsälehti trade journal, 24 November 2022
ACTIVE NATURE MANAGEMENT	
Weather permitting, Tornator will carry out prescribed burning of forest in Ilomantsi on Monday	Karjalainen, 26 June 2022
“Kulotuskoulu” training project carries out prescribed burning on Tornator’s lands in Ruokolahti	Metsäala trade journal, 7 July 2022
“Kulotuskoulu” prescribed burning training project started in Ruokolahti	Metsä Trans, 8 July 2022
Partnership on restoring forest brooks starts with work in Puumala	Metsälehti, 11 August 2022
Peukalojoki river in Puumala is being restored – measures will benefit an endangered trout species, among others	Radio news item, 12 July 2022
In Peukalojoki river in Puumala, a channel towards Lake Saimaa for migratory fish is being restored	Yle Uutiset, 15 August 2022
A working group of 30 volunteers worked on restoring Peukalojoki river on Thursday	Puumala magazine, 17 August 2022
Partnership for forest brooks – WWF, Stora Enso and Tornator are restoring small waterways to their natural state	Koillis-Savo / Savon Sanomat, 29 August 2022
CONSERVATION	
Tornator’s 200th private conservation area was established in Kaavi	Metsätalous trade journal, 21 March 2022
Forestry company Tornator and the local Centre for Economic Development, Transport and the Environment agree on the exchange of land in the expansion area of Tiilikjärvi National Park: the Lötynsuo area is transferred to the Finnish state	Yle, 19 December 2022
Expansion of Tiilikjärvi National Park – Lötynsuo transferred to the Finnish state	Pitäjäläinen, 20 December 2022
Lötynsuo transferred to state ownership	Savon Sanomat, 21 December 2022

IN ADDITION, INFORMATION ABOUT THE BIODIVERSITY PROGRAM WAS WIDELY COMMUNICATED THROUGH TORNATOR'S SOCIAL MEDIA CHANNELS: Instagram, Facebook, LinkedIn, Youtube ja Twitter

ENVIRONMENTAL MANAGEMENT AREAS

PROJECT	PLACE	DESCRIPTION
Erosion protection, Heinäjoki	Illomantsi	Channelling the waters, strengthening the channel and adding stones to protect against erosion.
Indian balsam control	Savonlinna	Preventing the spread of Indian balsam on the land by weeding.
Wetland replenishment and repair	Kitee	Diverting water to the wetland and restoring the wetland basin.
Prescribed burning, Kuora	Lieksa	Forest management prescribed burning, including a retention tree group.
Removal of a barrier to fish migration, Kalapuro	Valtimo	A culvert that was an obstacle to migratory fish was relocated and the river bed was stepped in Kalapuro.
Removal of a barrier to fish migration, Sihtuunanjoki	Tervola	The culvert that formed a barrier to migration was replaced with a new two-metre-diameter culvert on the Sihtuunanjoki river.
Prescribed burning, Olkka	Ruokolahti	The prescribed burning of about four hectares of land was carried out as a training site for the "Kulotuskoulu" prescribed burning training project.
Management of a burnt area, Huuhaanranta	Ruokolahti	In Huuhaanranta, which is significant for its ridge species, management of the ridge forest was carried out for a number of reasons, such as to improve the habitat of spring pasqueflower and wild thymes.
Brook restoration, Koirajoki	Tuusniemi	The Koirajoki stream bed was restored and redds (spawning grounds) were built.
Brook restoration, Peräsalo	Illomantsi	In the case of the Mäntypuro brook, which flows into Koitajoki river, the stream bed was restored and barriers to migration were removed.
Brook restoration, Peukalojoki	Puumala	Redds were built in the riverbed of Peukalojoki river, and the bed was stepped at the culvert.
Brook restoration, Särkjärvenpuro	Loviisa	Redds were built in the bed of the Särkjärvenpuro brook.
Restoration of a brook bed, Rontsa	Juuka	The bed of the brook was returned to its natural course, and a favourable habitat was created for aspen.
Restoration of a brook bed, Niemelänmäki	Polvijärvi	The brook was returned to its natural course.
Restoration, Syrjäjoki	Kaavi	On the Syrjäjoki river between Rauvanjärvi and Syrjäjärvi, the cleared bed was restored and redds were built in several different places as spawning grounds.
Restoration of a nesting environment for ospreys	Kannonkoski	A nesting environment for ospreys was renovated by opening out the landscape.
Woodpecker forest management felling, Linnunsuo	Kontiolahti	Thinning felling next to the Linnunsuo conservation area created a suitable habitat for the white-backed woodpecker, with deciduous trees.
Prescribed burning, Vetelä	Lieksa	Forest management prescribed burning, about 11 hectares in Järhänkanka, Lieksa.
Hardwood maintenance felling, Vänkäläinen	Sulkava	In the conservation area of Vänkäläinsaari and its surroundings, linden and aspen stands were managed by removing spruce.
Indian balsam control, Rauhala	Kitee	The spread of Indian balsam on the land was prevented by cutting.