

# BOG HOPPER

## ProSilva's new forwarder

Like so many places, Finland has its share of difficult woodland terrain. There are a lot of trees on moorland, which is passable only in very severe winters. Because of diminishing frosts, which may or may not be caused by climate change, because of increased timber usage, untimely rainfall and other factors, these areas have to be driven over in spring or summer. If this is undertaken in the right way, it won't cause any problems.

If it is to succeed, either an existing machine has to be equipped with flotation tyres and bandtracks, or a brand new machine has to be made for sensitive ground. Finnish company ProSilva, based in Ruovesi, opted to take the latter course of action – they have developed and built a forwarder suitable for this type of terrain.

The machine is the ProSilva 15-4ST – the so-called 'Bog Hopper'. This 15-tonne forwarder runs on 80cm wide tracks, but tracks up to a metre wide can be fitted. The 80cm tracks, which are used on ProSilva 810 and 910 harvesters, are intended for 'normal' terrain.

A cleverly devised system means

the chassis and cabin are attached to the tracks by means of a damped suspension system, so a gentle and terrain-friendly passage across the ground is possible, even when loaded.

It is very good to note that with the ProSilva you do not get drawn into a debate over absurd weights. 15 tonnes is a ballpark figure for the capacity of machines like this. In saying this we are taking into account not only ecological considerations, but also economic factors.

Because of the flexible suspension, the axle does not swing with the tracks. Instead, the weight of the machine is spread across the entire surface over which the machine is moving. In theory these tracks should give a slightly higher ground pressure than an eight-wheel machine! In practice they are better because the load is distributed evenly across the entire area on which the machine is standing. There are also no problems on slopes, because the front and rear rollers are raised above ground level (see graphic).

All four tracks are attached using springs, normally used on lorries,



and a shock absorber, so the tracks both rise and fall. Ground clearance is an impressive 70cm. The chassis and cab come from German manufacturer HSM – their 208F forwarder impressed ProSilva so highly that they bought in parts from HSM. From the front the machine looks like an HSM forwarder, in a different colour. A good working relationship has evolved with HSM, which will be developed further.

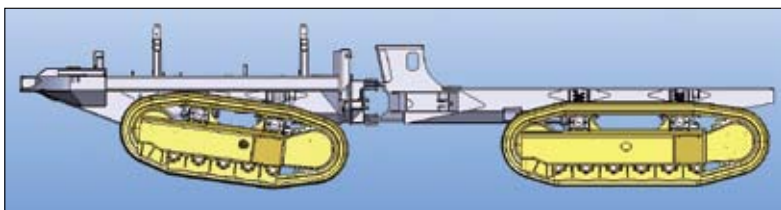
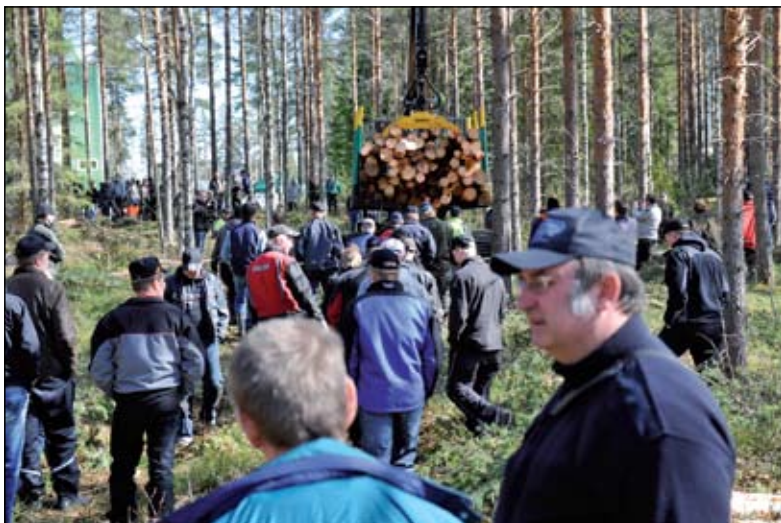
### Why this forwarder?

Matti Soininen, European sales manager for ProSilva, says that the company wanted to build a forwarder for some time. A number of attempts were begun down the years, but none led to a successful outcome. They didn't want another wheeled machine, of which there are so many on the market. If they

were to enjoy sales success, a better machine had to be built than the competitors'. That was quite difficult, according to Matti Soininen.

With this in mind, the company turned to its own experience of manufacturing tracked machines. A further issue was the debate in Finland about using machines on particular types of terrain. The woodlands are divided into summer and winter woods. Contracts for harvesting difficult woodlands (summer woods) are better paid than the easier winter woods. This was a factor that ProSilva recognised at an early stage of development.

Testing of the tracked forwarder continued for two years, and now the first serial machine could be presented to an interested public. This happened in Ruovesi on 26



(Top left) The Finns like it: the demonstration of the new ProSilva forwarder drew 500 people to Ruovesi. The factory too (top right) was open. (Above) No problem on slopes because the front and rear wheel on each bogie is higher than the running surface of the track. (Right) Lasse Karilainen (left) and Matti Soininen are very happy with the forwarder.



April. Ruovesi is some 90km east of Tampere, and ProSilva showed the 15-4ST (15 tonne capacity, with four soft tracks).

Just like the HSM 208F, this forwarder is powered by a 238hp Iveco engine. Hydrostatic drive powers the tracks. The load area is 4.5 square metres. This is loaded using a Kesla 800T crane, with a reach of 10m.

The height of the pins can be raised 20cm by simply taking them out, turning them upside down and replacing them. The machine weighs 22 tonnes empty, with a permitted laden weight of 37 tonnes. Ground pressure is 480 grammes per square centimetre on the front tracks, whether empty or laden. At the rear, ground pressure is 240 grammes per square centimetre empty, 623 grammes fully loaded. Weight is evened out between the front and rear sections. The weight, and therefore ground pressure, is regulated over IQAN by computer using two hydraulic cylinders. If one track sinks into the ground, the weight is shifted to the other three. This system has three modes: off, on and automatic. The automatic system has two modes, one for soft ground, and another for firm ground.

The machine was very convincing on the demonstration. The laden machine took multiple loads across a very wet piece of woodland behind the factory, crossing very sensitive ground, and it also traversed ditches without damaging the ground. Other aspects of the demonstration were also very impressive. The ability of the machine to even out the ground pressure could also be observed. This is illustrated in the photos.

**ProSilva the company**

ProSilva has been in existence since



1998. It was founded by brothers Lasse and Markku Karilainen, who have always been involved with timber. Whilst they had the choice of a number of machines, they built their first harvester themselves. They also made a double-jointed forwarder, but everything was made for their own use and was not for sale.

It was in 1998 that the serial production of a harvester was begun. Now 140 have been made – 810 and 910 being the model designations. The two machines differ in power, tyres and weight, and both can be supplied with tracks or a combination of tracks and wheels that can be swapped over quickly.

The basic principles of the ProSilva harvesters are four large wheels, a very low chassis, a large crane and the minimum possible electronics.

There are just 10 people employed in the company, but the machines are not 'home-made' – only the assembly is performed by the company. All components are bought in – parts that are available

on the market at any time.

Because it is an assembly-only operation, the Ruovesi operation does not need a huge working area. An assembly hall and a washing area, a store and a few neighbouring rooms suffice. The building complex at Ruovesi has a working area of around 1500 square metres.

At the moment three harvesters are being made for Chile – "A market worth thinking about," as Matti

Soininen put it.

An expansion of the company should now occur due to the new forwarder. The machine was requested by the company's customers, who already have one or more ProSilva harvesters. It was for this reason that the company took the step to offer a machine to meet their market requirements.

*Dieter Biernath*  
www.prosilva.fi

**ProSilva 15-4ST Bog Hopper**

Engine.....	Iveco 238hp 6.7 litre N67 ENT 6-cylinder
Torque.....	1020Nm at 1400 rpm
Drive.....	Hydrostatic
Dimensions.....	Length 9.320mm, width 2800mm
Unladen weight.....	22 tonnes
Ground clearance.....	702mm
Undercarriage.....	800mm wide tracks mounted on springs & shock absorbers
Load area.....	Length 4000mm, area 4.5 square metres
Carrying capacity.....	15 tonnes
Crane.....	Kesla 800T, 10 metre reach
List price.....	€280,000 + VAT
Manufacturer.....	ProSilva Oyj, 34600 Ruovesi, Finland
General dealer for Europe.....	Matti Soininen, 1933 Sterrebeek, Belgium, telephone 0032 2344 3336



Each track is attached to the framework/chassis with two springs and a shock absorber. This gives a gentle ride which is kind to the terrain. The springs and shock absorber can be adjusted for various ground conditions.