

Pan Acoustics Saves the Local Forest - Victory over the Bark Beetles!

Pan Acoustics reports great success in bark beetle control. After years of basic and applied research with various biological institutes, there is hope in combating the bark beetle plague in the Harz Mountains in Germany.

It was a great concern of the founder and owner of Pan Acoustics GmbH, Udo Borkmann from Wolfenbüttel, who applies his scientific knowledge to tackle problems of the general public and to support solutions with technical means. The bark beetle infestation in the Harz mountains in particular has destroyed a very large forest stand over many decades. It is therefore most important - virtually a national task - to reduce the bark beetles impact to a minimum or even to stop them completely. Our own initial investigations have shown that the nibbling of the bark beetle larvae shortly before pupation in the tree trunk produces such a loud noise that it can be measured acoustically. Udo Borkmann came up with the idea when he was playing the "flight of the bumblebee" on his Bechstein piano at home and pondered the soundboard.

As the wood of every large tree is also a sounding board with a resonance floor, which is made to sound by slight vibrations. These gentle vibrations are very slight, but they can be analysed using measurement technology.



Udo Borkmann with array belt microphone and earth sensors.

A specially developed array microphone, which is placed in a belt around the tree trunk, records these nibbling noises over a certain period of time. The frequency spectrum of the nibbling, a kind of smacking, indicates when the larvae hatch. The beetles that then escape are also looking for freshly hatched males to mate with.

The males sing a mating song, which in turn attracts the females. Whoever „hums“ more powerfully and interestingly gets more encouragement from the females.

The solution to the bark beetle plague is now to lure the male bark beetles onto the wrong track by making artificial courtship sounds similar to those of the females. As the males normally die quickly after mating are killed by the females, they can even stay alive longer by the false acoustic scent and die a natural death without pain and are then natural fertiliser for the now saved trees.

Meetings are being held with the Lower Saxony State Forests, which manage a large part of the tree population in the Harz Mountains, for a test site as the next bark beetle population is growing up. Special high-frequency acoustic devices are currently in production at Pan Acoustics.

With a bit of luck, the so depressing Corona year is now exactly the year of the successful victory over the tormenting bark beetle plague.