

Determining if Your Hearing Protection is Adequate



A Landowner Resource

Professional foresters are not strangers to exposure from high noise levels. In fact, the chainsaw is one of the loudest small engine machines in the workforce. Even without the chainsaw foresters are still using blowers, brush cutters, pumper units, and wood chippers. Earmuffs and earplugs are common on job sites, but it is important to know that just by using these devices your hearing is not necessarily fully protected. There are three things that you need to know in order to definitively determine that your hearing protection is adequate. They are the decibel level of your machine, the Noise Reduction Rating of your PPE, how to calculate the correct NRR, and how to properly use your PPE.

First, you need to know the decibel level that your loudest piece of equipment operates at. Abbreviated as dB, decibels are a measurement of sound pressure, or loudness. The dB level of a typical chainsaw used by foresters can be up 119 dB.

Second, you must know what the Noise Reduction Rating, or NRR, is for your earplugs or earmuffs. The NRR is a number that represents the decrease of sound exposure a hearing protection device will provide to the user and is found on the products label. An earplug with an NRR 33, the highest rating for ear plugs, will reduce the noise exposure to an operator of a 116 dB chainsaw by 26 dB, or down to 90 dB. The Permissible Exposure Level, or PEL, set by OSHA is 90 dB and this would lead a forester to believe that he or she has adequate hearing protection.

But this may not be the case; the chainsaw could be louder, the hearing protection used will likely be less than NRR 33, or the ear protection may not be used properly. This is why doubling up ear protection for a sawyer is a common procedure during chainsaw operations. This means using 33 NRR earplugs with a set of ear muffs with a high NRR as well. This does not double the users protection however, but it will bring down the sawyers dB exposure down another 5 points to 85 dB.



You might be wondering why we subtracted 7 from the NRR. Without getting into too much detail this is due to the way that decibel measurements are weighted. Because the human ear is most sensitive to the middle ranges of sound an A weighted decibel, dBA, is used by OSHA to measure the potential for ear damage. If you used a C weighted decibel the calculation accounts for high and low ranges of the sound as well and you would subtract the entire 33 NRR in this case, but when we are talking about safety and OSHA compliance we use the A weighted measurement and subtract 7 to account for the differences.

Third, there needs to be proper use of the equipment. This means the hearing protection must be installed correctly, worn properly, and used at all times when you are exposed to high levels of noise. Improper installation of ear plugs is a common mistake with users and proper training needs to be an important part of your safety policy.

The staff at Long Forestry has the knowledge and resources to provide forest landowners with the education, tools, and financial resources they need to properly manage their land in order to achieve their goals.

Long Forestry is available to private landowners help to plan, implement, and fund forest management activities. Call and speak to a consultant today.

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Sustainable Forest Management