The Portable Wood-Splitter: Faster Chopping, Safer Felling

Rikker, Joshua

Ziesel, Patrick

Purpose of the project was to develop a portable Wood-Splitter, which makes the splitting process safer, ergonomically better and easier. Also we wanted to realize a Logging Support with the same function principles, to make the act of logging safer, more precise and more ergonomically. We thought about alternative possibilities of chopping. The forest terrain is rough and most of the time not very easy to access. So a lot of big trunks are left behind. Chopping with an ax has a potential risk of getting injured and also requires strong physical efforts. During numerous tests in the woods we noticed and analyzed the upcoming problems and built a prototype which has solutions for those issues. There is just a cut from a commercial quality chainsaw needed in which the Wood-Splitter can be inserted easily. By cranking the hexagon nut the accordion segments are pulled together and the trunk is forced apart. The portable Wood-Splitter is about 10 lbs. light. In order to compare the test results the following criteria like temperature, moisture, diameter, length of the trunk, knotholes and cutting line have been considered. A torque test showed in a graph the necessary torque to split hard and soft wood (e.g. beech and spruce wood) apart. The Wood-Splitter makes the tree felling process faster, easier and a lot safer. Also carrying heavy Chopping-Axes is not required anymore and the logging becomes more ergonomic. After numerous field tests under extreme conditions and worst case scenarios the device has been analyzed and improved accordingly. By using the Wood-Splitter we can guarantee an ergonomic process with less physical effort and last but not least an optimized work safety.

Awards Won: