

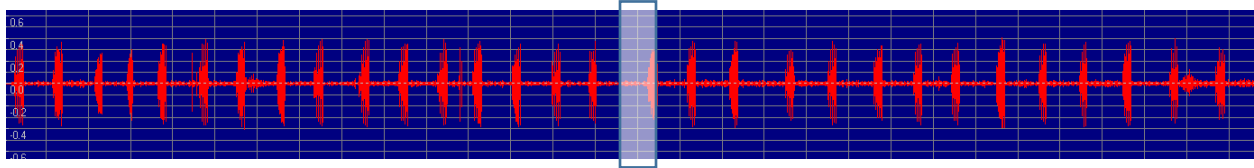
Screech Owl Monotonic Trill Analysis

Clyde R. Camp – 1/3/2021

The two most common vocalizations of the Eastern Screech Owl (*Megascops asio*) are the [Horse Whinny](#) (described by Wikipedia as a tremolo with a descending, whinny-like quality, like that of a miniature horse) and the pleasant, almost purring sound referred to as a [Monotonic Trill](#) that lasts 5-10 seconds and has a lot of Body English behind it. The Whinny is often used for territorial defense and the Trill for courting and keeping in touch between individuals. Both vocalizations, used by both male and female, are distinctive enough to serve as the primary aural identification of the bird.

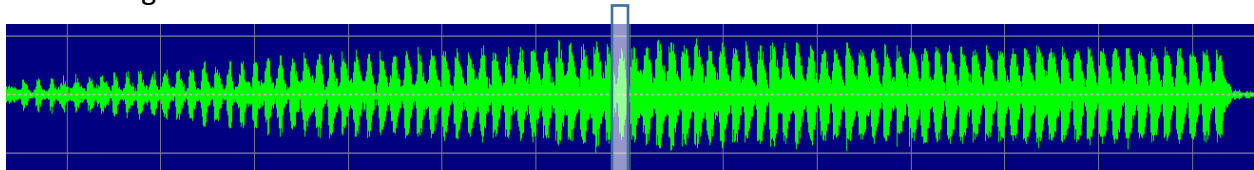
The Trill is often repeated at a very regular interval of 20-35 seconds for up to a 15 minute session.

A typical [session](#) is below, containing 30 individual trills over 14 minutes, and was recorded while Curious George, a courting male, sat in the nest box opening with only his tail visible inside.



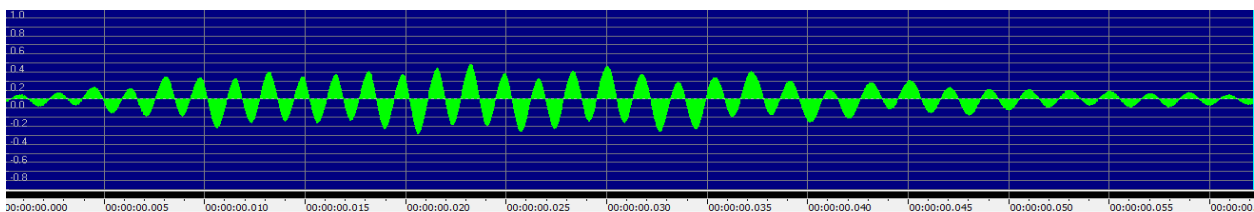
From outside the box, this was a soft pleasant trill session. The amplitude is so low that it does not record very well, but from inside the box the location of the microphone and the acoustics and resonance of the nest box greatly amplify each vocalization.

Each individual trill ramps up to full volume over a period of about 2 seconds, continues at that maximum volume for 3-8 seconds and then abruptly shuts off in less than a tenth of a second. The highlighted 6.5 second trill above is enlarged below.



This particular trill has 96 amplitude modulation cycles of the basic tone over the 6.5 seconds so the modulation frequency is about 14.8 cycles per second. This is what makes the trill have the purring sound that it does – about the frequency of fluttering your tongue when blowing a raspberry.

Each modulation cycle is approximately 60mS seconds long and takes about 10ms to both ramp up and down as shown below



Within that 60mS there are about 33 pure sinusoidal cycles at 550 cycles per second.

So the description of a single trill is a “Complex audio waveform of 550 hertz tone (approximately the C# above middle C) that is 100% amplitude modulated at 14.8Hz. “)

I’m sure that this will differ from bird to bird depending on size, sex, physical location and other factors but from the several dozen I’ve heard in the wild while trail-guiding at night they all **sound** the same to my ear so the variation is slight at best. I’m also sure there are subtle variations that only the birds themselves can distinguish.