

# Sound Advice

Helpful Information from *Stewart Acoustical Consultants*

A member firm of the National Council of Acoustical Consultants  
7406 L Chapel Hill Road, Raleigh, NC 27607

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## THE INSECTS THAT SERENADE US AND MAKE MEASUREMENTS DIFFICULT

by Noral D. Stewart

Anyone who has lived in North Carolina or the surrounding area has probably noticed the insects that we hear through much of the year. These are primarily crickets, katydids, and annual cicadas sometimes called locusts. Several varieties of these insects follow different cycles over the year and over the day giving us this sound much of the time except the winter. Some will be heard as early as March, but they start becoming loud with the beginning of summer. The sound peaks in mid summer, late July and August with the annual cicadas, the loudest of the insects. The sounds continue strongly into the fall gradually dropping in October and November, with some heard at times into December in some places. In some locations in some years, varieties of cicadas on multiyear cycles will occur at various times of the year. These can be louder than the more common annual cicadas. It is hard to find a time of day during the peak of the insect season that you do not hear them. However, the quietest period is usually early morning around sunrise.

Most people do not object to the insect sounds, and many even enjoy them. The sound is of such high pitch or frequency that it does not usually present a major interference with activities and is not usually heard loudly indoors. This also means that it does not mask lower pitch noises or sounds that might be disturbing to some.

The insects present problems in sound measurement. They can often control the overall A-weighted sound level. They can yield measured levels that exceed typical community noise ordinance limits. This makes outdoor measurements of sources that are not especially loud difficult in the period of June or July through October and possibly November. Ideally, outdoor measurements should be scheduled for December-May whenever possible. Some useful measurements are possible during insect season if the sound of concern is louder than the insects, or if it is concentrated below about 1400 Hz in frequency. Since insect sound is at high frequency, octave or third-octave filters can be used to measure the sound and that in the 2000 Hz and higher octaves excluded. However, if it is necessary to demonstrate that the overall sound from a source meets some standard at a particular location with certainty, this may not be possible in the presence of strong insect sound.

Clients who need outdoor measurements need to consider insect interference in their plans and schedule measurements before or after the peak of the insect season when appropriate.

Those interested in more information on the insects of our area may wish to read the following papers and a website that includes wave files of the sounds:

[The Seasonal Succession of Orthopteran Stridulation near Raleigh, North Carolina, B. B. Fulton](http://buzz.ifas.ufl.edu/i00lf51.pdf)

<http://buzz.ifas.ufl.edu/i00lf51.pdf>

[North Carolina's Singing Orthoptera, B. B. Fulton](http://buzz.ifas.ufl.edu/i00lf32.pdf) Orthoptera are the crickets and katydids

<http://buzz.ifas.ufl.edu/i00lf32.pdf>

[Singing Insects of North America](http://buzz.ifas.ufl.edu/) T. J. Walker and T. E. Moore <http://buzz.ifas.ufl.edu/>

[Cicadas \(in North Carolina\) Stephen Bambara and Christine Casey](http://www.ces.ncsu.edu/depts/ent/notes/O&T/shrubs/note17/note17.html)

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