August 23, 2005

The Insect Chorus

From the middle of summer until the first frosts, the natural soundscape is dominated by the incessant calls of insects. Their singing is in fact so ubiquitous that we tend to tune it out as our brains quickly relegate these familiar sounds to the status of background noise. However, a fascinating world is hidden behind the insect music that is so much a part of summer in the Kawarthas.

The vast majority of insects that use sound as a means of attracting a mate belong to the order Orthoptera which includes crickets, long-horned grasshoppers and locusts, also known as short-horned grasshoppers. The other main group of singing insects is the cicadas. As with birds, frogs and toads, only the males call. The females, for the most part, remain silent. Unlike birds, however, insect calls do not have a recognizable melody. They are generally composed of identical sounds repeated at regular intervals. Nor are they produced by means of vocal chords. In most cases, they are generated by rubbing a toothed membrane. As a general rule, we hear crickets and long-horned grasshoppers during both day and night, while cicadas advertise their presence only during the day and early evening.

Most insects use stridulation to produce their song. In much the same manner as a violin string being "scraped" by a bow, one body part is rubbed against another. In the case of long-horned grasshoppers and crickets, the forewings are rubbed together. The base of one wing has a hardened edge while the base of the other has a toothed area. Each time the hardened edge hits a tooth, a click is produced. Because the rubbing occurs so fast, the individual clicks blend together and sound like chirps or trills. As for short-horned grasshoppers, one of the hind legs is rubbed over a projecting vein, or scraper, on the forewing. Each hind leg has a row of about 80 fine spines which vibrate like the teeth of a comb.

The shrill, high-pitched drone of the cicada, however, is produced in an entirely different manner. A structure at the base of the abdomen, similar in shape to a tiny drum head, is rapidly vibrated by a muscle. It clicks when it's pulled down and then again when it bounces back up. Whining like an electric saw from tree trunks and branches, cicada song means high summer arrived. Because cicadas often sing loudest during the hot, early afternoon, just when you're feeling drowsy to begin with, it's a sound that seems to sap the energy right out of you. An amazing characteristic of cicadas is the number of years they spend in the ground as nymphs. Some species, such as the periodical cicadas (Magicicadae) spend up to 17 years underground before emerging as adults. This group does not extend as far north as Ontario, however. The most common cicada in our area is the dog-day cicada, named after the "dog day" heat of summer.

Around habitations, crickets are probably the most numerous insect songsters. They have a louder and richer call than grasshoppers. The best known members of this group are the field crickets (Gryllidae). They are black, about two centimetres in length and produce a rich, two-note "trrit-tritt-tritt..." However, most of the insect song we hear in our yards comes from much smaller insects known as ground crickets (Nemobiinae). Less than one centimetre in length, they create a non-stop wall of sound both day and night. Their song is a rapid but soft series of very high notes, often described as "tikitikitiki..."

It is the tree crickets (Oecanthinae), however, which are the most accomplished insect singers, at least to human ears. One species of particular interest is the snowy tree cricket. It is pale

green in colour and sings mostly at dusk on warm evenings. Its rhythmic calling is one of the most beautiful nighttime sounds of late summer. To me, it sounds like a rich, gentle-voiced spring peeper singing a soft, non-stop "treet, treet..." This is the insect that you typically hear calling in the background during campfire scenes in cowboy movies.

The snowy tree cricket is also known as the thermometer cricket. It is possible to calculate the air temperature by the frequency of the calls. By counting the number of chirps in seven seconds and then adding five, you can closely estimate the air temperature in degrees Celsius. The warmer the temperature, the faster the insect calls. Snowy tree crickets seem to be quite common this summer. On a recent walk around our west-end Peterborough neighbourhood, I heard at least 10.

Long-horned grasshoppers (Tettigoniidae) are not well-known as a general rule. The term "long-horned" refers to their long antennae. They are a less active group, and their green colouration provides excellent camouflage. The bush-katydids (Scudderia) are included in this group, and several species are both common and very vocal. They are bright green and can measure two or three centimetres in length. Singing mostly in the evening and at night, the bush-katydid's call is distinctive. It has an electric or crackling quality, not unlike the sound of the teeth of a comb. The call is short in duration. Another species of long-horned grasshopper, the northern true katydid, has been heard calling in the Peterborough area this summer. To my knowledge, this species has only been found here once before. Its strident call, which consists of three or four very loud, rasping pulses, is very distinctive. The northern true katydid is usually found only in extreme southern Ontario. It will be interesting to see if its range is indeed extending northward.

However, when most of us think of grasshoppers, we think of short-horned grasshoppers (Acrididae). Also known as locusts, these insects inhabit open, dry areas and are variable in colour. Among the most familiar are the spur-throats (Melanoplus). Children love to catch Melanoplus femurrubrum, a generally yellow grasshopper with red legs. Surprisingly, these locusts do not produce any audible sound.

Another short-horned grasshopper, the Carolina locust, is very conspicuous, as well. It produces a crackling noise in flight and shows an eye-catching pale border on its dark hindwings. At first glance, it can easily be mistaken for a butterfly. Walk along any dusty road or trail in August and you can't help but see and hear these locusts as they fly up in front of you. The male also produces a fast purring or beating noise which serves to attract a female. Another locust group, the Slant-faced grasshoppers, are very common insects of fields and wet meadows. They sing in slow, monotonous pulsations of "tttrrech-tttrrech-tttrrech..."

There are a number of web sites where you can hear insect sounds on the Internet. One site of particular interest is called "Singing Insects of North America" and can be found at http://buzz.ifas.ufl.edu/.

What to watch for this week:

Along roadsides and rail trails, Virginia creeper is already starting to show red leaves. Some red maples, too, are beginning to turn various shades of red and burgundy. This is especially noticeable in trees growing in or near water. In dry summers like this, watch for early colour change in dogwood and sumac, as well.

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