Tuning into the Insect Orchestra

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Insect Song
Why Sing at all?
Methods of sound production

- **Crepitation** - Sound produced by insects snapping their wings. Often used by short-horned grasshoppers as they fly to foil predators and sometimes to attract mates. Courtship flight displays use Crepitation.
Methods of sound production

- **Other Stridulatory methods**-

Males in the Acrididae family rub the femors against the wings to produce a high pitched day song. Many species produce a supersonic song that humans are not able to hear.
Methods of sound production

- **Stridulation**: When a sound is produced by rubbing two surfaces of the body together. Crickets and Katydids use a similar stridulatory mechanism.

- Males rub modified wing edges together. This is true for all the sound producing species in Cricket and Katydid groups.

[Link to blog post](http://songsofinsects.com/blog/long-spurred-stridulations)  
Lang Elliot and Wil Hershberger
Methods of sound production

- **Other!** Cicadas use a complex method of popping the tymbal or sound producing membrane in their abdomens rapidly to produce the buzz we associate with summer.
Methods of sound production

The secret behind the cicada buzz

Lifecycle and Habitat -

Annual Cicadas- spend ~2 years in the ground as developing nymphs. They feed on plant roots with piercing sucking mouthparts. Adults emerge in summer, males call or sing and females use a sharp ovipositor to lay eggs in twigs of trees and shrubs.

The tips of the twigs die and the 1st instar nymphs burrow into the soil.
Three common species in our area

* *Tibicen chloromera*, Swamp Cicada, morning
* [http://songsofinsects.com/cicadas/swamp-cicada](http://songsofinsects.com/cicadas/swamp-cicada)

* *Tibicen linnei*, Linne’s Cicada
* [http://songsofinsects.com/cicadas/linnes-cicada](http://songsofinsects.com/cicadas/linnes-cicada)

* *Tibicen auletes*, Northern Dusk Singing Cicada
Robinson’s cicada is very localized and you can often hear this species along rivers in our area.

Lang Elliot and Wil Hershberger
Crickets

- Order Orthoptera
- Super Family Grylloidea

Can sing night and day
Ecology, lifecycle and habitat vary by group.
Most are omnivores and scavengers.
Spring Field Crickets overwinter as juveniles and appear in April-May.

Fall Field Crickets overwinter as eggs and start singing in June. All field crickets lay eggs in the soil and spend most of their time on the ground.

http://songsofinsects.com/crickets/spring-and-fall-field-crickets
This species, native to Japan, was first discovered in the United States in 1959 (Alexander & Walker 1962). By 1977 it had become established in the District of Columbia and at least 23 counties in 6 southeastern states (Walker 1977). Its rapid spread was probably by overwintering eggs in soil in the root balls of ornamental shrubs shipped from nurseries near Mobile, Alabama. The largely suburban and spotty distribution of *V. micado* agrees with this scenario.
Crickets

- Teleogryllus oceanicus - The tale of the silent cricket

http://evolution.berkeley.edu/evolibrary/news/061201_quietcrickets
Crickets

- **Oecanthinae**-Tree Crickets

[http://www.oecanthinae.com/index2.html](http://www.oecanthinae.com/index2.html)

Tree crickets spend time in the foliage, males will sing from leaf perches and will sometimes chew holes in the leaves to sing from. Eggs are laid in late summer or fall and overwinter in plant stems, such as goldenrod. Nymphs emerge in the spring and mature by summer.

All photos on this page courtesy of Nancy Collins
Crickets

Omnivores—will eat some insects like scales & aphids, fungi, decaying plant material.

Food gifts from the male.

Singing male Broad winged tree cricket

http://www.youtube.com/watch?v=nd6AhWnc5oA
Crickets

- Eneopterinae-Bush Crickets
- Main food – leaves, flowers and fruit
- Occur in trees and shrubs, often abundant in urban and suburban settings. Easier to find as the year progresses.

Restless Bush Cricket-
Males may offer their forewings as a courtship gift. Successfully mated males are often mutilated and unable to call for more females. Habitat moist or wet wooded areas.

Photograph of female, Levy County, Florida, by T. J. Walker, University of Florida.
Jumping Bush Cricket

http://ifasgallery.ifas.ufl.edu/entnem/walker/buzz/686sl.wav
Found in mid shrub and tree layer of yards and natural areas. Female has sword shaped ovipositor. Inserts eggs in pithy plants.
Crickets

Nemobiinae-Ground Crickets

Carolina Ground Cricket- *Eunemobius carolinus*

These are the little crickets that scatter when you walk in the yard. They look like miniature field crickets. Very abundant. High-pitched bell like songs coming from the ground.

http://songsofinsects.com/crickets/carolina-ground-cricket
Katydididae

Pterophylla-True Katydididae

One species in North America

*Pterophylla camellifolia*- A true forest species found in the tops of trees, especially oaks. These insects have well developed wings but are incapable of flight. They eat foliage and may never leave the tree where they were born.

Leaf mimics, males sing in continual choruses.

Males leave nuptial gifts with sperm transfer. Truly nutritious for female or a ploy to keep her from mating sooner with other males? Candymaker evidence within Field Cricket species.
Common True Katydid

http://songsofinsects.com/katydids/common-true-katydid
False Katydid
Phaneropterinae

Greater Anglewing
*Microcentrum rhombifolium*

http://songsofinsects.com/katydid/greater-anglewing
Habitat

You may not be able to provide habitat for forest loving Katydids but simple native plants like golden rods make excellent places to lay eggs, provide cover and provide perches for midlevel Orthoptera to sing. Keep winter stems up till April or May. Diversity in plant species and height layers are best. Leave a portion of the yard unmown. No pesticides!
In winter, the Carolina Chickadee’s diet is about half plant, half animal. The rest of the year about 80–90 percent of their diet is animal (mostly insects). From Cornell
Why Care About Them?

- [https://www.youtube.com/watch?v=kM2QxJGPi6I](https://www.youtube.com/watch?v=kM2QxJGPi6I)

- Primary consumer, trophic importance, food for others. Frogs, toads, snakes, skunks, raccoons, fox, screech owls, various birds

- To understand variations & trends in populations we need baseline data for overlooked species.
Washington DC - Baltimore
Cricket Crawl

DC/Baltimore Cricket Crawl August 21, 2015

Real Time Data Map

Cricket Crawl Data Form Here

Join iNaturalist Singing Insects Atlas Project Here

www.discoverlife.org/cricket/DC
The high-pitched songs of crickets, katydids, grasshoppers, and cicadas are a prominent element of summer and early fall in most of North America. These wonderful musicians chirp, click, zip, rattle, and zip from trees, shrubs, lawns, fields, woodlands — from just about all habitats, and sometimes from inside our homes.

Finding and identifying a singing insect can be a wonderful challenge. These pages will expose you to over 70 common and widespread species, and will help you identify many of the singers that you will hear in your immediate surroundings and in the countryside far from home. With the help of a flashlight and considerable patience, you will be able to track down individual singers and perhaps even view a singing performance firsthand!

Learn more by watching our video introduction:

http://songsofinsects.com/
Singing Insects of North America

by Thomas J. Walker (crickets and katydids) and Thomas E. Moore (cicadas)

Crickets  Katydids  Cicadas  About songs  Help

The primary goal of this Web site is to enable users to identify crickets, katydids, and cicadas from America north of Mexico. The males of most species in these groups make loud, persistent calls that attract sexually ready, conspecific females. Because the songs are loud and species specific they are usually an easy means of identifying the caller. They also facilitate field and laboratory studies of many sorts.

Secondary goals are to attract amateur and professional biologists to the study of singing insects and to provide helpful information and access to literature.

How to recognize crickets, katydids, and cicadas

This well-designed guide enables the user to identify the 74 species of crickets and katydids known from New England, New York, and New Jersey. Each species has a page of useful text, paintings of both sexes, and drawings of identifying structures. Calling songs are on an accompanying CD.

This beautiful, affordable book features 75 commonly heard North American species, comes with a CD of the songs, and has its own web site. To see and hear any of the species, go to the site's Online Guide: Master Species List and click on the name of a species.

About the manual. Tips for using this web site to supplement the Field Guide's treatments of katydids and crickets. Listen to sample songs.
Six Species

Jumping Bush Cricket

http://songsofinsects.com/crickets/jumping-bush-cricket

Japanese Burrowing Cricket

http://songsofinsects.com/crickets/japanese-burrowing-cricket

Lesser Anglewing

http://songsofinsects.com/katydid/lesser-anglewing
Six Target Species

Oblong Winged Katydid  
http://songsofinsects.com/katydid/oblong-winged-katydid

Greater Anglewing  
http://songsofinsects.com/katydid/greater-anglewing

Common True Katydid  
http://songsofinsects.com/katydid/common-true-katydid
Pre Crawl Fun
Ultimately 1,974 data points gathered in the first DC/Baltimore Cricket Crawl! 2012
~150 groups took part in the Crawl

Groups had 1-5 participants

Over 1900 species observations recorded
Percent of *P. camellifolia* present 2012

Percent *V. micado* present 2012
**Resources**

- [www.discoverlife.org/cricket/DC](http://www.discoverlife.org/cricket/DC) --Cricket Crawl 2018
- [http://songsofinsects.com/](http://songsofinsects.com/) ---Songs of Insects
- [http://entomology.ifas.ufl.edu/walker/buzz/](http://entomology.ifas.ufl.edu/walker/buzz/) --SINA
- [www.oecanthinae.com](http://www.oecanthinae.com) ---Tree Cricket Site
- [http://www.magicicada.org/magicicada_i.php](http://www.magicicada.org/magicicada_i.php) --Periodical Cicada page
- [https://www.facebook.com/CricketCrawlDCBaltimore](https://www.facebook.com/CricketCrawlDCBaltimore)

Visit our Facebook site! Like us! Get updates on walks.
Resources

- The Songs of Insects, Lang Elliott & Wil Hershberger
- Guide to Night Singing Insects of the Northeast, John Himmelman
- Field Guide to Grasshoppers, Katydid & Crickets of the United States,
- Crickets & Katydid, Concerts & Solos, Vincent Dethier
- Cricket Radio: Tuning in the Night-Singing Insects John Himmelman
Acknowledgments

Sam Droege, Derek Masaki, USGS

Danielle Brigida USFWS

Lang Elliott & Wil Hershberger, Songs of Insects

Thomas J. Walker, SINA

Linda & Charlie Davis, Natural History Society of Maryland

Lisa Alexander & Stephanie Mason, Audubon Naturalist Society
Cricket Crawl 2018
August 24th

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Cricket Crawl Website
https://www.discoverlife.org/cricket/DC

Cricket Crawl Facebook
https://www.facebook.com/CricketCrawlDCBaltimore