

and Gray-cheeked Thrush, Lincoln's, White-crowned, and Field Sparrow, E. Towhee, 2 Cooper's Hawks, and a dozen Great Blue Heron flyovers (BB, Sue Gustafson).

Backyard Birds: Josh Uffman reported both Veery and Gray-cheeked Thrush at his bubbler on 4/26. Good birds for Margy Terpstra included Ruby-throated Hummingbird on 4/23, Cerulean Warbler on 4/24, Indigo Bunting on 4/24, Northern Waterthrush, Nashville, Tennessee, Great-crested Flycatcher, and Warbling Vireo on 4/25; Margy also reported a pair of Mallard ducks feeding and swimming in her natural wetland and pond for several days.

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Abbreviations: BCA, Busch Conservation Area; CBCA, Columbia Bottom Conservation Area; CC, Clarence Cannon NWR; CL, Carlyle Lake; CSP, Castlewood State Park; FP, Forest Park; HL, Horseshoe Lake; LCCL, Little Creve Coeur Lake; MBG, Missouri Botanical Garden; MTC, Marais Temps Clair; RMBS, Riverlands Migratory Bird Sanctuary; SNR, Shaw Nature Reserve; TGP, Tower Grove Park.

A UNIQUE POPULATION OF FESTIVE TIGER BEETLE IN SOUTHEASTERN MISSOURI

Ted C. MacRae

The festive tiger beetle (*Cicindela scutellaris*, right) is widely distributed in the U.S., having been recorded from most areas east of the Rocky Mountains except Appalachia, the lower Mississippi River delta, and south Florida. Within this range, the species occupies deep, dry sand habitats without standing water. It is often

found in the company of the big sand tiger beetle (*C. formosa*), whose range largely coincides with that of *C. scutellaris* (except the southeastern Coastal Plain). More than any other North American *Cicindela*, populations of this species show extraordinary variability in color across its range of distribution. Seven geographically recognizable subspecies are generally accepted, with considerable variation evident within some of these and along zones of contact between them.

The greatest portion of the species' range is occupied by the nominotypical subspecies in the Great Plains and subspecies *lecontei* in the Midwest and northeast. A broad zone of intergradation occurs between these two subspecies along the upper Missouri River. Other subspecies occupy more limited ranges along the upper Atlantic Coast (*rugifrons*), southeastern Coastal Plain (*unicolor*), eastern Texas and adjacent areas of northwestern Louisiana and southwestern Arkansas (*rugata*), and north-central Texas (*flavoviridis*), and the highly restricted and disjunct *yampae* is found only in a small area of northwestern Colorado. Populations in the upper Midwest and Canadian prairie are sometimes regarded as distinct from *lecontei* (designated as subspecies *criddlei*) due to their broadly coalesced marginal elytral maculations, and an apparently disjunct population of small, blue individuals in south Texas may also be regarded as subspecifically distinct.





Missouri suggests that the zone of intergradation extends further north than previously realized.



Although Missouri lies well within the boundaries of its range, this species has been found in only three widely-separated parts of the state – near the Missouri River in the northwest part of the state, near the Mississippi River in the extreme northeast corner, and in the southeastern lowlands (formally known as the Mississippi River Alluvial Basin). The two northern Missouri populations are assignable to and typical of *lecontei*, with their uniform dull maroon to olive green coloration and continuous to near-continuous ivory-colored border around the outer edge of the elytra. Additional dry sand habitats occur along the lower Missouri River in central and east-central Missouri and along some of the larger rivers that drain the Ozark Highlands; however, this species has not been located in these habitats despite their apparent suitability and occurrence of *C. formosa* with which it frequently co-occurs. The reasons for this distributional gap between the northern and southern populations – some 400 miles in width – remain a mystery. The southeastern Missouri population is not clearly assignable to any subspecies, apparently representing an intergrade between *lecontei* to the north and *unicolor* to the south. Accordingly, individuals from this area are known by the unwieldy appellation “*Cicindela scutellaris lecontei* x *scutellaris unicolor* intergrade.” Pearson et al. (2005) states that intergrades between *lecontei* and *unicolor* are evident only in northern “Missouri” (an obvious error for Mississippi) and Tennessee. Thus, the existence of intergrades in southeastern

Prior to this season, my colleague Chris Brown and I had located two main population centers in the southeastern lowlands – one at [Holly Ridge Conservation Area](#) in Stoddard County, and another at [Sand Pond Conservation Area](#) in Ripley County. Holly Ridge is located on Crowley’s Ridge – an erosional remnant of Tertiary sand and aggregate sediments left behind by the late Pleistocene glacial meltwaters whose scouring action formed the surrounding lowlands, while the sandy sediments at Sand Pond were deposited west of Crowley’s Ridge along the southeastern escarpment of the Ozark Highlands during that same period. These erosional and depositional events created the deep, dry sand habitats that *Cicindela scutellaris* requires. I had known also about the Sikeston Sand Ridge further to the east – another erosional remnant of Tertiary sands deposited by the ancient Ohio River – but had not explored it closely until this season when I initiated my surveys at [Sand Prairie Conservation Area](#). I expected *C. scutellaris* might occur here, and in my first fall visit in early September I found two individuals in the sand barrens (alongside *C. formosa*). Another individual was seen here in early October, but more robust populations were observed at a small, high-quality sand prairie remnant (last photo) further to the south along the Sikeston Ridge, and around eroded sand barrens behind private residences still further to the south. Clearly, the species is well-established in the southeastern lowlands wherever open dry sand habitats (such as the below) can be found.



The individuals shown here exemplify the range of variation exhibited by *C. scutellaris* populations in southeast Missouri. They greatly resemble subspecies *unicolor* by their uniform shiny blue-green coloration. Indeed, the individual in the first photo might well be classified as such due to the complete absence of white maculations along the elytral border. Most individuals, however, show varying development of such maculations, ranging from small disconnected spots to the more developed apical “C”-shaped mark – clearly an influence from subspecies *lecontei*. Another apparent *lecontei* influence is the suffusion of wine-red or maroon coloration that can be seen on the head, pronotum, and elytra of the individuals in photos 2 and 4. These characters make this population divergent from the typically monochromic *unicolor* (as its name suggests). Because of their bright green coloration and white maculations, individuals in this population greatly resemble subspecies *rugifrons*, but that subspecies is limited to the northern Atlantic seaboard. They also resemble the common and widespread *Cicindela sexguttata* (six-spotted tiger beetle) but can be distinguished from that species by the more noticeably domed profile of the elytra, rounded rather than tapered elytral apex, and dark labrum of the female (both sexes of *C. sexguttata* have a white labrum).

There is one additional sand ridge in Missouri’s southeastern lowlands – the Malden Ridge. This sand ridge occurs south of Crowley’s Ridge and is much smaller than the Sikeston Ridge. No significant remnant habitats remain on the Malden Ridge, but it is possible

that sufficient areas of open sand remain that might support populations of *C. scutellaris*. Determining whether this is true will require some time studying Google Earth and even more time on the ground to search them out. If they do exist, however, it will be interesting to see what level of influence by *lecontei* is exhibited in this most southerly of Missouri populations. Only spring will tell!

Read more of Ted’s insect musings on his blog: <http://beetlesinthebush.wordpress.com/>

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Paul Bauer

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