

TABLE 2
PERCH-HEIGHT/TREE-HEIGHT PERCENTAGES IN *MYIOZETETES*

Percentage	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	100
<i>similis</i> (115 obs.)	0	0	2.6	11.3	9.6	13.9	13.9	15.6	15.7	17.4
<i>granadensis</i> (78 obs.)	0	10.3	6.4	9.0	23.0	19.2	9.0	7.7	10.3	5.1

similis; 77 per cent of 175 observations in *granadensis*), would occasionally descend to the ground (20 per cent and 17 per cent, respectively), and would rarely capture insects by flycatching to foliage (8 per cent and 6 per cent). Similarly, both species preferred shorter foraging flights, although flights of up to 40 or 50 feet were observed.

I observed both species feeding at localized food sources. In Palmar Sur these sources were the berries of *Ficus goldmanii* and the Royal Palm (*Roystonea*); in Puerto Viejo the sources were mistletoe berries (*Struthanthus*). The only antagonistic behavior I observed between these species took place at one of these localized food sources.

Competition from noncongeners did not seem to be great. *Tyrannus melancholicus* was most like *Myiozetetes* in habitat preference and foraging behavior. However, at each site studied except Cañas (and here both *similis* and *granadensis* were uncommon) *melancholicus* was less common than either of the two species of *Myiozetetes*. Other flycatchers (e. g., *Megarhynchus pitangua* and *Pitangus sulphuratus*) foraged in the higher canopy and were uncommon. At Puerto Viejo several small flycatchers of the genera *Elaenia*, *Contopus*, and *Myiarchus* (plus two unidentified, small flatbilled species) foraged commonly in the lower strata, thus probably accounting for the fewer numbers of observations of *similis* and *granadensis* in these strata.

In conclusion, the foraging behavior of *M. similis* and *M. granadensis* is very similar, but *similis* does appear to spend more time in the upper strata than *granadensis*. It must be pointed out that foraging behavior can change during the year in correlation with the seasonal abundance of food and the time at which young are being fed. Only a year-round study can fully elucidate food-competition relationships between these two species.

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Attack behavior of a Loggerhead Shrike.—Bent (1950. *U. S. Natl. Mus. Bull.* 197) gives an extensive summary of shrike feeding behavior in which it is stated that shrikes do not use their feet as talons but characteristically depend upon the bill for seizing and carrying prey. The feet are used somewhat in holding prey to the perch during feeding and some individuals may exchange their prey between bill and feet while in flight. An exception to this general behavior was observed by myself in several encounters between a Loggerhead Shrike (*Lanius ludovicianus*) and old-field mice (*Peromyscus polionotus*).

During a live-trap study of small mammals in South Carolina I had trouble with a shrike which occasionally pursued mice after release from the trap. The shrike would swoop directly from its perch, which was within 50 yards of most trap locations and hover over a released mouse, vocalizing in a flurry of wispy high register notes. The maneuver was very rapid and always caught me by surprise. The mice always recognized when the shrike was overhead because they would crouch suddenly and usually roll over on their side or back. Seldom did any of the 644 individual mice handled during this study freeze in this manner in the absence of the shrike even when I pursued them to their nest tunnels. The alarm reaction in the presence of shrikes is evidently not unusual with small animals. At mist-netting stations in the same area, captured Savannah Sparrows (*Passerculus sandwichensis*) would appear unusually excited whenever a shrike approached. This behavior was especially evident when Dr. R. A. Norris held a captured shrike within view of several captive sparrows.

On 1 January 1958, after about 8 sorties as described above, the shrike finally attacked one mouse with its feet. The mouse was lifted a few inches off the ground and dropped but no capture was made since I interfered. In the next two or three days I was able to protect the released mice only by standing between them and the shrike. On 27 January I released an adult male mouse which weighed 13 g. It had traveled for about two yards when the shrike swooped down and grasped the mouse in its feet. The shrike flew 30 yards to a plum tree (*Prunus* sp.) with the mouse suspended in its feet. Throughout the initial attack the shrike's bill was not used in any way to handle the mouse. Once on its perch the shrike immediately struck two or three times at the mouse which was held under the foot. It then flew about 40 yards to its customary perch in a chinaberry tree (*Melia azedarach*) with the mouse still clutched in its feet. Since I had pursued the shrike, it almost immediately flew off again and passed within 35 yards of the site of initial contact. Here the mouse was dropped from a height of about five yards. During the entire episode about 85 yards were traversed in a triangular flight pattern. The shrike appeared to leave both perches with the mouse clutched in its feet and at no time in flight was there an attempt at transfer to the beak. The shrike's head and bill were conspicuously in view during most of the incident. Curiously, though, the shrike's feet and the mouse were not visible after the first perch. I would have expected to see a 13 g load suspended in full view.

On 18 March the same mouse was retrapped. Its tail from just beyond the base was missing. It is possible the tail had been injured or removed during the observed attack.

Previous encounters of this shrike with mice other than those which I witnessed were unlikely. The loggerhead feeds less on mice than does the Northern Shrike (*L. excubitor*) and in the old-field habitat no natural opportunity for shrike-mouse encounters would occur since normally the indigenous mice are nocturnal and shrikes diurnal.—LARRY D. CALDWELL, *Biology Department, Central Michigan University, Mt. Pleasant, Michigan 48858, 4 February 1966.*

Unusual behavior of the Yellow-headed Blackbird.—Between 7:30–8:00 PM on 2 August 1962 at the Delta Waterfowl Research Station, Delta, Manitoba, I observed the following unusual sexual behavior of the Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*).

A dead, immature, male Yellow-headed Blackbird was lying on its breast atop the screen of an eight foot high flight cage used for waterfowl studies. Another immature male Yellow-headed Blackbird flew to the dead bird and assumed a copulatory position. The head of the live bird was above that of the dead one and the cloacal regions of the