

DO URBAN AND RURAL PRAIRIE DOG COLONIES RESPOND DIFFERENTLY TO HUMAN DISTURBANCE?

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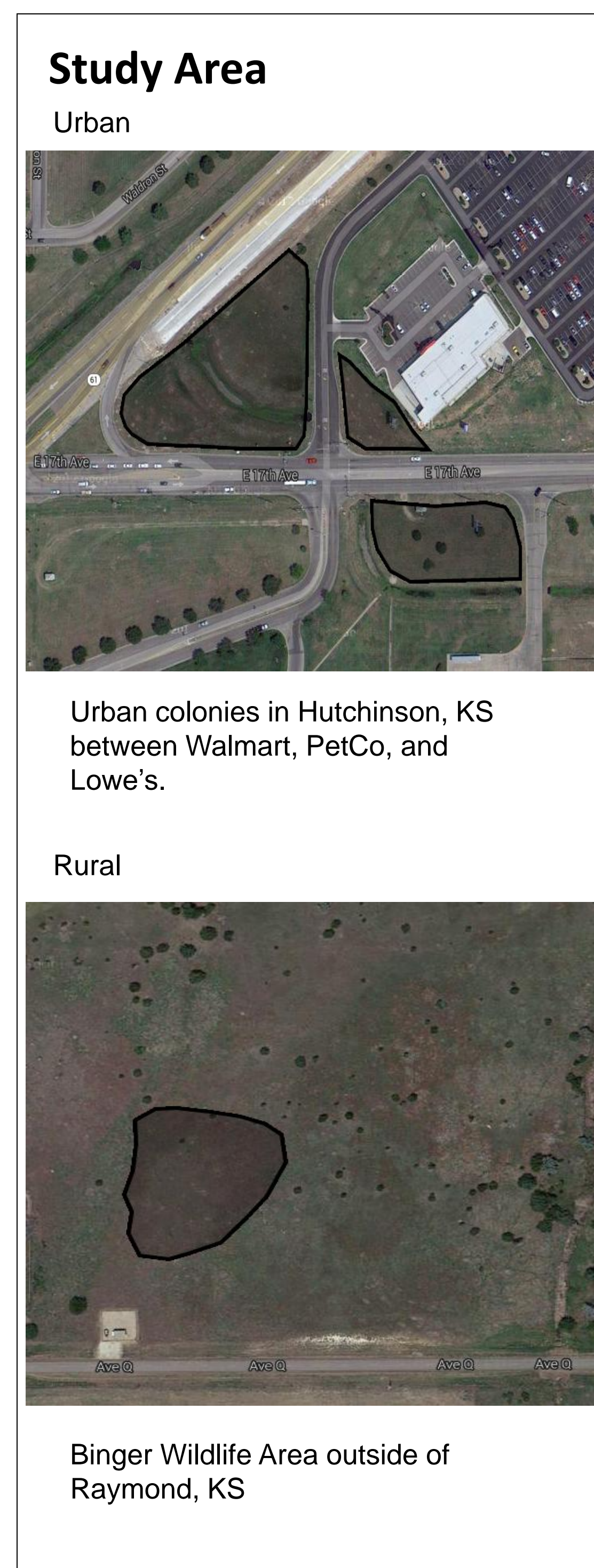
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Background

Human disturbance can have a variety of impacts on wildlife species. These impacts can include altered patterns of habitat use, changes in foraging behavior, or increased time watching for predators. The impacts of human disturbance on the behavior of wildlife may differ depending on the level of perceived threat and habituation to previous disturbance. Black-tailed prairie dogs (*Cynomys ludovicianus*) exhibit a variety of responses to disturbance ranging from alarm barks, running to burrow entrances, and entering burrows. If prairie dogs do not habituate to the disturbance, such as may be found in urban areas, they may spend more time in burrows which could limit foraging opportunities and impact other social behaviors. We decided to find out if prairie dogs in an urban setting would respond to human disturbance in the same way as those that were in a rural setting.

Methods

To assess responses to human disturbance, we started from a long ways off from the colony and walked at a normal pace towards the center of their town. As soon as we heard the first alarm bark we stopped, only long enough to measure the distance to the nearest burrow, and resumed walking at original pace. Next we stopped when they started running to their burrows, again measured the distance, and then kept going. We stopped advancing once they finally went down in their burrow. We measured how far away we were and started a timer as soon the last prairie dog disappeared. We walked back to our original spot and waited for the first prairie dog to emerge and then we would stop the timer. For this procedure we always made sure to wear the same outfit (white shirt, blue jeans) every time to eliminate the possibility of clothing color being a factor in the responses of the prairie dogs.



Results

We found that there was a difference in how urban and rural prairie dogs responded to human disturbance. The distance at which prairie dogs would allow humans to approach before running to the entrance of the burrow was much greater for rural than for urban colonies. The three urban colonies all had relatively similar distances at which prairie dogs responded to disturbance, and these were consistently less than the distances at which the rural colony responded (Figure 1).

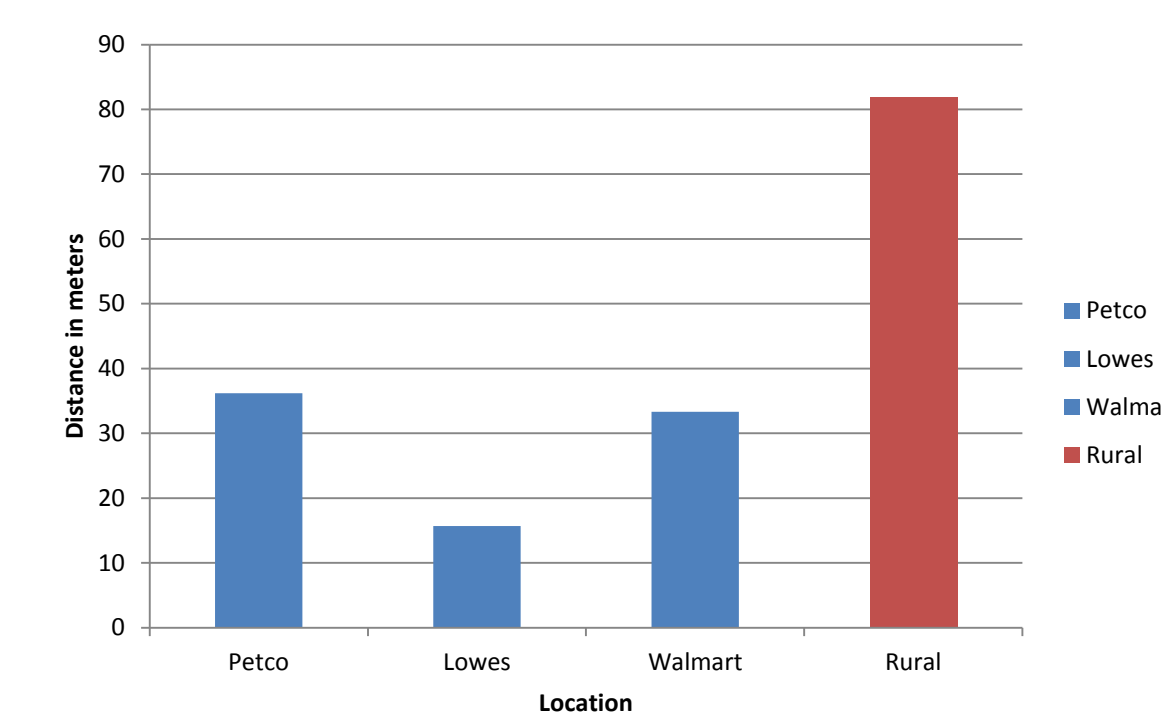


Figure 1. Distance at which urban (Petco, Lowes, Walmart) and rural prairie dogs ran to the burrow entrance in response to a person approaching on foot.

Similarly, the distance at which prairie dogs entered the burrows in response to perceived disturbance was much less for urban colonies than for the rural colony (Figure 2). The urban colonies allowed humans to come within 10-20 m before entering the burrow. For the rural colonies, prairie dogs entered the burrows when humans approached to within 50-60 m.

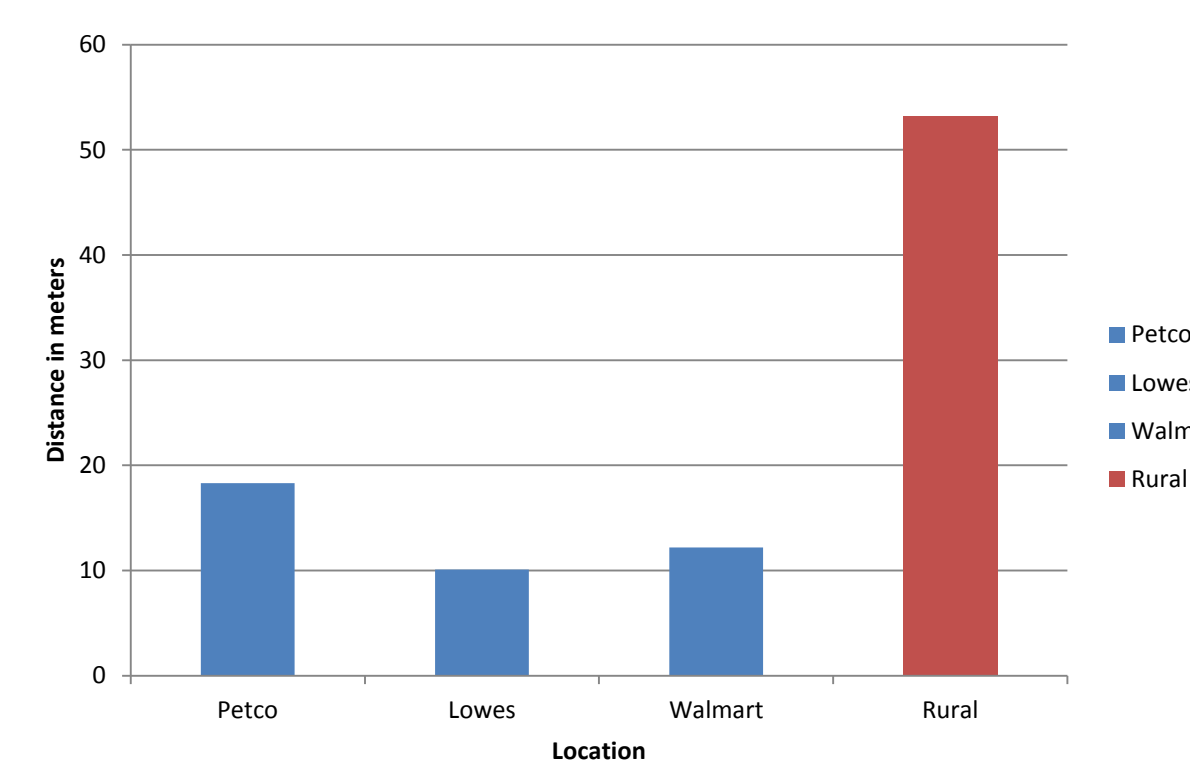


Figure 2. Distance at which urban (Petco, Lowes, Walmart) and rural prairie dogs entered a burrow in response to a person approaching on foot.

Following the disturbance, we hypothesized that prairie dogs in colonies within urban areas would return to the surface more quickly than those in rural areas. However, the time at which the first prairie dog emerged from the burrow was very similar between urban and rural colonies (Figure 3). While we only recorded the time at which the first prairie dog in the colony emerged from the burrow, it did appear that in the rural colony it took longer for all of the prairie dogs to return to normal activity than it did in the urban colony.

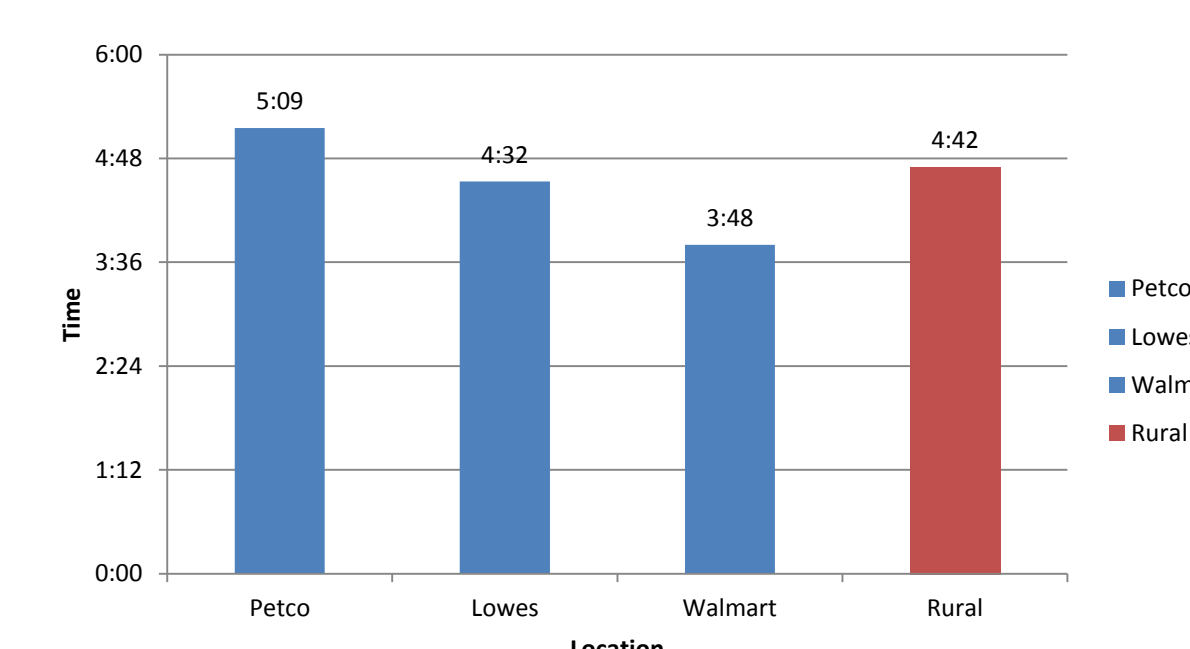


Figure 3. Average time at which the first prairie dog emerged from the burrow in urban and rural colonies following disturbance by humans approaching on foot.

Conclusions

Our results supported our main hypothesis that prairie dogs in urban colonies would respond less quickly to approaching humans than prairie dogs in a rural colony. Prairie dogs are capable of inhabiting a variety of grassland sites, including those within urban or suburban areas. While these areas may exist as small fragments of suitable habitat it is possible that prairie dogs within these urban colonies may experience reduced predation risk. Our data is consistent with what we would expect for a population that experiences limited predation risk and is exposed to frequent human activity. If prairie dogs are regularly exposed to human presence without negative consequences, it would be logical that they would not be threatened by approaching humans. Similarly, if prairie dogs in urban areas are not accustomed to fleeing from native predators they may also exhibit little response to humans. Our results are consistent with other studies that have found that concealment distance in response to human disturbance was greater for rural than for urban colonies (Magle et al. 2005). Further study is necessary to find if the perception of risk between urban and rural colonies allows for changes in foraging behavior and the relative time allocated to foraging compared to scanning for predators.



Photo Courtesy of newsforsquirrels.blogspot.com



Photo Courtesy of tringa.org

Literature Cited

Magle, S., Zhu, J., and K.R. Crooks. 2005. Behavioral responses to repeated human intrusions by black-tailed prairie dogs (*Cynomys ludovicianus*). *Journal of Mammalogy* 86: 524-530.

<http://kdwpt.state.ks.us/KDWPT-Info/Locations/Wildlife-Areas/Region-4/Binger>