



Utilization of Perches Within Red-Winged Blackbird Territory

- Mark Browning 2007



Introduction:

Red-Winged Blackbirds annex and actively defend territories within cattails that will afford breeding pairs the highest degree of reproductive success. Fretwell and Lucas (1969) describe the distribution of the Red-Winged Blackbird as ideal dominance distributed. This refers to the propensity of birds to colonize an area and then prevent other birds of same species from colonizing the same area. Thus, within a breeding habitat, dominant males colonize the prime breeding locales and then prevent other birds from entering and settling territory.

My concern in this study centers on what factors contribute to an increase in habitat productivity. I assume that the key factors are food availability, and structure to build nests in (cattails in this case). I believe another factor that dictates the "worth" of a habitat to male red-winged blackbirds is perch availability. Upon observation, I have noticed that red-winged blackbirds utilize any available perch in an effort to overlook territory, sing, and display. The highest perch in the marsh is often last year's cattail (the reproductive tuft on top). This perch often rests below the present year's growth and does not provide ideal elevation from which to observe, sing, and display. I have also noticed male red-winged blackbirds perching on other dead trees, signs, and other structures that provide a greater view and afford pre-eminent displaying and singing grounds.

My hypothesis is that one important factor of a breeding habitat productivity is the availability of perches within the site. Birds that have access to higher perches will in turn be able to attract more females when they display and call. They will also have a greater capacity to scan their territory. I laid out a 100m x 100m plot in a marshy area completely enveloped in cattail growth. The plot was devoid of any perches other than last year's dead cattails. I then observed the territorial behavior of the birds. Next, I installed four perches within this plot 25m from the inside of each side of the plot. Each perch reached 2-3 feet above the tallest cattails. Finally, I observed the behaviors again looking for any changes within the territory of the red-winged blackbirds.

Abstract:

During the breeding season (May through June), the Red-Winged Blackbirds are characterized as a species with a distribution described as ideal dominance distribution (Fretwell and Lucas 1969). Males arrive before the females, annex territory, and actively defend it against other males of the same species. What factors then determine how productively valuable a breeding site is? I think there are a number of factors including food availability, availability of structures for nesting, and now I am posing perch availability be included in this formula.

Red-Winged Blackbirds in the Fossil Creek Wetlands Area had established territories, mated and in many cases had nested once when I began. Birds were observed as they roosted, called, and actively protected their territories. A 100m x 100m quadrant was established within an area of the wetlands that lacked any predominant perch sites. Every 5 minutes male birds were recorded relevant to their location within the quadrant. Perches were then established within the site, though they were of the incorrect size. The birds were then observed again. Male birds did not utilize any of these perches. Next, the front two perches were altered to fit the preferred perch size of the Red-Winged Blackbird. When the birds were observed for a third time, behaviors did indicate a change favoring one of the perch sites that was adjusted to the appropriate size (#17). It is likely that birds favor breeding sites with superior perch sites, ones that stand above the ambient floral cover of the area. How perch availability compares in productivity worth to food availability and structures for nesting was not determined.

Discussion:

Red-Winged Blackbirds appear to have preferred perches that are used to observe their territories, call from, and display from. Male birds were observed utilizing these perches consistently throughout the five days of observation. This signifies that not all perches are considered of equal productive value, assuming that a male chooses its perch because the perch provides it with a better opportunity to observe its territory, display from, and call from. Thus, if all perches are not made equal, perches with a greater productivity will not only be used more often but will be protected against rivals as well. If a perch of superior productive value is introduced into a breeding environment, then birds should adjust their behaviors to utilize this perch. During my observations, I did observe a change in behavior from birds that had territory surrounding this improved perch. They were increasingly documented in association with this perch and would land disproportionately upon the introduced perch compared to other potential perch sites that they typically use.

It was not ascertained during this study how the availability of perch sites compared in value compared to that of food availability and nesting structure. It would be interesting to compare these to ascertain the relative value of each. To improve upon this study, the perches would be offered at a time before the male Red-Winged Blackbirds had established their territories.



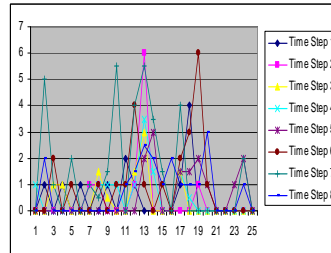
Red-Winged Blackbird moving perch sites within research Quadrant



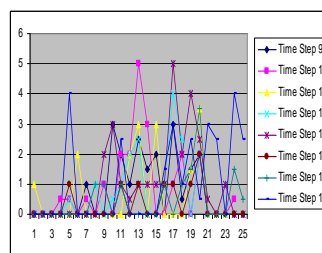
An overview of the research area

Methods:

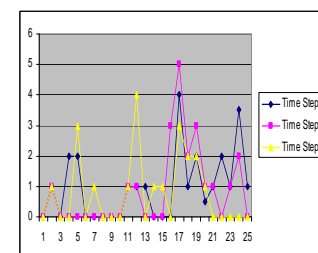
- 1.) I staked out a 100 meter x 100 meter plot in prime red-winged blackbird breeding territory within a marsh habitat. The plot was devoid of any perches, although there were some perches that sat just outside the plot. These consisted of a number of living trees, 4 dead trees, 3 signs (the plot sat adjacent to a road), and telephone poles and wires (on the opposite side of the road).
- 2.) Observations were made of the male red-winged blackbirds trying to identify territorial boundaries within the plot. I identified 4 or 5 definite territories and 2 or 3 other territories that fluctuated in their size and shape.
- 3.) Four perches were introduced to the plot. They were made of 12 foot sections of 1x2 with a 6 inch T section drilled to the top. All perches outreached the tallest of cattails by 1-2 feet.
- 4.) Again observations were made to describe the territorial boundaries of the dominant red-winged blackbirds.



Graph 1: Blackbirds No Imported Perches



Graph 2: Blackbirds with Imported Perches



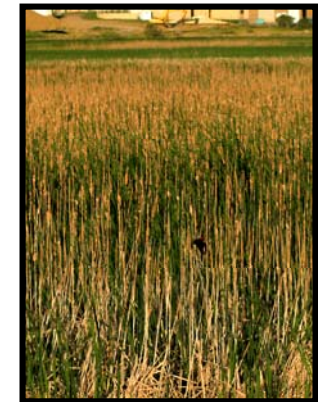
Graph 3: Blackbirds with Improved Imported Perches

Results:

It was evident upon observation that male Red-Winged Blackbirds were inhabiting territorial sites, and within these sites there were particular areas, and even cattails, that they preferred to perch upon. Each individual male utilized the same set of perches consistently throughout the observation. Since all perch sites were essentially at the same level or below the average level of all other perches, the perch sites chosen were fairly consistently spread throughout the quadrant.

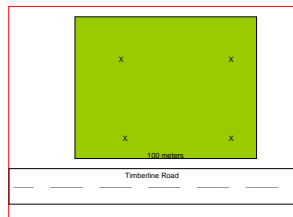
When Perch sites of a size that were not preferred by the Red-Winged Blackbird were introduced to the quadrant, the males did not utilize any of them, but their perching patterns appeared to shift toward areas around perch sites.

The final change to the research site was the introduction of appropriate sized perches to the front 2 perches in the quadrant. Observing the birds, it appeared males that had established territories directly around one of the improved perches (#2) began to utilize the perch within their territories to a degree that subverted other potential perch sites. It was apparent there was a shift in behavioral patterns. Male birds flying over the cattails searching for a perch were observed on numerous occasions changing their flight to redirect themselves to the improved perch. This is apparent comparing graph 1 and 2, in which no perch was utilized, to graph 3 in which the male birds began utilizing the perches.



Typical perching behavior utilizing the common perch of these Red-Winged Blackbirds

Research Site



References:

- Peterson, Kenneth L. 1978. Habitat distribution and territoriality in the dickcissel and red-winged blackbird. National Science Foundation, Undergraduate Research Participation Project. Kansas State University, Manhattan, Kansas. 37pp. Jamestown, ND: Northern Prairie Wildlife Research Center Online. <http://www.nprwc.usgs.gov/resource/birds/dickhab/index.htm> (Version 02JUL99).
- Silverman, Steve. Photo: Perching Red-Winged Blackbird. http://www.shutterfreaks.com/albums2/album145/RWBBWeb_copy.jpg. 2007
- Yip, Mike. Photo: Red-Winged Blackbird on cattail. <http://vancouverislandbirds.com/Journal93.html>. 2007

Acknowledgements:

Thanks to Kim Melville-Smith, Greg Selby, my classmates at the Ecology Internship, and Judy Browning.