

Human Impact on Species Habitat and Dispersal

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We hypothesized that species richness will decrease when traveling from a rural to urban ecosystems. The diversity of species living in these communities will also decrease along this gradient. The number of exotic species will be higher in the most urban site while the number of natural species will be higher in the most rural site.



Most Rural

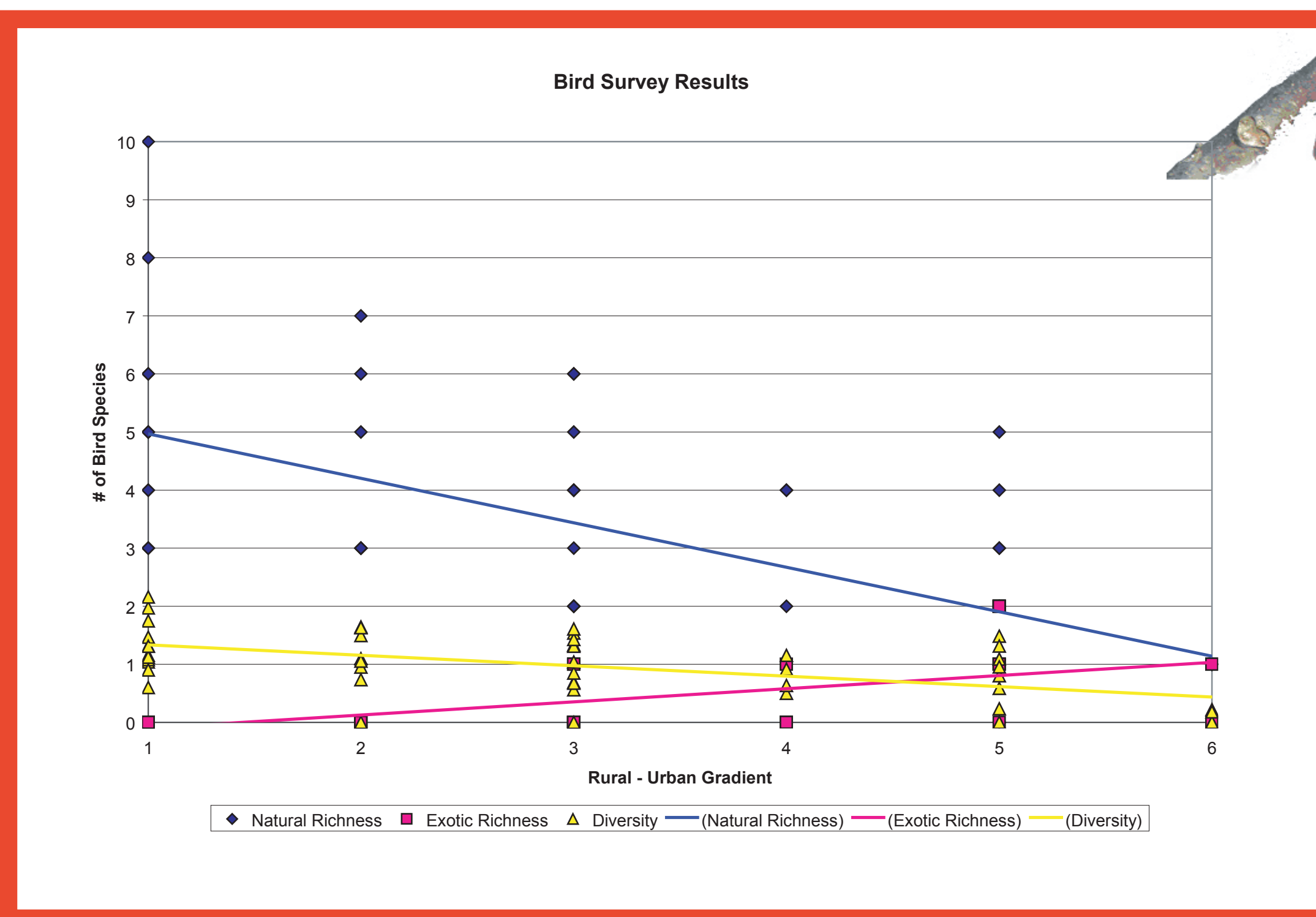
1. UWM Field Station
 2. Riveredge Nature Center
 3. Urban Ecology Center
 4. Hubbard Park
 5. Lake Park Golf Course
 6. Residential Neighborhood
 7. UWM Campus
- Most Urban

Urban-to-rural gradient studies examine changes in plants and animals along a transect from the inner city to surrounding, less-altered ecosystems; they also show what happens to surrounding native ecosystems as urban sprawl expands (McKinney).

BIRDS



MACROINVERTEBRATES



We collected our bird data by performing 10 minute point counts in a 50 meter radius circle using the BBIRD method. Each of our plots was 200 meters apart and the data was collected between mid mornings to mid afternoon. The dates that were collected were: 9/22/2005, 9/23/2005, 10/8/2005, 10/9/2005, 10/27/2005, and 10/28/2005.

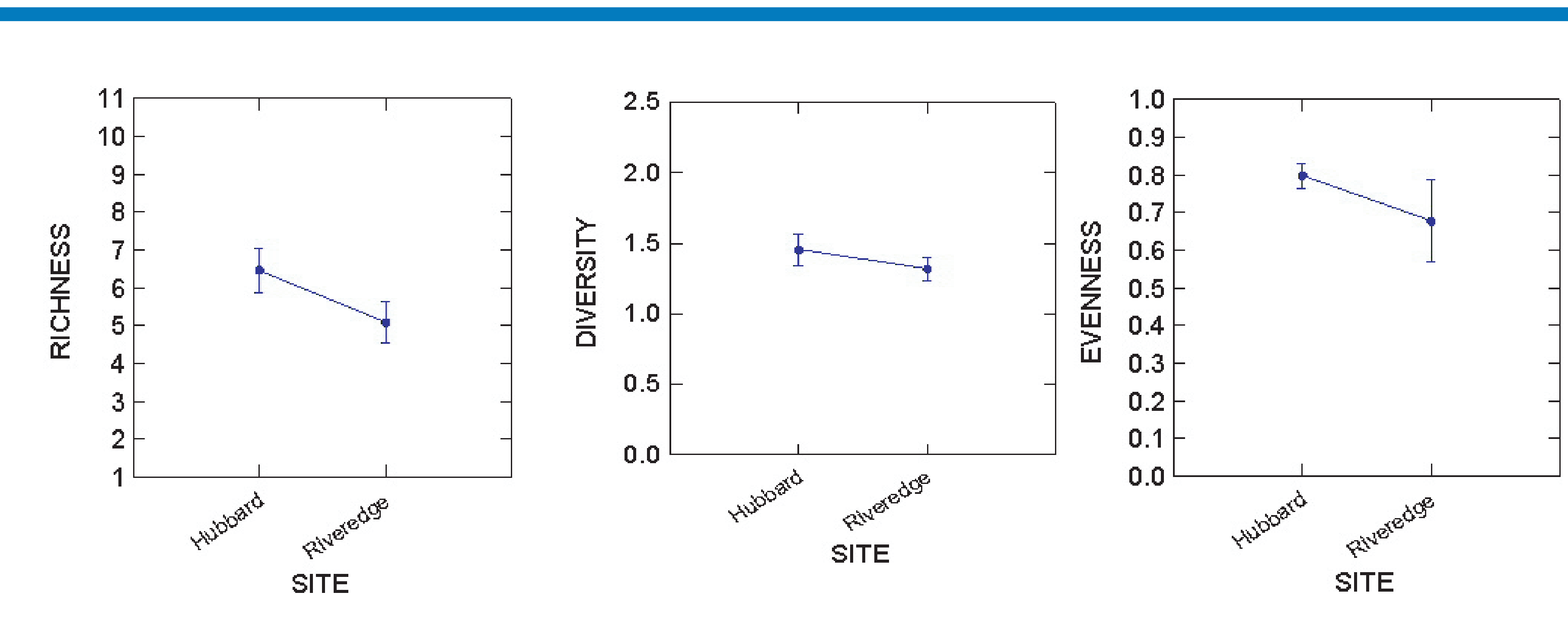
Bird Results

The diversity of bird species decreased as we moved from the rural to urban study sites. Exotic richness increased along this same gradient while the overall richness of bird species decreased. These findings support our hypothesis and are backed by McKinney.

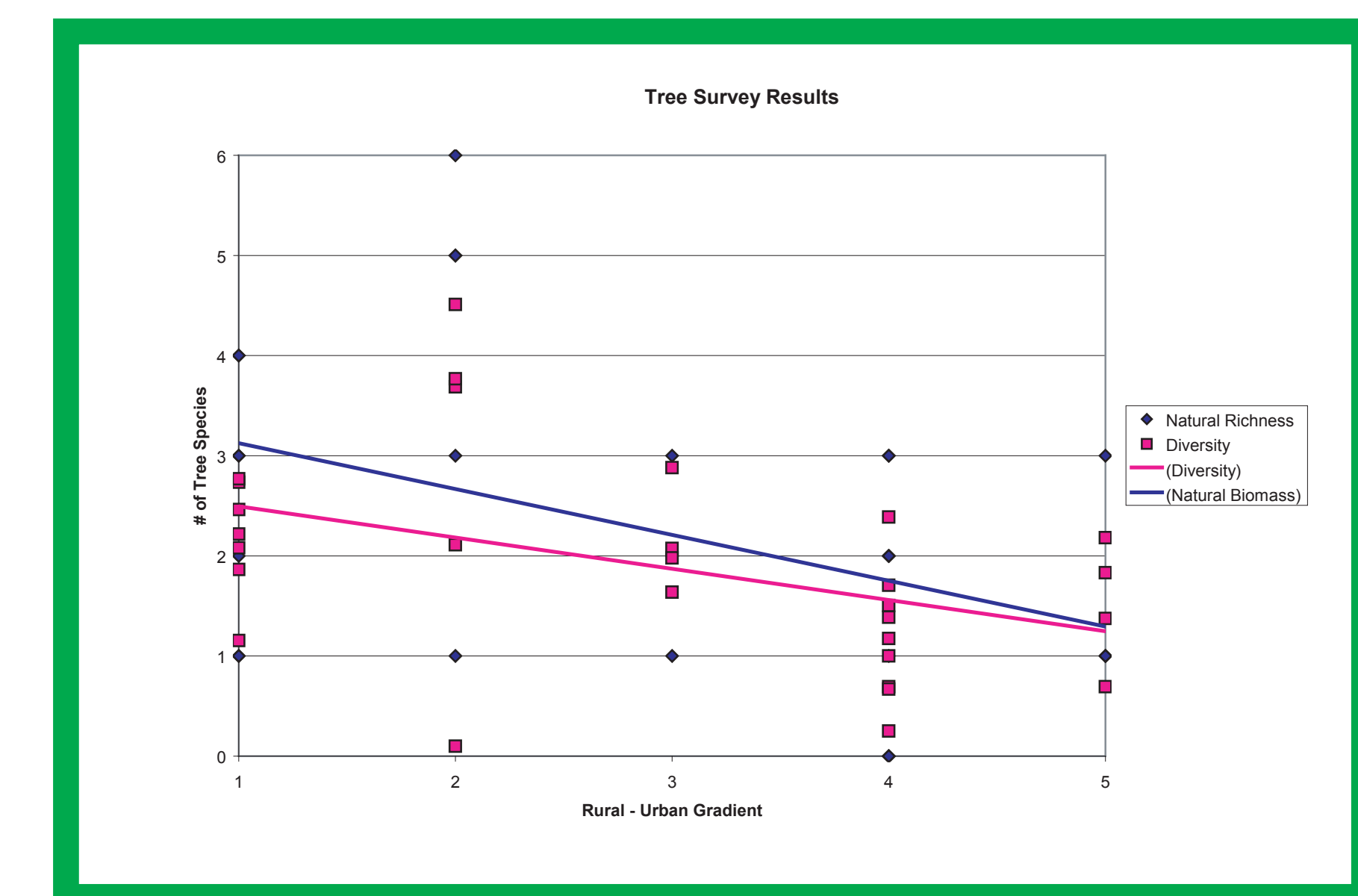
We collected macroinvertebrate data by dividing the Milwaukee River into five equal sections. We collected data at four different points along the wetted width of the river. We used kick nets for two minutes to collect the macroinvertebrates. We then did a visual macroscopic survey of the items in the kick net and put all macroinvertebrates into ethanol in order to preserve them for later identification. We then recorded the wetted width of the river, type of sediment, depth, flow velocity, thalweg, water and air temperature, electro conductivity, oxygen content of the water, the water pH, and the amount of chlorophyll in the water.

Macroinvertebrate Results

The data that was collected at our two study sites resulted in the opposite of what we hypothesized. In the graphs below, the gradient is in order from urban to rural showing a decrease in richness, evenness, and diversity. This does not support McKinney. If we would have tested more sites along the gradient our results may have been different. We could also explore the accuracy of the method that we used to collect the data.



TREES



We collected our tree data by measuring out a tree plot that was 10 meters by 10 meters and measured their circumferences at breast height. We only measured those trees that were larger than four centimeters in diameter. Once they were measured we used multiple guide books to identify the trees through bark, leaves and seeds.

Tree Results

The diversity of tree species decreased as we moved from the most rural study site to the most urban study site. The native richness of tree species also decreased as we moved from our rural to urban sites. This information supports our hypothesis and the results of McKinney.

