



plain, which has many sandy soils. These soils have a very low water holding capacity and are dark in color, thus solar radiation goes toward heating the ground rather than evaporating soil moisture, so the air temperature responds accordingly. Figure 3 shows the general soil map for Muscatine County provided by the USDA. The southern parts of Muscatine and along the river are part of the Fruitfield series of soils. These soils are rapidly permeable, dark brown coarse sand formed under native vegetation of prairie grasses.

This heat island significantly impacts temperature forecasting within the CWA. A forecaster with no knowledge of its existence may forecast too low of temperatures for the Muscatine area. Forecast guidance does not perform particularly well for Muscatine, so forecast experience is the most helpful tool in addressing this unique microclimate.

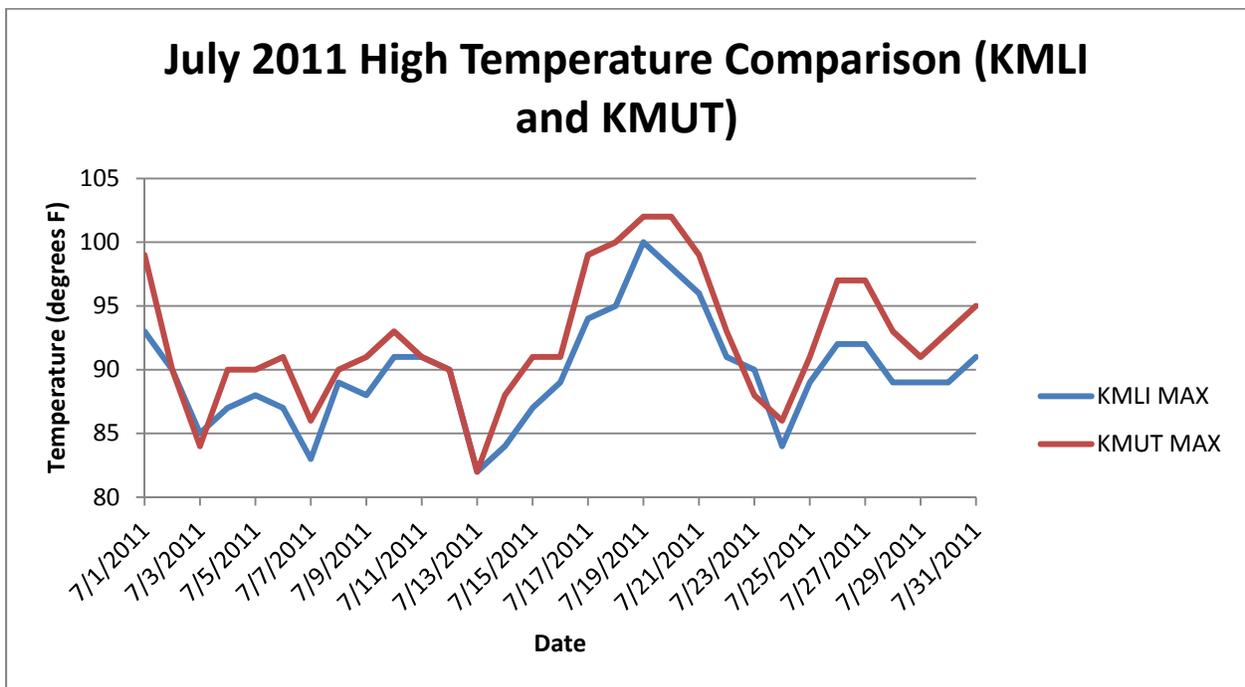


Fig. 2. A comparison of maximum daily temperatures in July 2011 for Muscatine, IA (KMUT) and Moline, IL (KMLI).

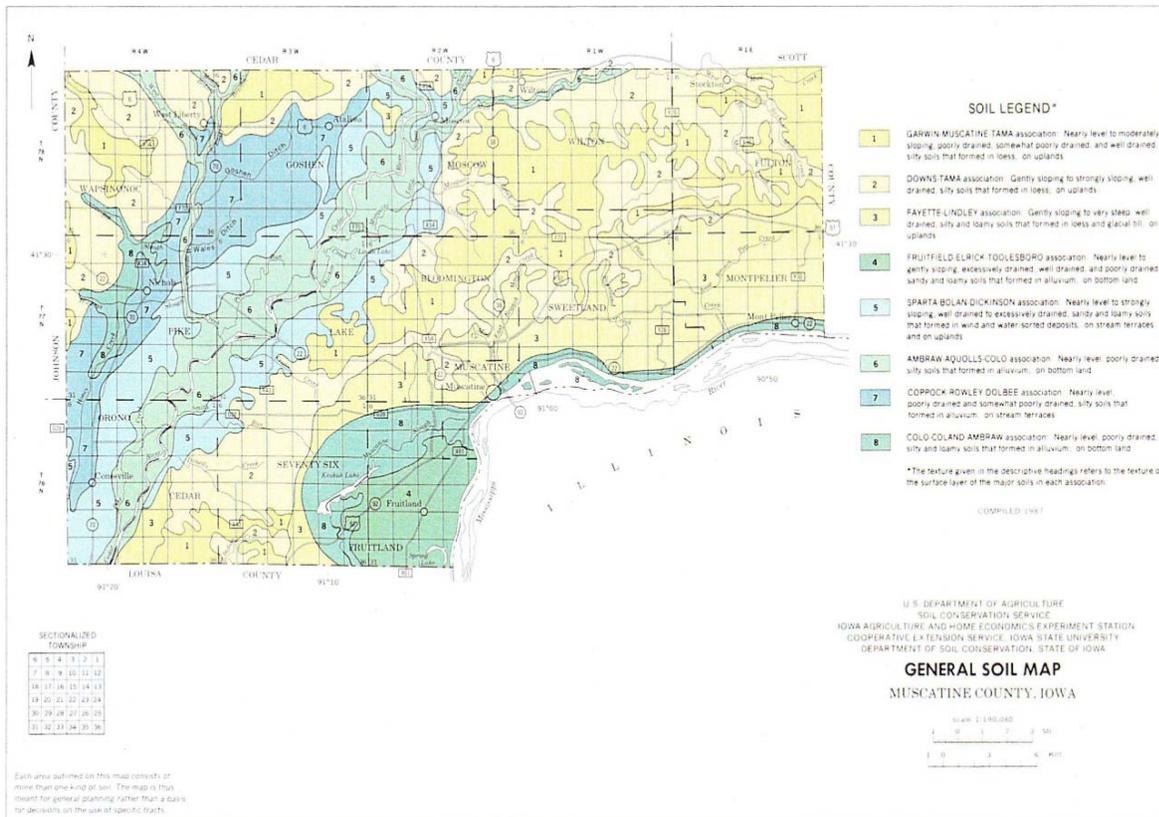


Fig. 3. Soil series map for Muscatine County. The area of interest is the blue and green shading in the southeast part of the county.