

Making Your Point with Marker Symbols

How to create custom symbols from photographs

By Joseph J. Kerski, Ph.D., Education Manager, ESRI

ArcMap in ArcGIS Desktop comes with hundreds of point, line, and area symbols for use when symbolizing features on maps. Point marker symbols, both two- and three-dimensional, have been designed for use on maps dealing with geology, environment, business, transportation, public safety, weather, and many other themes.

Did you know that, in addition to these premade symbols, you can create your own symbols? A picture marker is one of the most helpful types of custom point markers, particularly for teachers.

The spring issue of *ArcUser* included "Using GIS to Study Sports—Putting the where in baseball," a tutorial I wrote for teachers and students that showed how to compare the coverage of radio stations broadcasting Kansas City Royals baseball games versus those broadcasting games of the St. Louis Cardinals. The lesson asks students to consider the size and shape of the two catchment areas in relationship to each team, to each other, and to other teams. In so doing, students learn about the geographic concept of diffusion and the business concept of market competition in a spatial context.

After finding lists of radio stations that broadcast the games for each team online, I added a Team field in the attribute table for United States cities to indicate the team broadcast by each station. I populated this field with the appropriate team name. I also noted cities that broadcast games for both teams.

To symbolize these cities based on this newly created field, I could use circles, stars, squares, or another standard point symbol. To let students more easily see the locations of the stations broadcasting each team, I created marker symbols from photographs I had taken. Photographs of Kauffman Stadium, home of the Kansas City Royals, and the St. Louis arch were used to represent the two teams.

Creating a Picture Marker

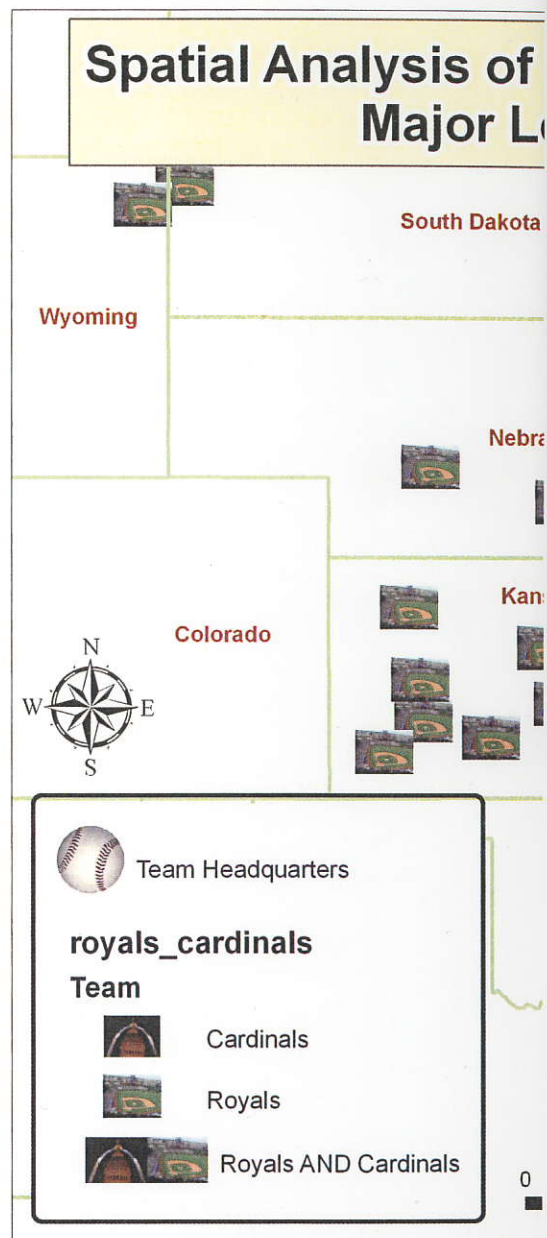
In addition to ArcGIS Desktop at any license level (ArcView, ArcEditor, or ArcInfo), a simple graphics program is required when creating picture markers from photographic images. The Paint program that comes with the Windows operating system or any program that can open a JPG format file and save it as a bitmap (BMP) format file will work.

1. To create a picture marker symbol, open the photograph in a graphics program and save it as a BMP file. Repeat this process for each photograph. For the cities that broadcast the games of both teams, I created a panoramic image of both photographs and saved it as a separate file.
2. Start ArcMap and choose Tools > Styles > Style Manager. In the Style Manager, select the marker symbol style folder in the style tree where the new picture symbol will be saved. The style folders under Documents and Settings are associated with your logon and might be a good place to store custom markers.
3. Right-click on any part of the open space in the right pane of the Style Manager and choose New > Marker Symbol.
4. In the Symbol Property Editor, click the Type drop-down arrow and choose Picture Marker Symbol. Navigate to the location of the desired BMP file and select it.
5. If the picture is too large for the map at the scale it will be displayed, use the Symbol Property Editor to resize it. You can also rotate the symbol, apply colors to it, change its angle, change its x or y offset, or make it transparent. When finished, click OK.
6. Back in the Style Manager, assign it a name and click Close.
7. Repeat the process for each picture symbol.

Using the Picture Marker

Once picture markers are created, they can be used on any map.

1. Open the desired map in ArcMap. Double-click on the layer to be symbolized in the table of contents.
2. In the Properties dialog box, click the Symbology tab. In this case, I selected Team as the value field to symbolize and chose Unique values under Categories.
3. Next to the symbol for each value, double-click the default point symbol to open the Symbol Selector.
4. Make sure All is selected from the Category dropdown and scroll and select the desired picture marker. You can further refine size or other characteristics for display in your map. Click OK.
5. Repeat the process of changing the default point markers to picture markers. Click OK on the Layer Properties dialog box when finished.

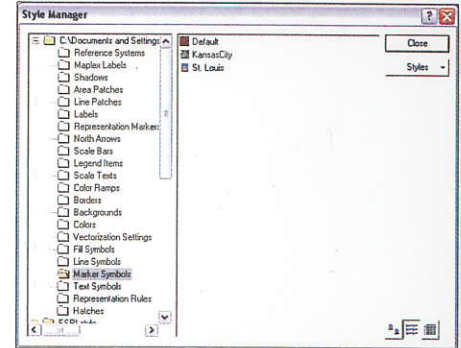
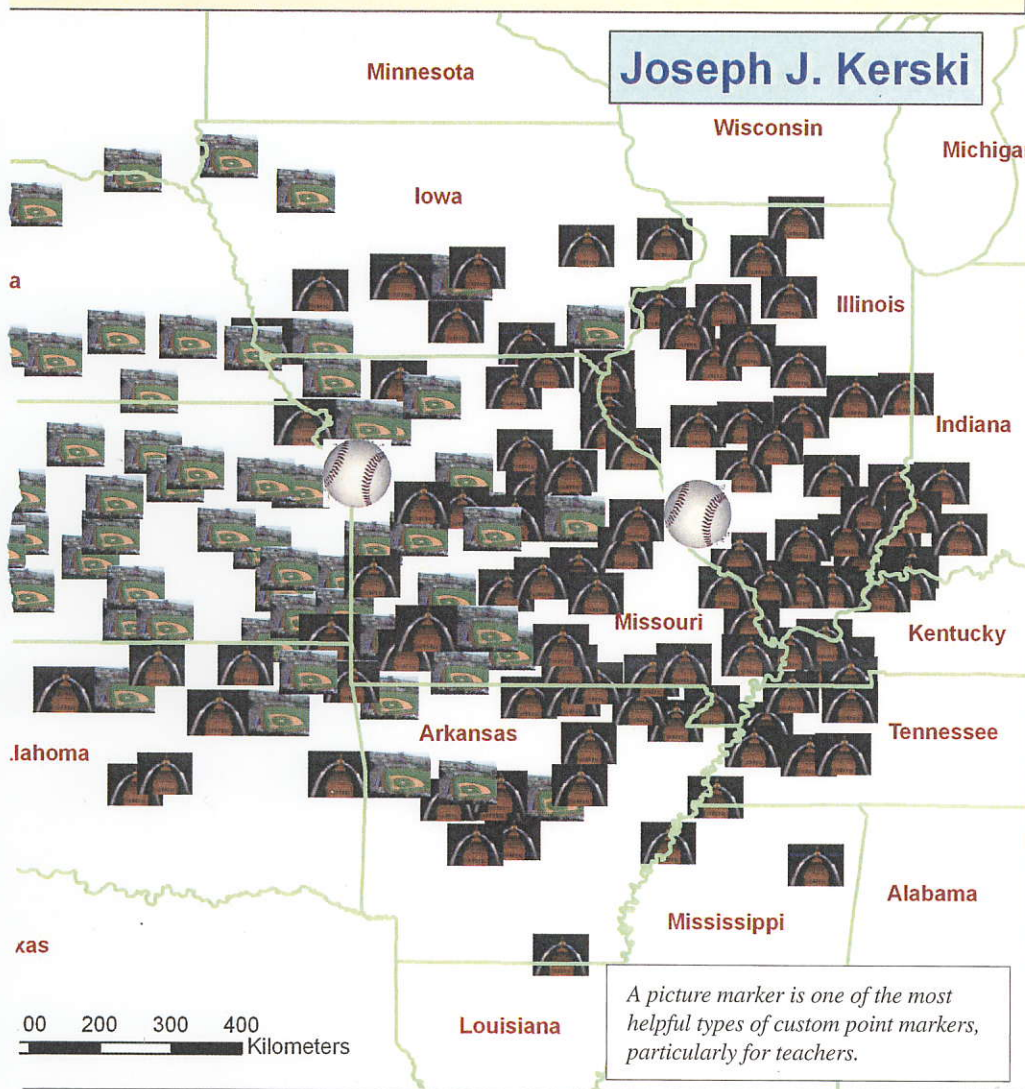


Storing and Sharing Picture Markers

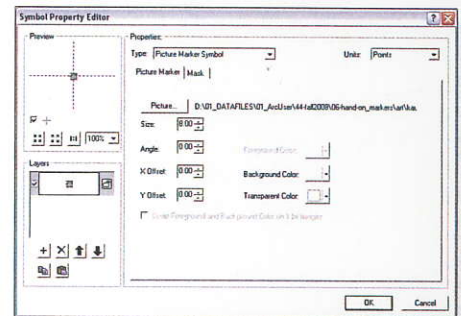
Though custom symbols would typically be stored in the Style Library under Documents and Settings > user name > Application data > ESRI > ArcMap, you can copy and store style libraries wherever you wish. Use the style manager, located under Tools > Styles to create, modify, and manage custom symbols.

If you need to share your customized symbols for others to edit, you can send the

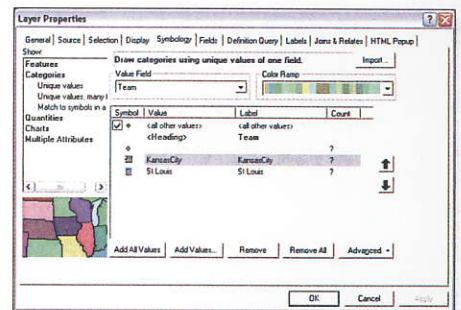
Kansas City Royals and St Louis Cardinals League Baseball Radio Networks



After converting the photograph to a BMP file, choose **Tools > Styles > Style Manager**.



After choosing to create a marker, use the **Symbol Property Editor** to create and refine the picture marker symbol.



Once all the picture markers required have been created, apply them using settings on the **Symbology** tab of the **Layer Properties** dialog box.

style file along with the map document and datasets. When others access ArcMap, they can load the style by accessing the Symbol Selector window.

However, to use these symbols once they have been applied to a map doesn't require a style file. The symbol set gets saved with your map document (MXD file); it does not need to be provided separately when you share the map document.

The Bigger Picture

The ability to create and share picture markers opens up a whole new world of map symbology as an aid in understanding spatial patterns.

- A map of world cities could be symbolized with city images, using a different type based on the size of the cities.
- An energy resources map could contain an image of a steam vent for geothermal and a turbine for wind energy.

- A community history project could include points symbolized as photographs of each house or with a graphic from the community Web site.

Be creative with picture markers, and share with others what you are doing with picture markers.