

**Fox River Watershed Investigation:  
Stratton Dam to the Illinois River  
PHASE II**

**Hydrologic and Water Quality Simulation Models  
DELINEATION OF TRIBUTARY WATERSHEDS**

Illinois State Water Survey, Champaign IL

The study area includes a major part of the Fox River watershed in Illinois, from Stratton Dam to the confluence of the Fox River with the Illinois River. The study area has been divided into 31 tributary watersheds and the directly contributing watershed along the main stem of the Fox River. The delineation of the tributary watersheds and their division into subwatersheds for the water quality model Hydrological Simulation Program FORTRAN Version 12, HSPF, is illustrated in a series of maps. This work, including the development of the customized spatial datasets, was performed for the Fox River Study Group and represents one of the deliverables for the project Fox River Watershed Investigation–Stratton Dam to the Illinois, River, Phase II Part 6.

The enclosed maps show the following features: tributary watershed boundary, boundaries of subwatersheds within the tributary watershed, corresponding outlets and reaches, water quality stations, climate stations, and USGS gage stations. The stations displayed provide data for calibration of HSPF models. The model outlets identified for each watershed represent points for which flow and water quality results can be output and reviewed. The locations of these points were determined in consultation with the FRSG. Initially, model output will only be considered where there are data to compare the results. The creation of other outlet points provides an option for further development of the model. It is important to understand that the accuracy and reliability of the simulated values at any given outlet depends upon whether or not monitoring data is available for calibration at that point.

The framework for the models has been created using BASINS (Better Assessment Science Integrating Point and Nonpoint Sources, version 3.0), a multipurpose environmental analysis system developed by the U.S. Environmental Protection Agency. Details about the model development can be found in Bartosova et al., Fox River Watershed Investigation: Stratton Dam to the Illinois River, PHASE II, Part 1: Methodology and Procedures, currently under review).

During the model development, the following spatial datasets have been developed and documented for each tributary watershed:

- Subwatershed outlets (generated by BASINS, shape file format)
- Watershed boundary (generated by BASINS, shape file format)
- Subwatershed boundary (generated by BASINS, shape file format)
- Stream segments (generated by BASINS, shape file format)
- Elevation (10-meter NED, raster format)
- Land use/land cover distribution over the watersheds (Land Cover of Illinois 1999-2000, raster format)
- Hydrologic soil group distribution over the watersheds (STATSGO, SSURGO when available, raster format)

## Bibliography

- Bicknell, B.R., J.C. Imhoff, J.L. Kittle, Jr., T.H. Jobes, and A.S. Donigian, Jr. 2001. *Hydrological Simulation Program – FORTRAN, Version 12, User's Manual*. National Exposure Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens, GA.
- Illinois Department of Agriculture. 2003. *Illinois Land Cover 1999-2000*. (<http://www.agr.state.il.us/gis/landcover99-00.html>, accessed August 18, 2003).
- Natural Resource Conservation Service. 2003a. National STATSGO Database, Data Access ([http://www.ftw.nrcs.usda.gov/stat\\_data.html](http://www.ftw.nrcs.usda.gov/stat_data.html), accessed August 26, 2003).
- Natural Resource Conservation Service. 2003b. National SSURGO Database, Data Access ([http://www.ftw.nrcs.usda.gov/ssur\\_data.html](http://www.ftw.nrcs.usda.gov/ssur_data.html), accessed August 26, 2003).
- U.S. Environmental Protection Agency. 2001a. *A Better Assessment Science Integrating Point and Nonpoint Sources (BASINS) Version 3.0*. Office of Water, USEPA, EPA-823-8-01-001, Washington, DC.
- U.S. Geological Survey (USGS), 2004. National Hydrography Dataset home page (<http://nhd.usgs.gov/>, accessed September 30, 2004).
- U.S. Geological Survey (USGS), 2005. National Elevation Dataset, NED, National Center for Earth Resources Observations and Science (EROS), USGS (<http://ned.usgs.gov/>) Accessed Mar-Jun 2005.

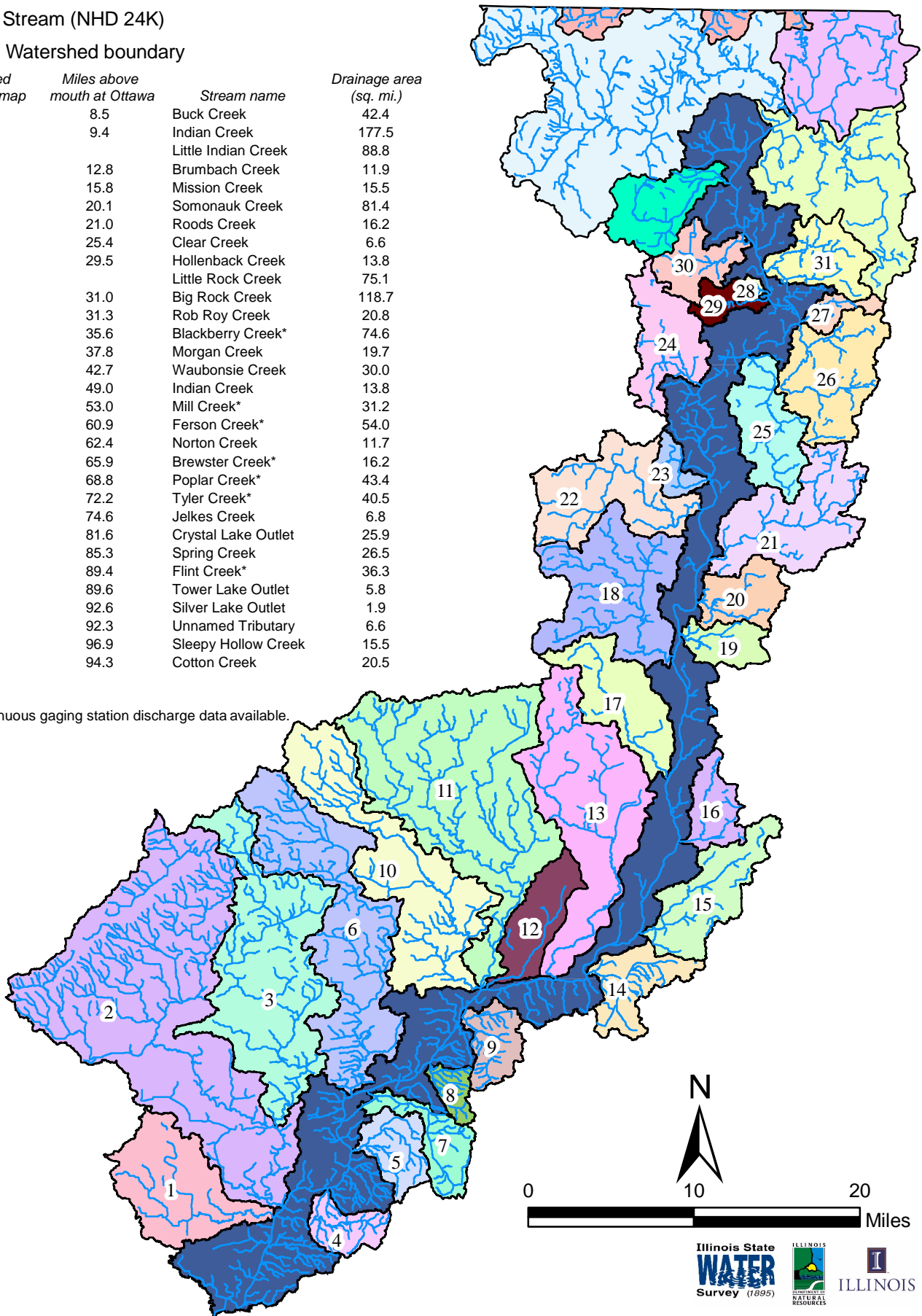
# Fox River Watershed

— Stream (NHD 24K)  
 □ Watershed boundary

Watershed number on map	Miles above mouth at Ottawa	Stream name	Drainage area (sq. mi.)
1	8.5	Buck Creek	42.4
2	9.4	Indian Creek	177.5
3		Little Indian Creek	88.8
4	12.8	Brumbach Creek	11.9
5	15.8	Mission Creek	15.5
6	20.1	Somonauk Creek	81.4
7	21.0	Roods Creek	16.2
8	25.4	Clear Creek	6.6
9	29.5	Hollenback Creek	13.8
10		Little Rock Creek	75.1
11	31.0	Big Rock Creek	118.7
12	31.3	Rob Roy Creek	20.8
13	35.6	Blackberry Creek*	74.6
14	37.8	Morgan Creek	19.7
15	42.7	Waubonsie Creek	30.0
16	49.0	Indian Creek	13.8
17	53.0	Mill Creek*	31.2
18	60.9	Ferson Creek*	54.0
19	62.4	Norton Creek	11.7
20	65.9	Brewster Creek*	16.2
21	68.8	Poplar Creek*	43.4
22	72.2	Tyler Creek*	40.5
23	74.6	Jelkes Creek	6.8
24	81.6	Crystal Lake Outlet	25.9
25	85.3	Spring Creek	26.5
26	89.4	Flint Creek*	36.3
27	89.6	Tower Lake Outlet	5.8
28	92.6	Silver Lake Outlet	1.9
29	92.3	Unnamed Tributary	6.6
30	96.9	Sleepy Hollow Creek	15.5
31	94.3	Cotton Creek	20.5

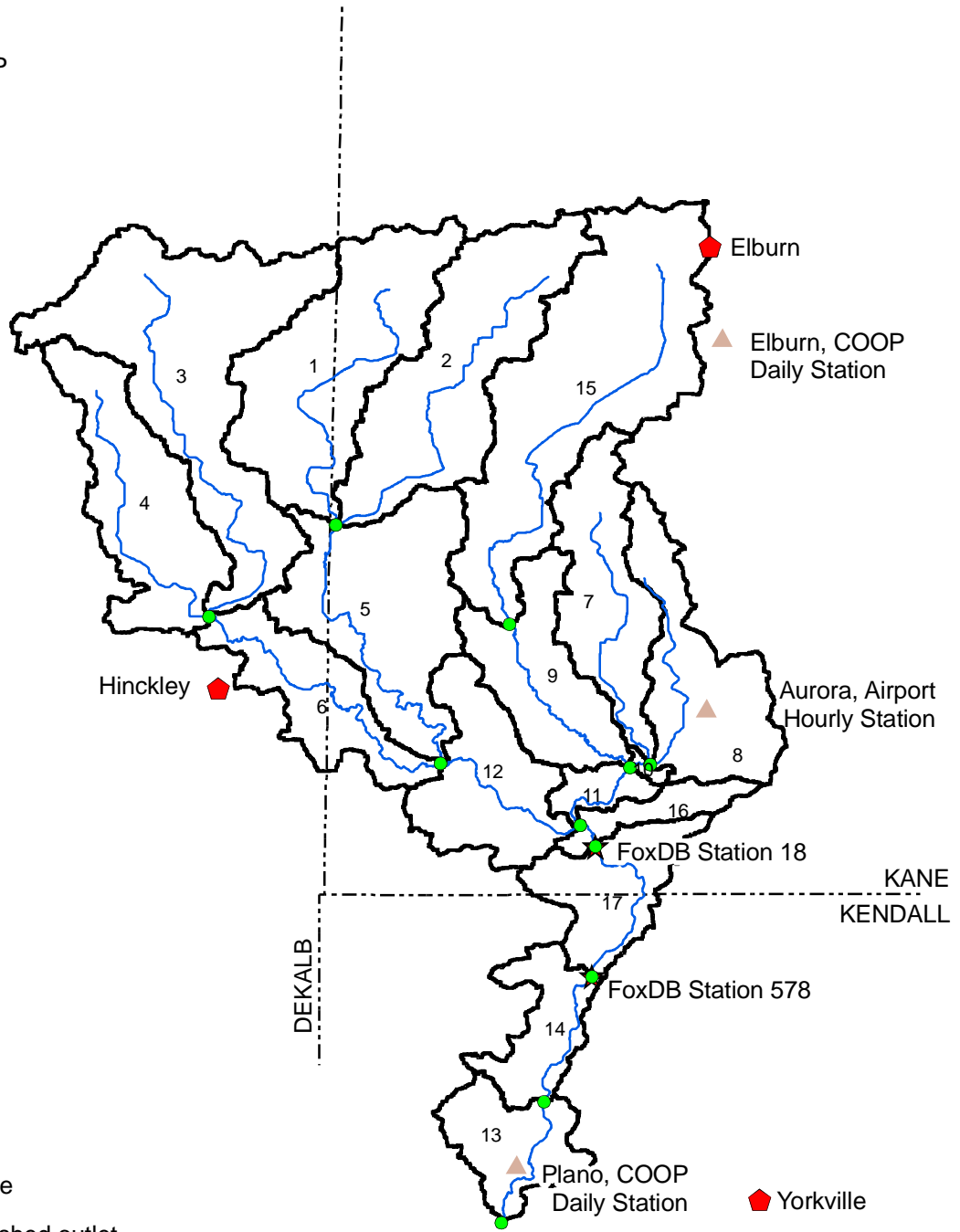
**Notes:**

\* Continuous gaging station discharge data available.



# Big Rock Creek Watershed

▲ DeKalb, COOP Daily Station



◆ City/village

● Subwatershed outlet

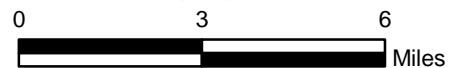
▲ Weather station

★ Water quality station

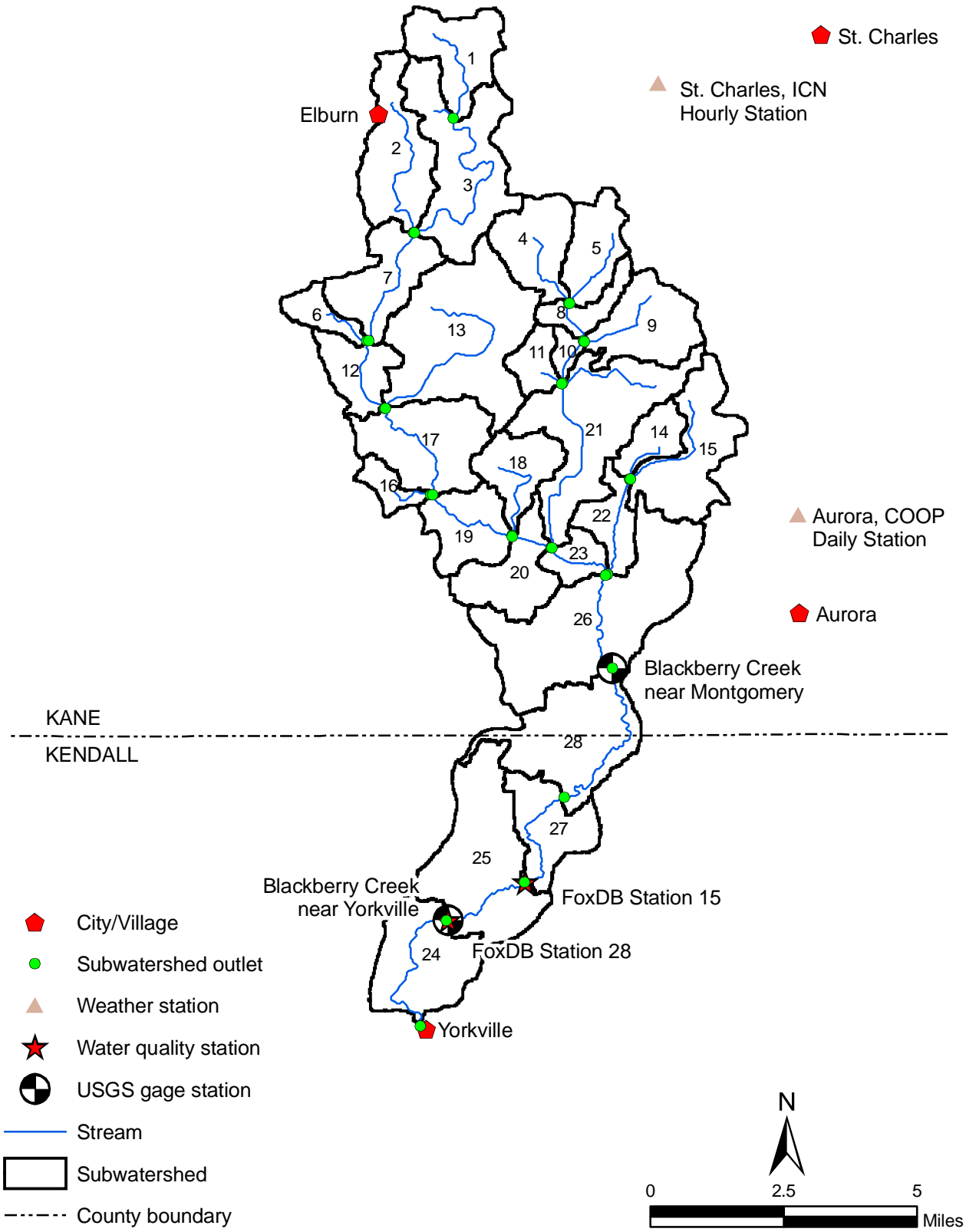
— Stream

▭ Subwatershed

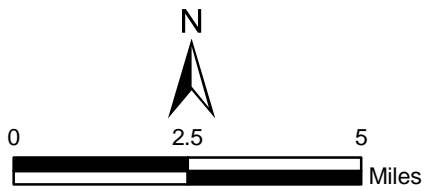
- - - - County boundary



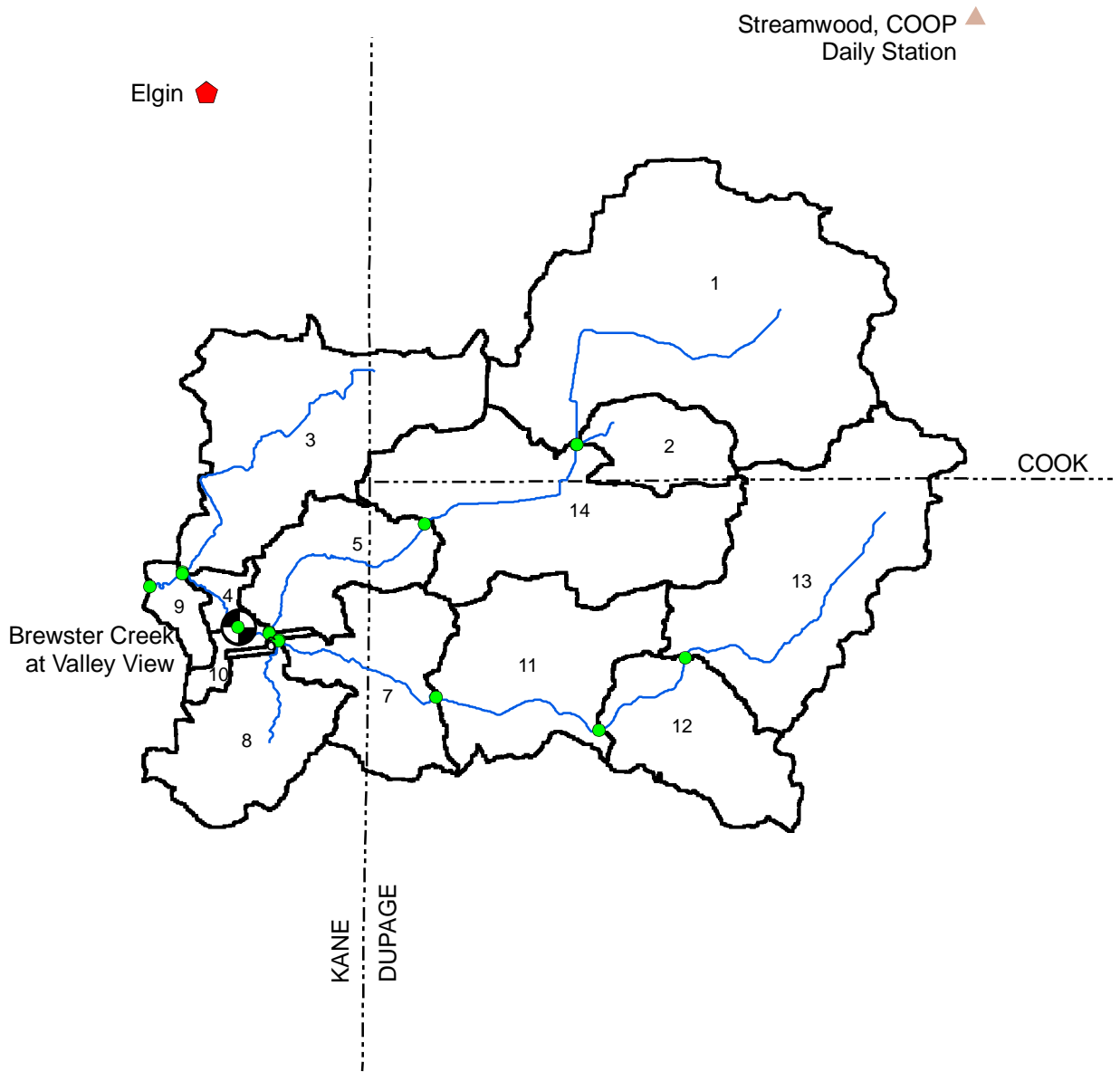
# Blackberry Creek Watershed



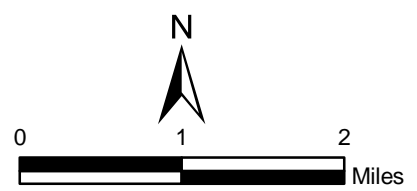
- City/Village
- Subwatershed outlet
- Weather station
- Water quality station
- USGS gage station
- Stream
- Subwatershed
- County boundary



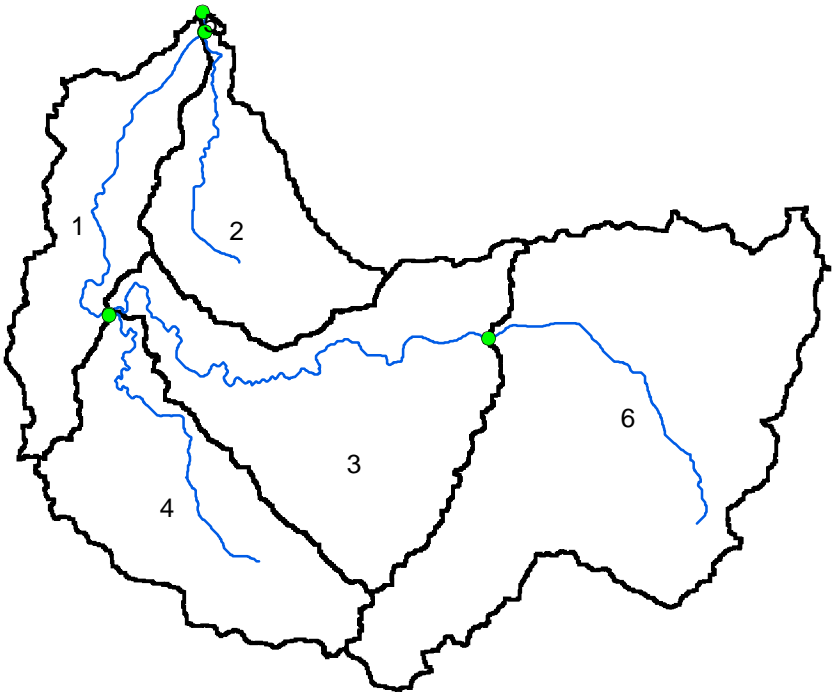
# Brewster Creek Watershed



- City
- Subwatershed outlet
- USGS gage station
- Stream
- Subwatershed
- County boundary
- DuPage, Airport Hourly Station



# Brumbach Creek Watershed



▲ Dayton River, COOP Daily Station

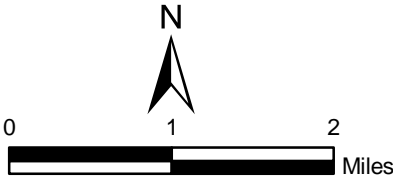
● Subwatershed outlet

▲ Weather station

— Stream

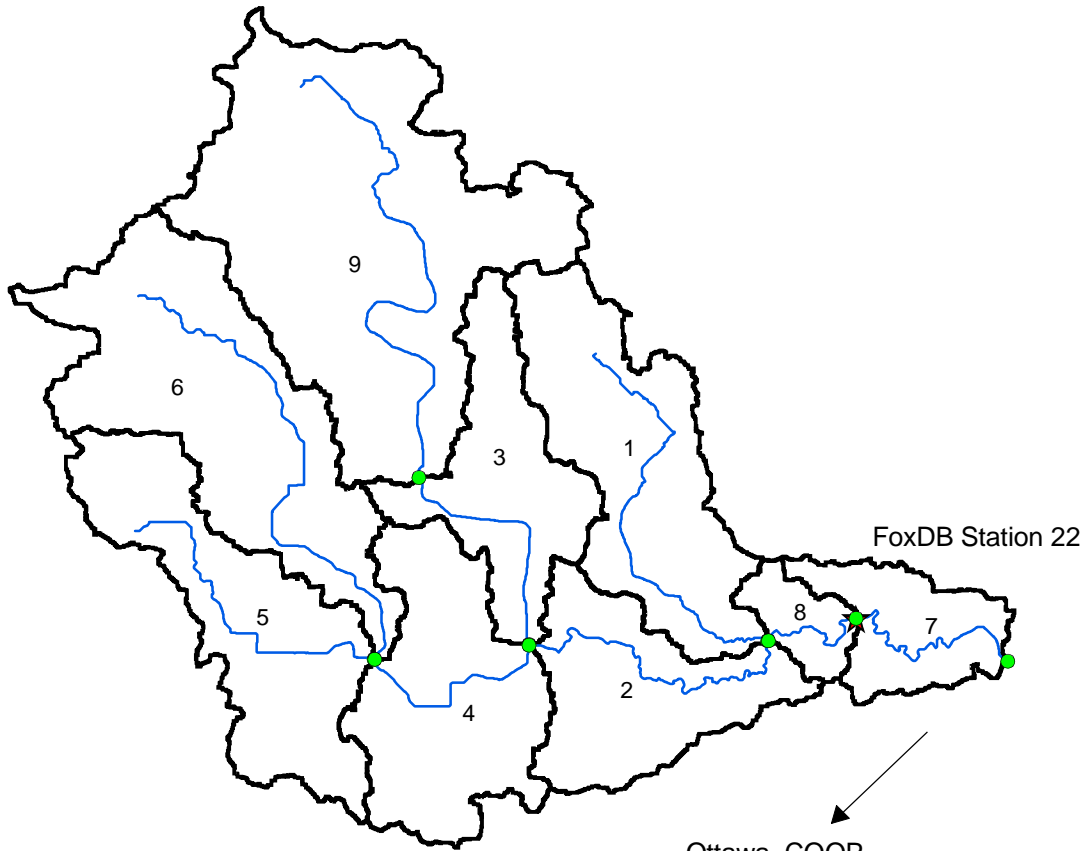
▭ Subwatershed

This watershed completely lies within LaSalle County



# Buck Creek Watershed

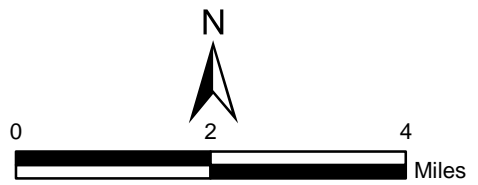
▲ Earlville, COOP  
Daily Station



▲ Ottawa, COOP  
Daily Station  
(10 miles from the outlet)

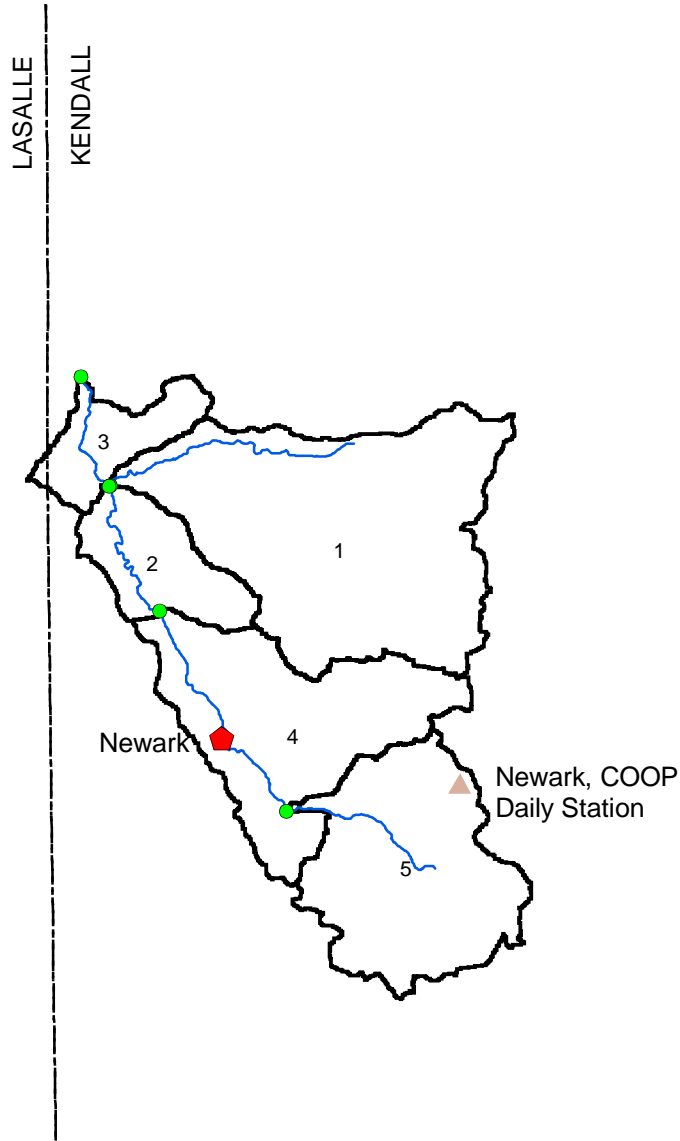
▲ Dayton River, COOP  
Daily Station







- Subwatershed outlet
  - ▲ Weather station
  - ★ Water quality station
  - Stream
  - Subwatershed
- This watershed completely lies within LaSalle County

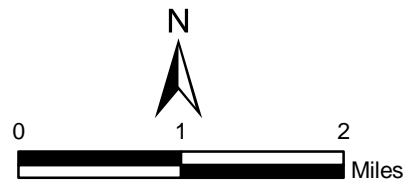




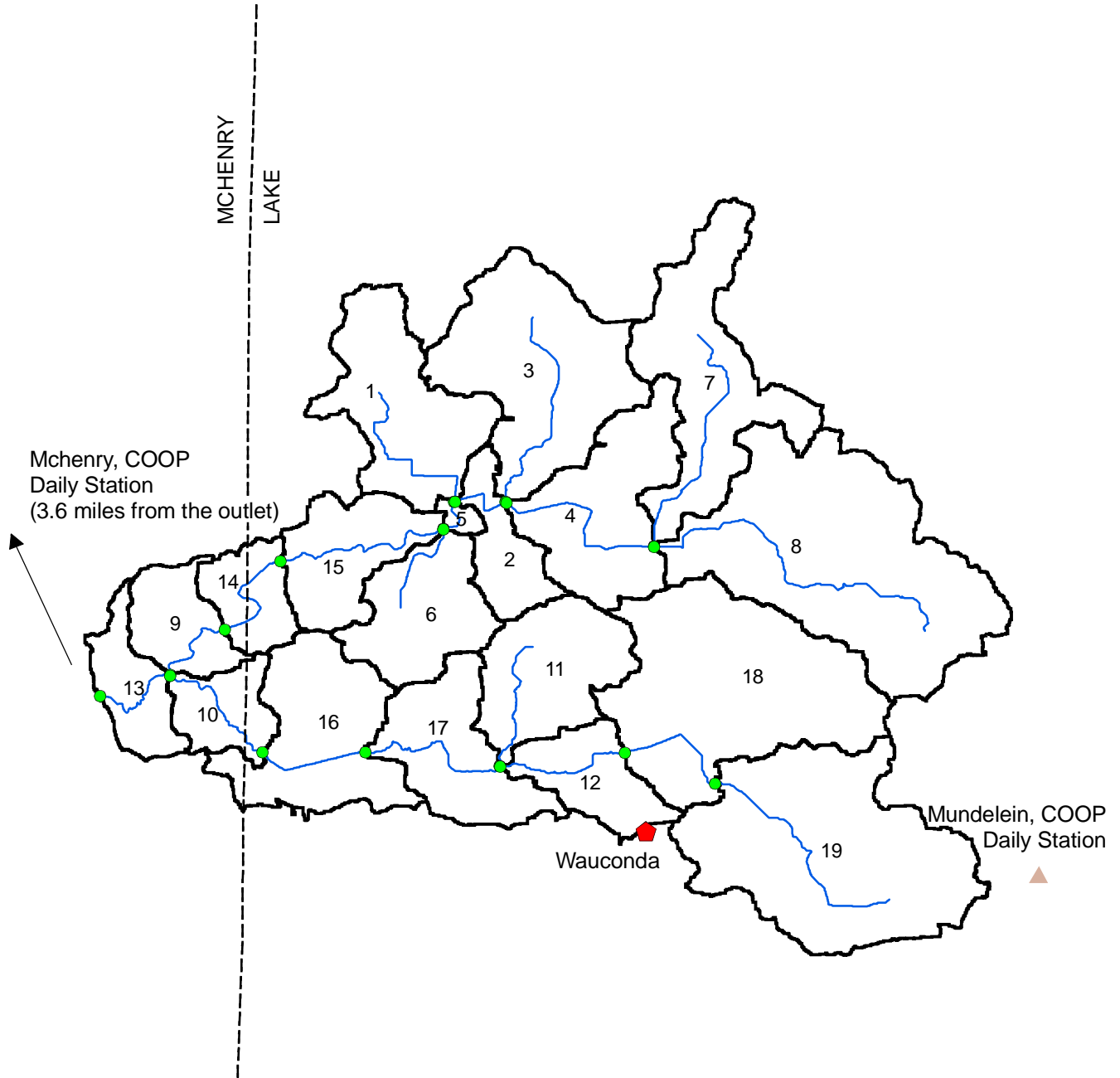
# Clear Creek Watershed








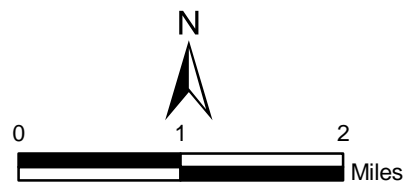
-  Village
-  Subwatershed outlet
-  Weather station
-  Stream
-  Subwatershed
-  County boundary



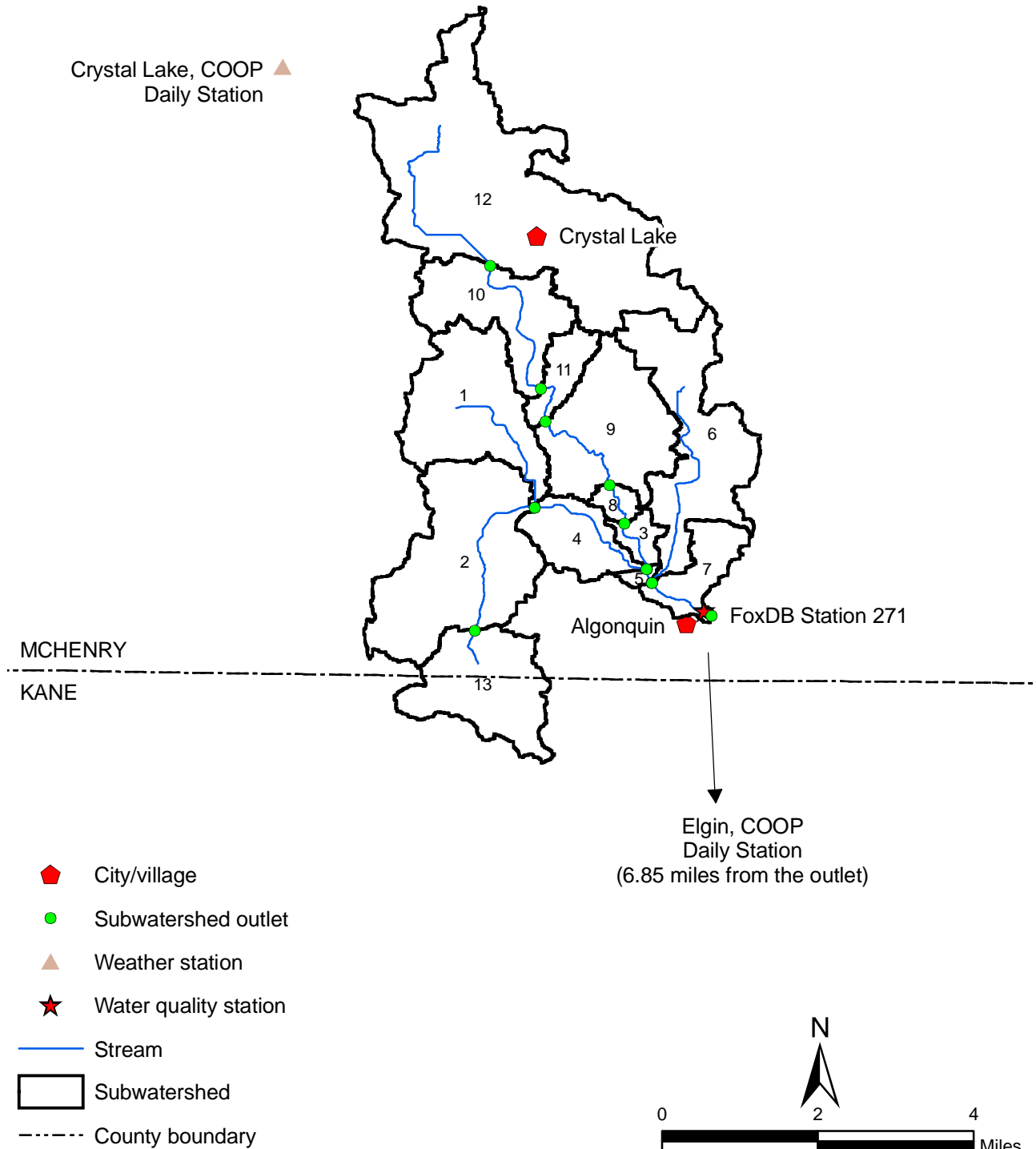
# Cotton Creek Watershed



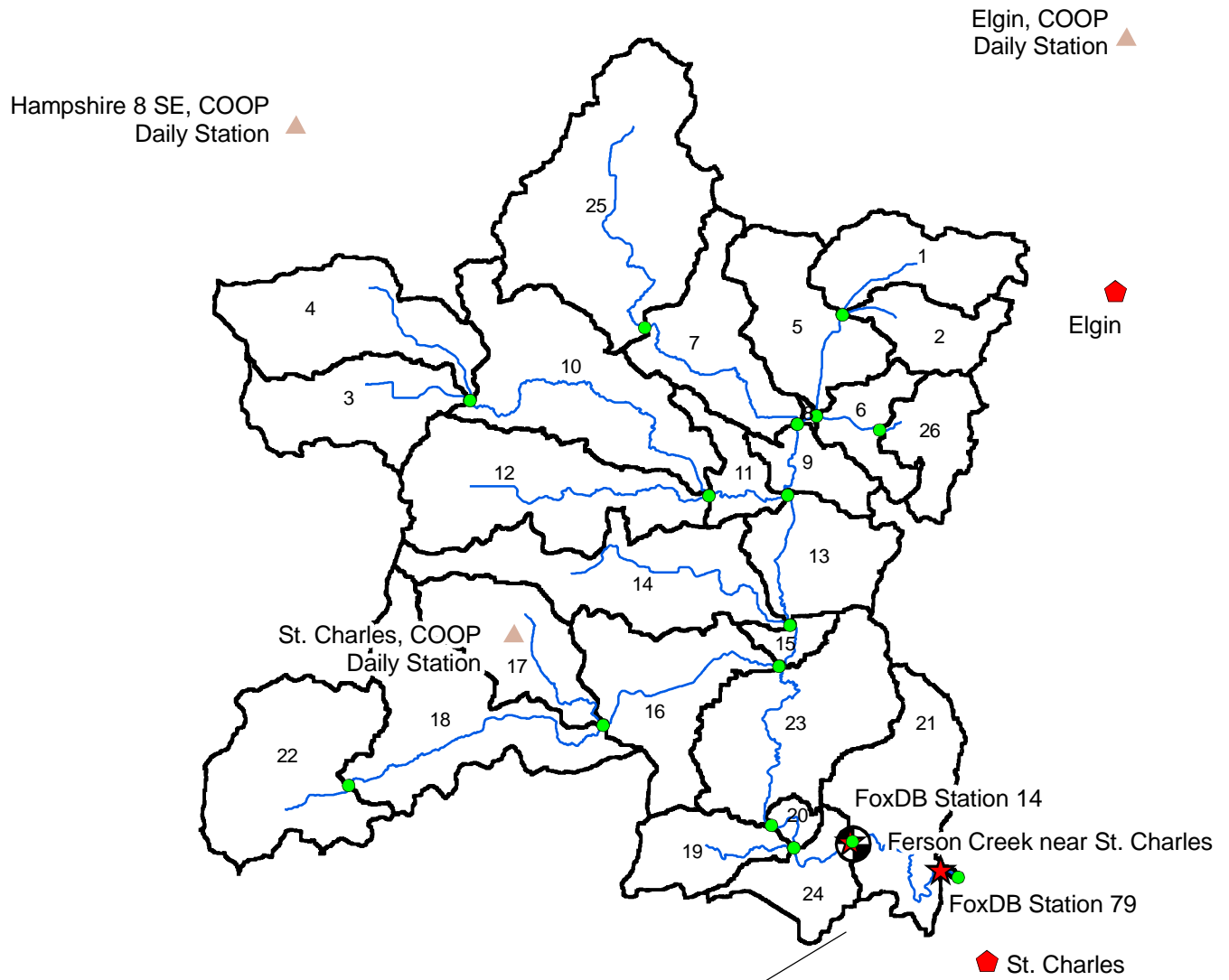
-  Village
-  Subwatershed outlet
-  Stream
-  Subwatershed
-  County boundary



# Crystal Lake Watershed



# Ferson Creek Watershed

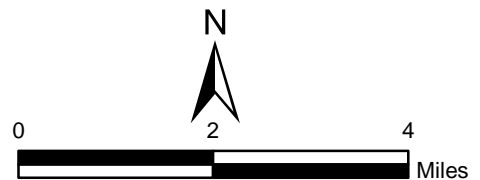


- City
- Subwatershed outlet
- Weather station
- Water quality station
- USGS gage station
- Stream
- Subwatershed

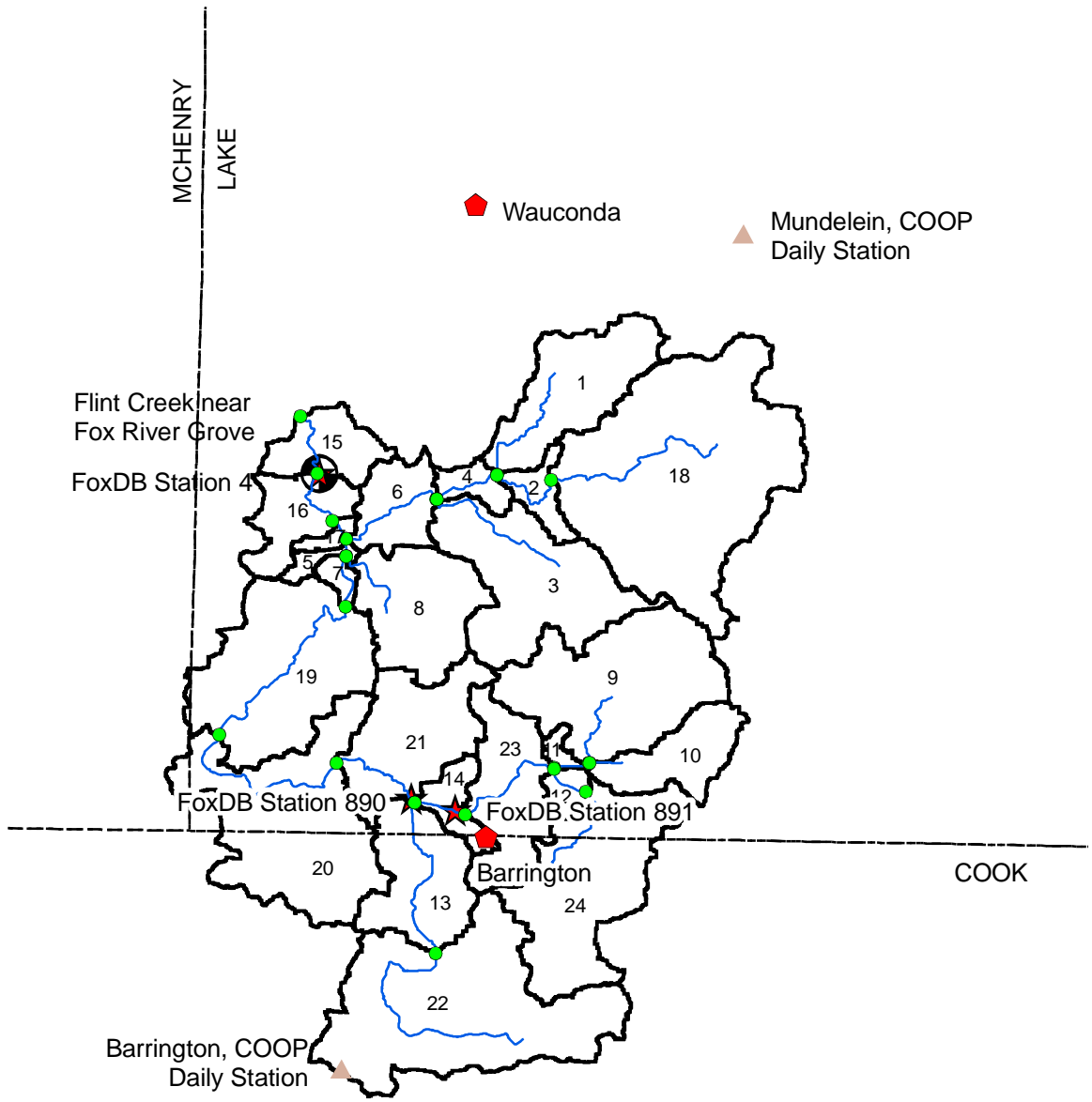
Elburn, COOP Daily Station  
(8.6 miles from the outlet)









St. Charles, ICN Hourly Station

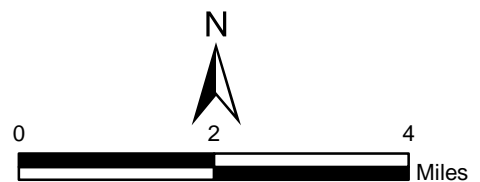
This watershed completely lies within Kane County



# Flint Creek Watershed



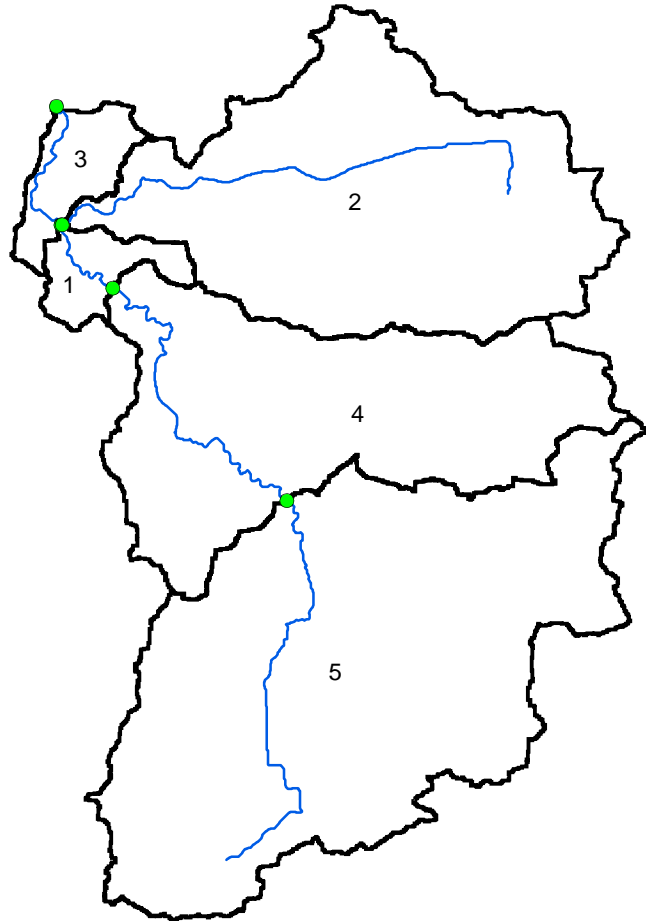
-  Village
-  Subwatershed outlet
-  Weather station
-  Water quality station
-  USGS gage station
-  Stream
-  Subwatershed
-  County boundary



# Hollenback Creek Watershed

Plano, COOP  
Daily Station ▲

Yorkville ◆



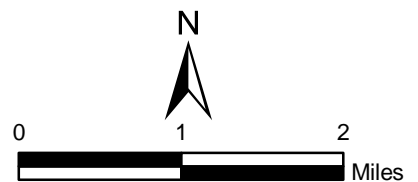
▲ Yorkville, COOP  
Daily Station

Newark ◆

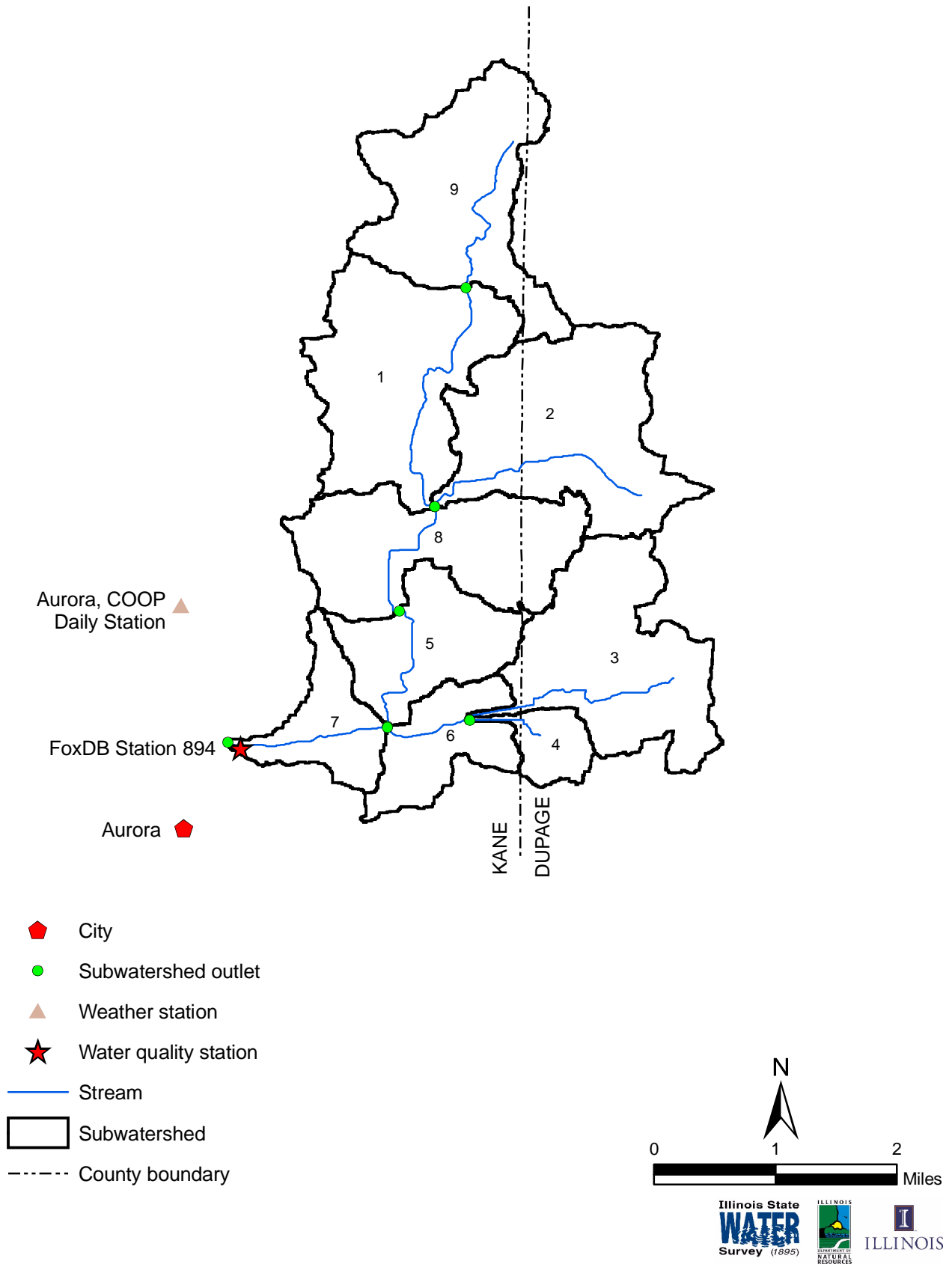
▲ Newark, COOP  
Daily Station

- ◆ City/village
- Subwatershed outlet
- ▲ Weather station
- Stream
- Subwatershed

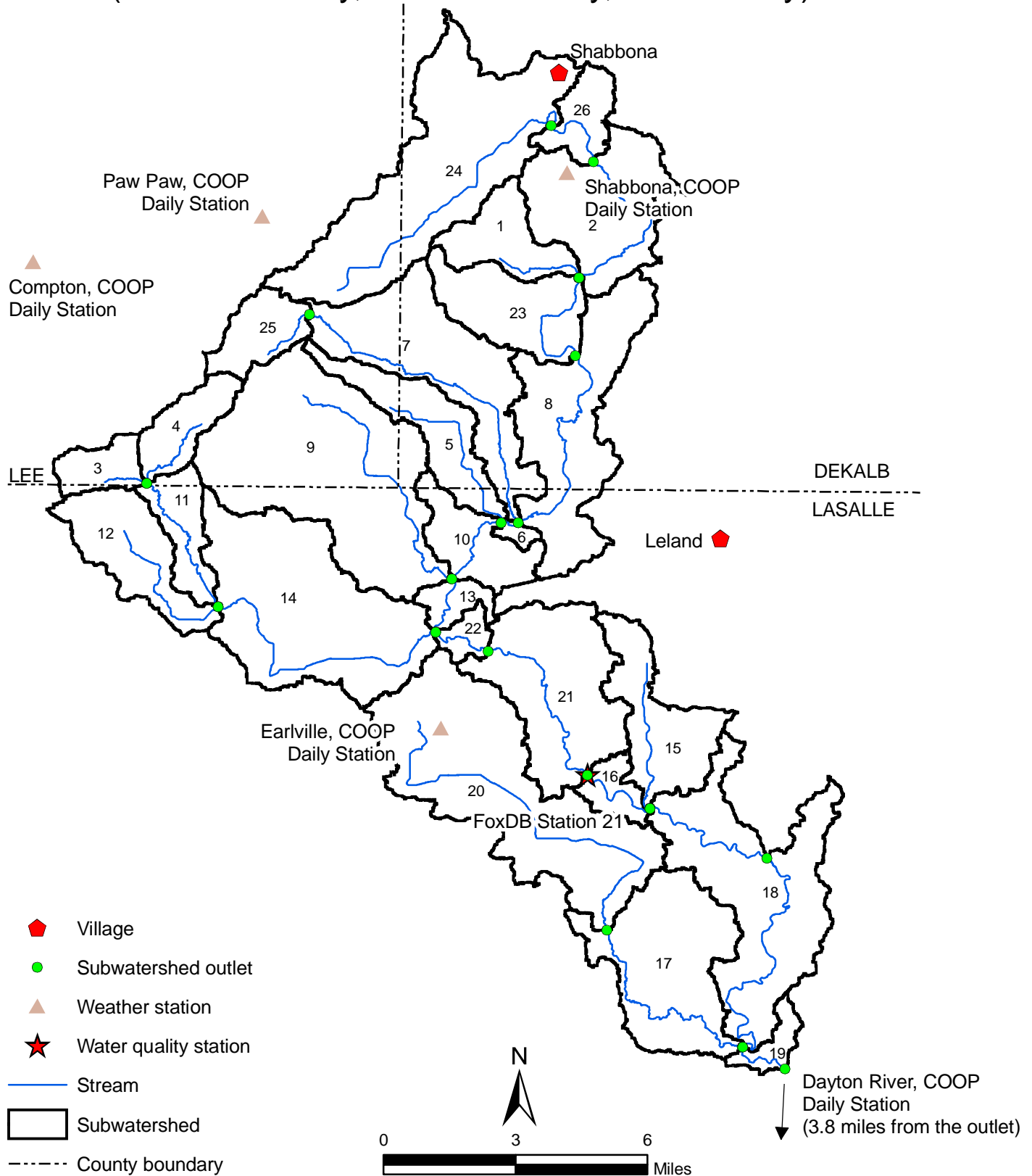
This watershed completely lies within Kendall County



# Indian Creek Watershed (Kane County and DuPage County)

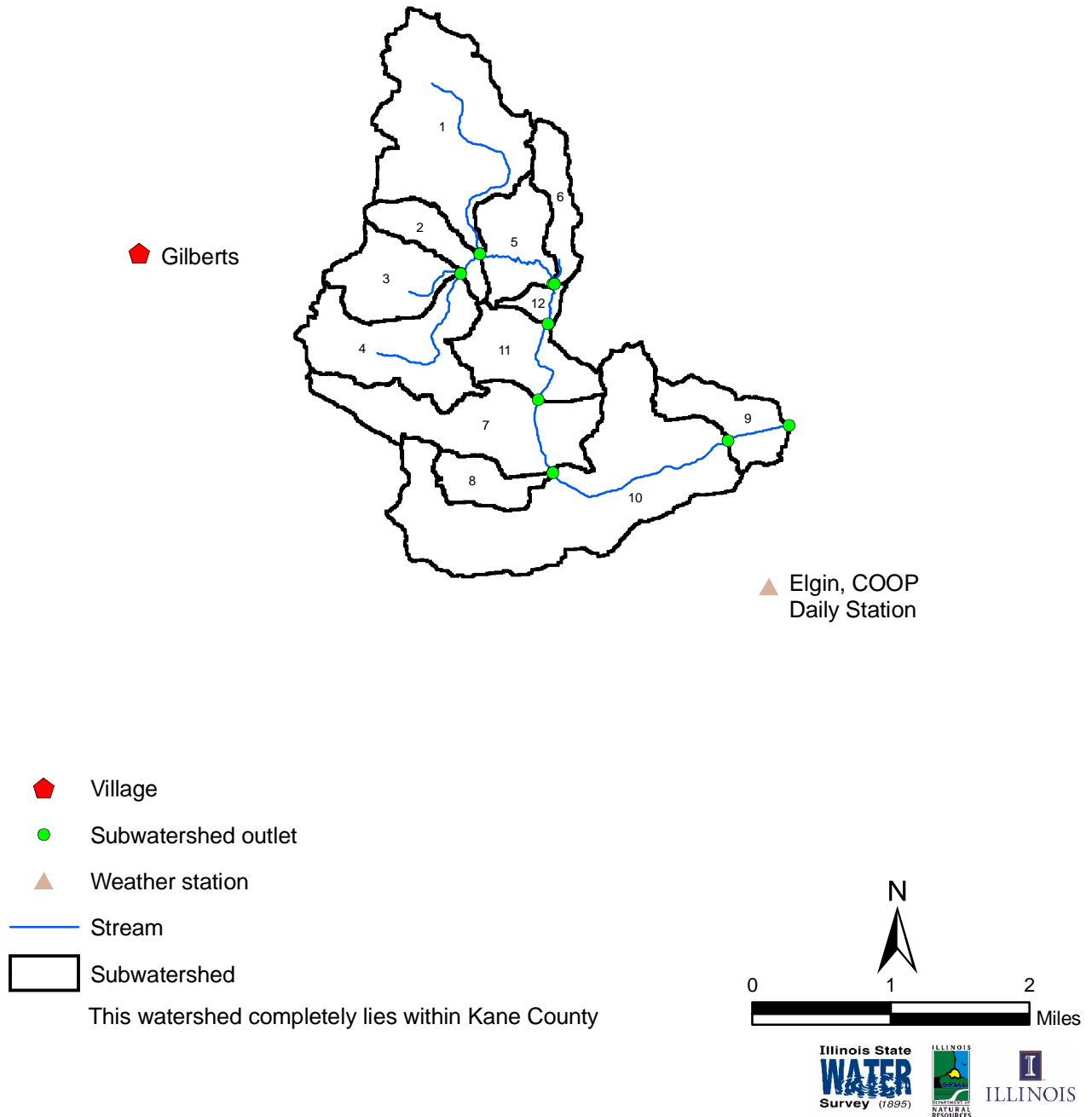


# Indian Creek Watershed (LaSalle County, DeKalb County, Lee County)

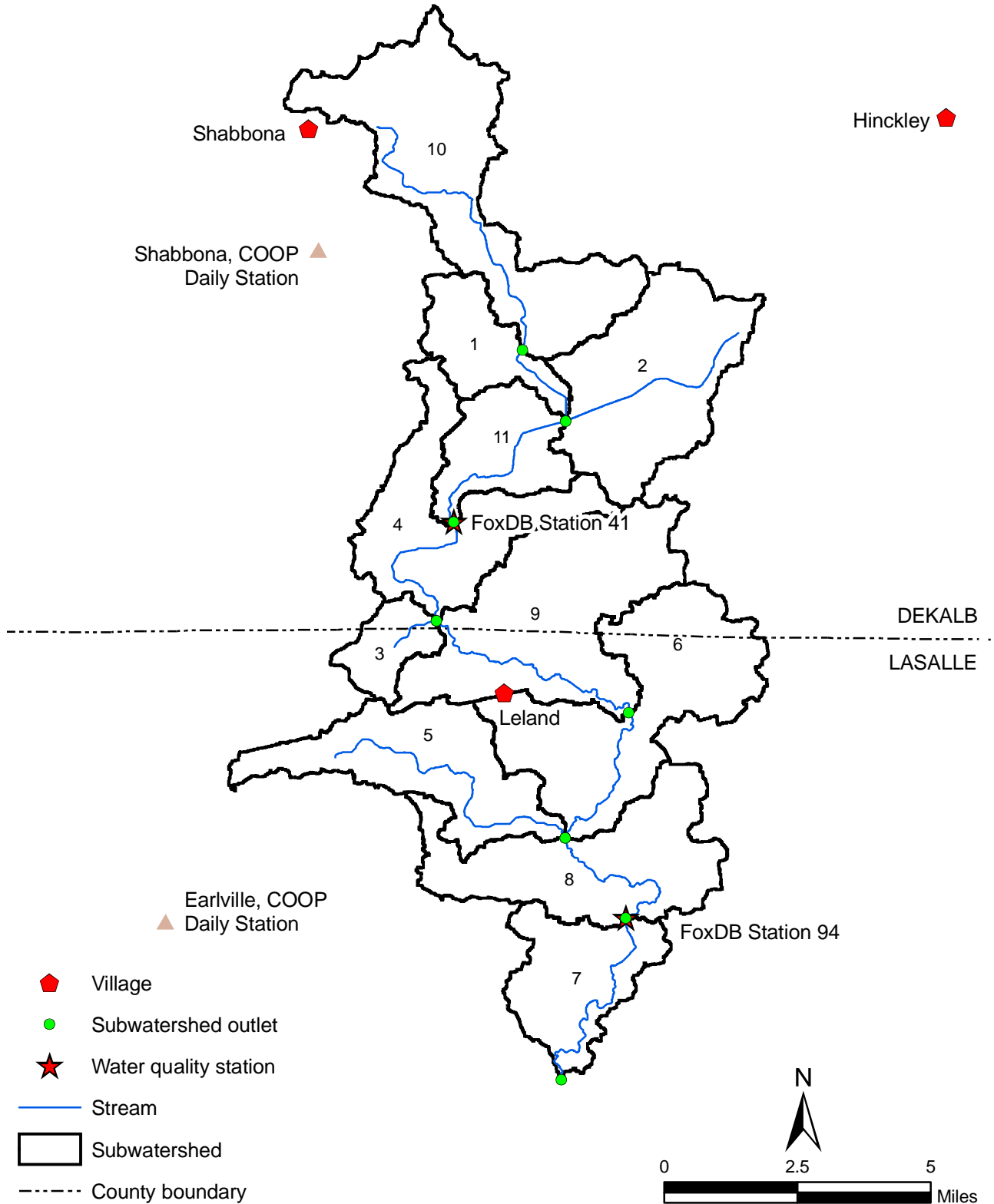




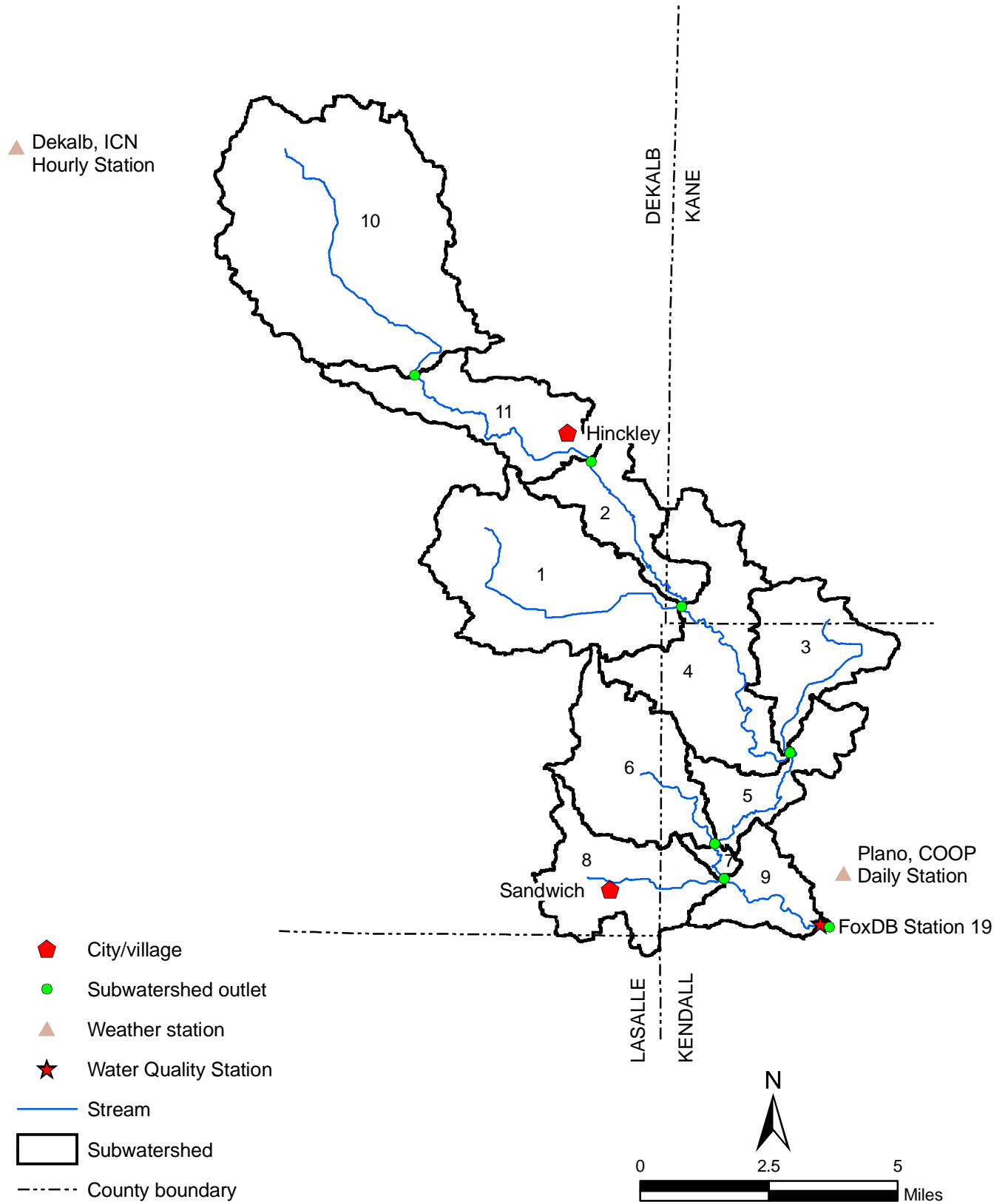
# Jelkes Creek Watershed



# Little Indian Creek Watershed



# Little Rock Creek Watershed

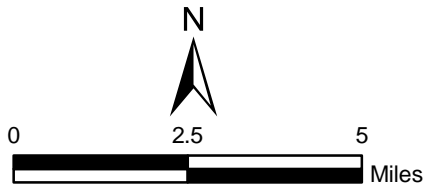


▲ Dekalb, ICN Hourly Station

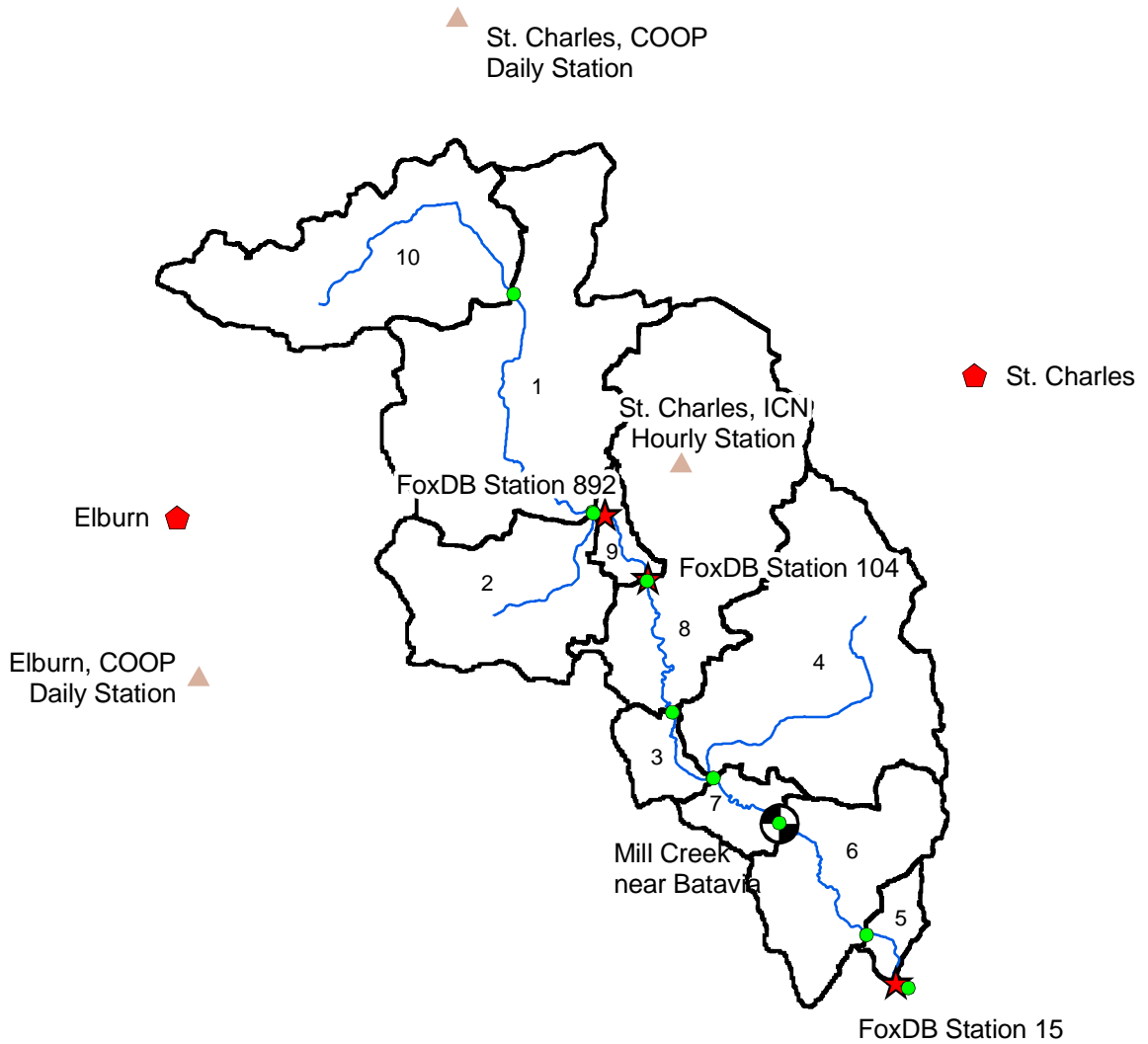
- ◆ City/village
- Subwatershed outlet
- ▲ Weather station
- ★ Water Quality Station
- Stream
- ▭ Subwatershed
- - - - County boundary








▲ Plano, COOP Daily Station


★ FoxDB Station 19





# Mill Creek Watershed



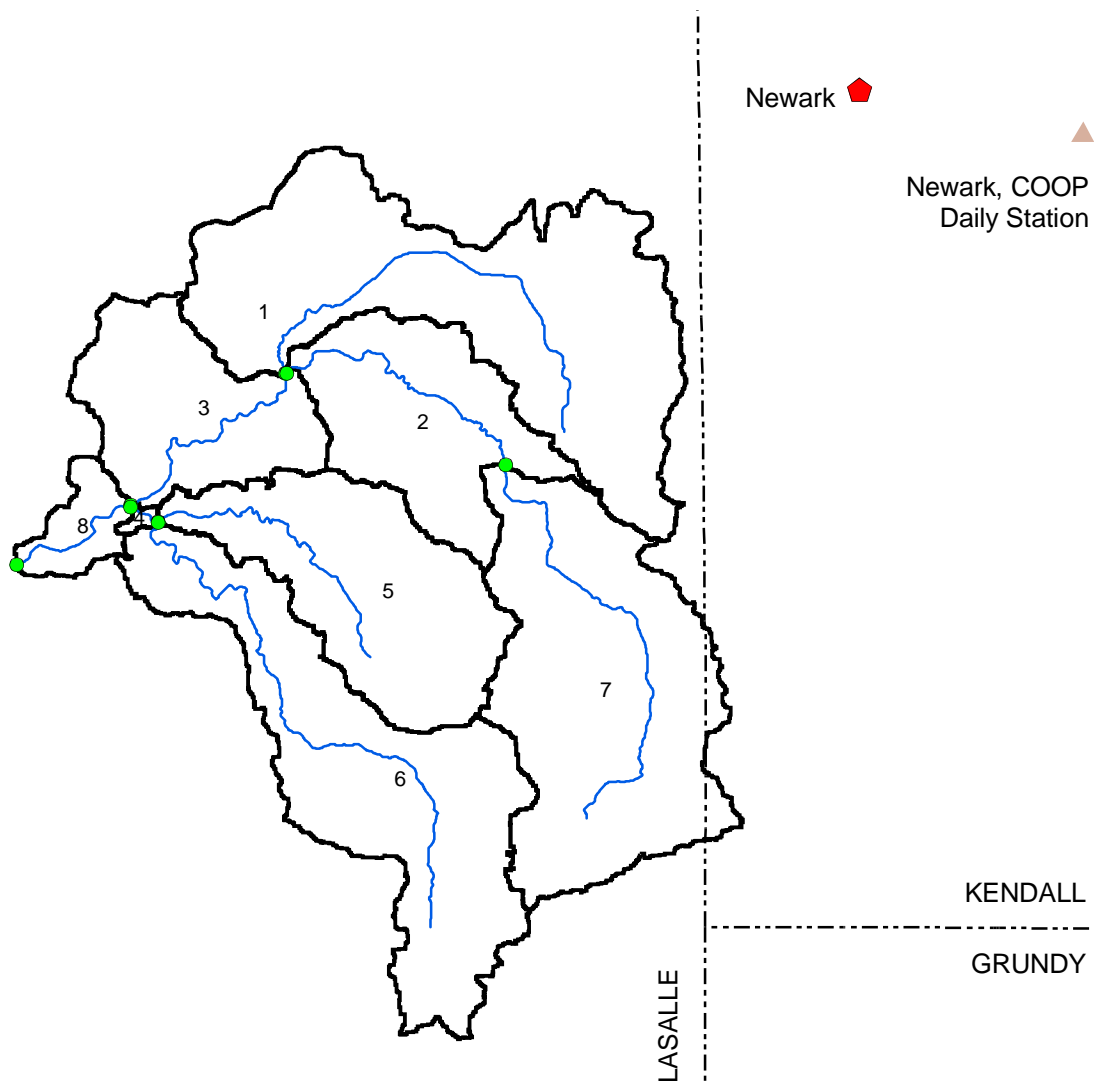
-  City/village
  -  Subwatershed outlet
  -  Weather station
  -  Water quality station
  -  USGS gage station
  -  Stream
  -  Subwatershed
- This watershed completely lies within Kane County






Aurora, COOP Daily Station 

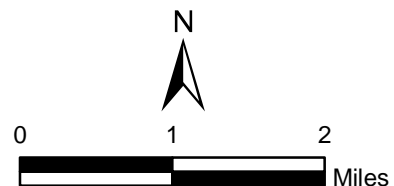
N  


0      2      4  
 Miles

# Mission Creek Watershed

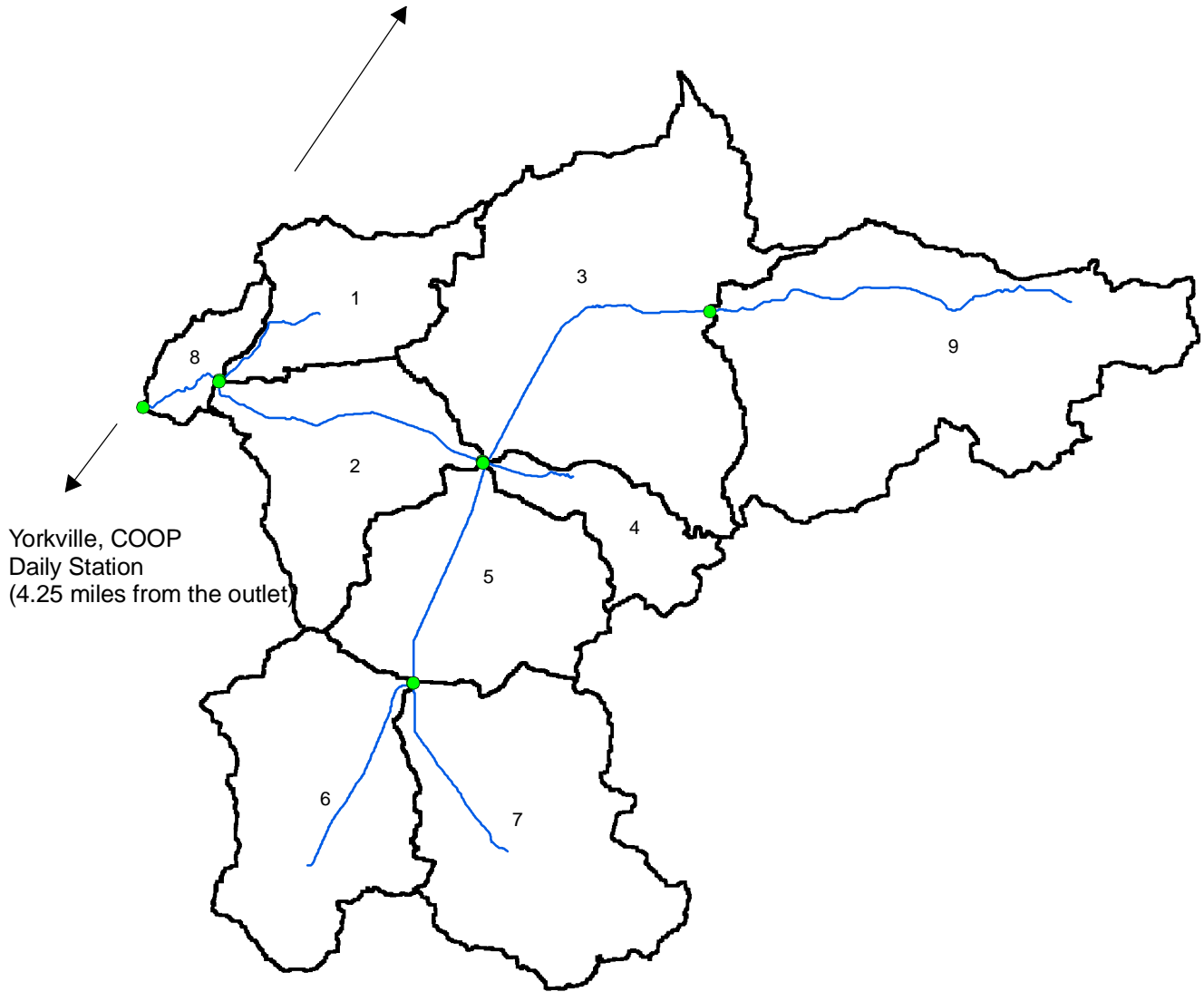


-  Village
-  Subwatershed outlet
-  Stream
-  Subwatershed
-  County boundary



# Morgan Creek Watershed

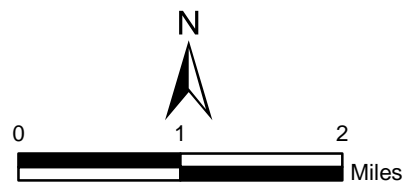
Aurora, COOP  
Daily Station  
(10.5 miles from the outlet)



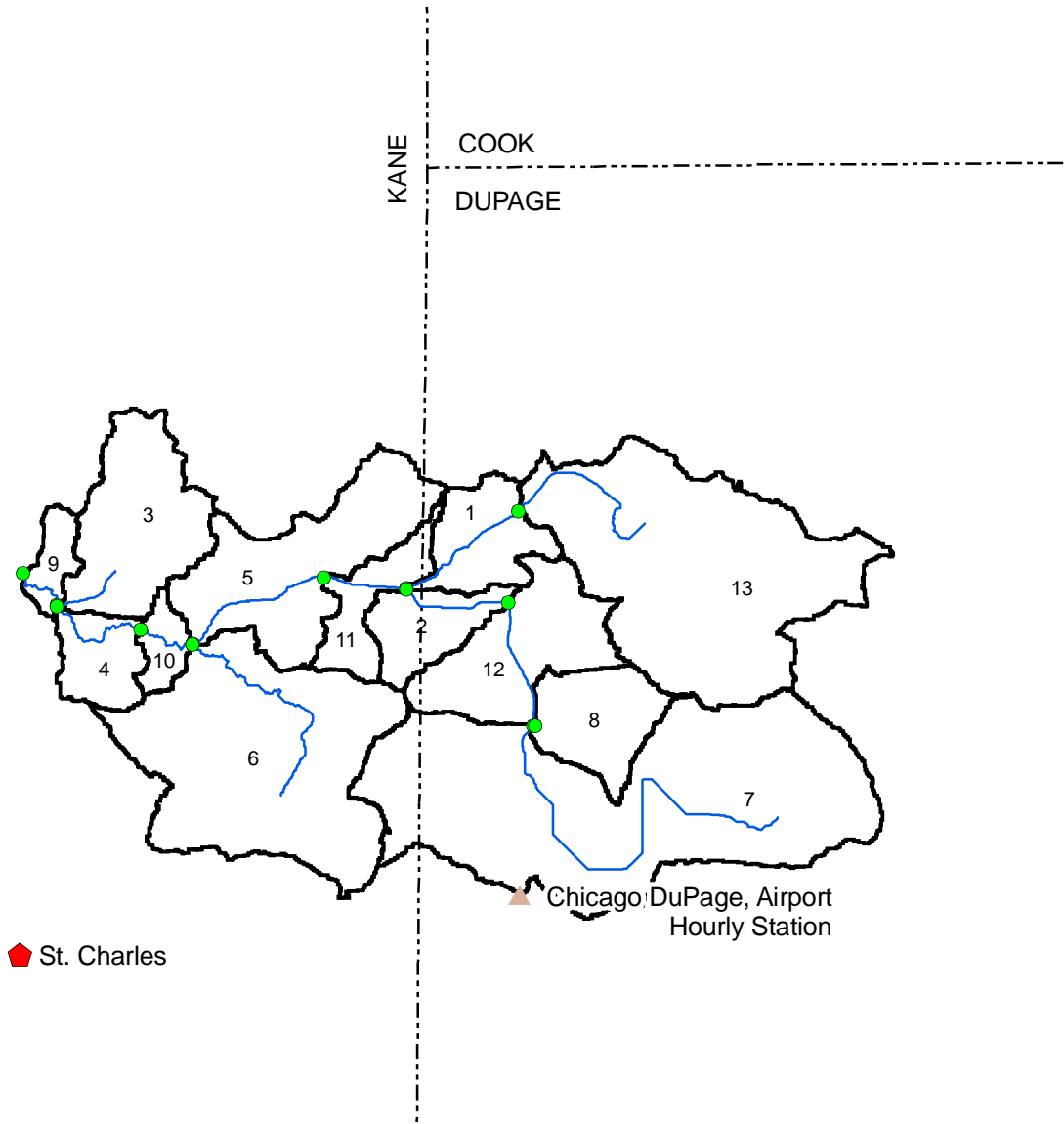
Yorkville, COOP  
Daily Station  
(4.25 miles from the outlet)

- Subwatershed outlet
- Stream
- Subwatershed

This watershed completely lies within Kendall County



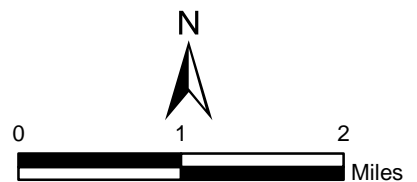
# Norton Creek Watershed



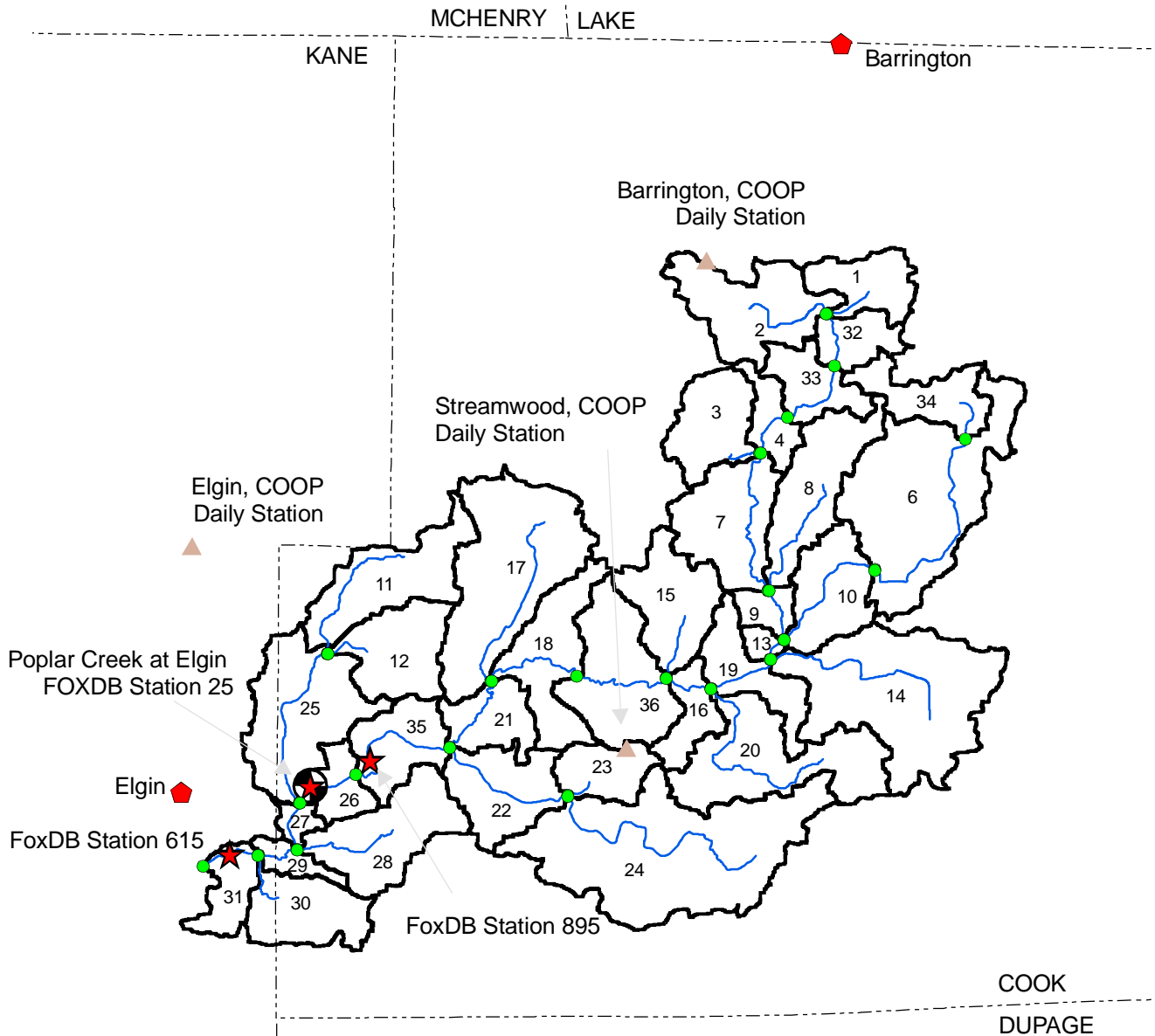
◆ St. Charles









▲ Chicago DuPage Airport Hourly Station

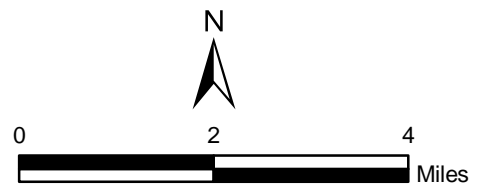
- ◆ City
- Subwatershed outlet
- ▲ Weather station
- Stream
- Subwatershed
- - - - County boundary



# Poplar Creek Watershed

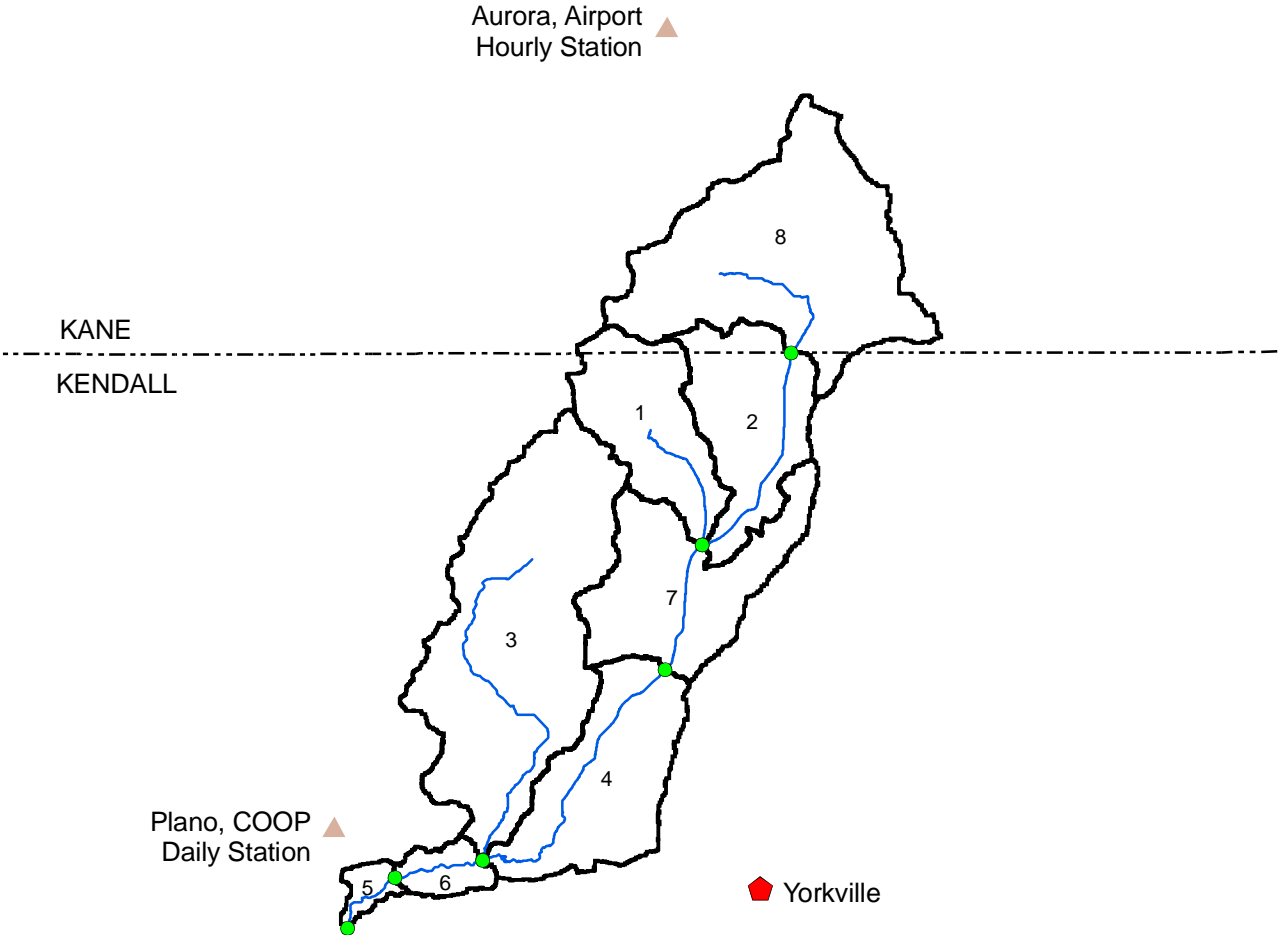









-  City/village
-  Subwatershed outlet
-  Weather station
-  Water quality station
-  USGS gage station
-  Stream
-  Subwatershed
-  County boundary

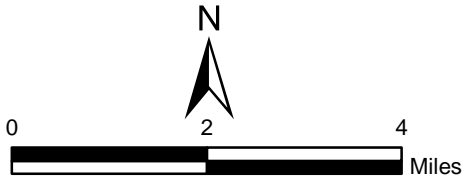




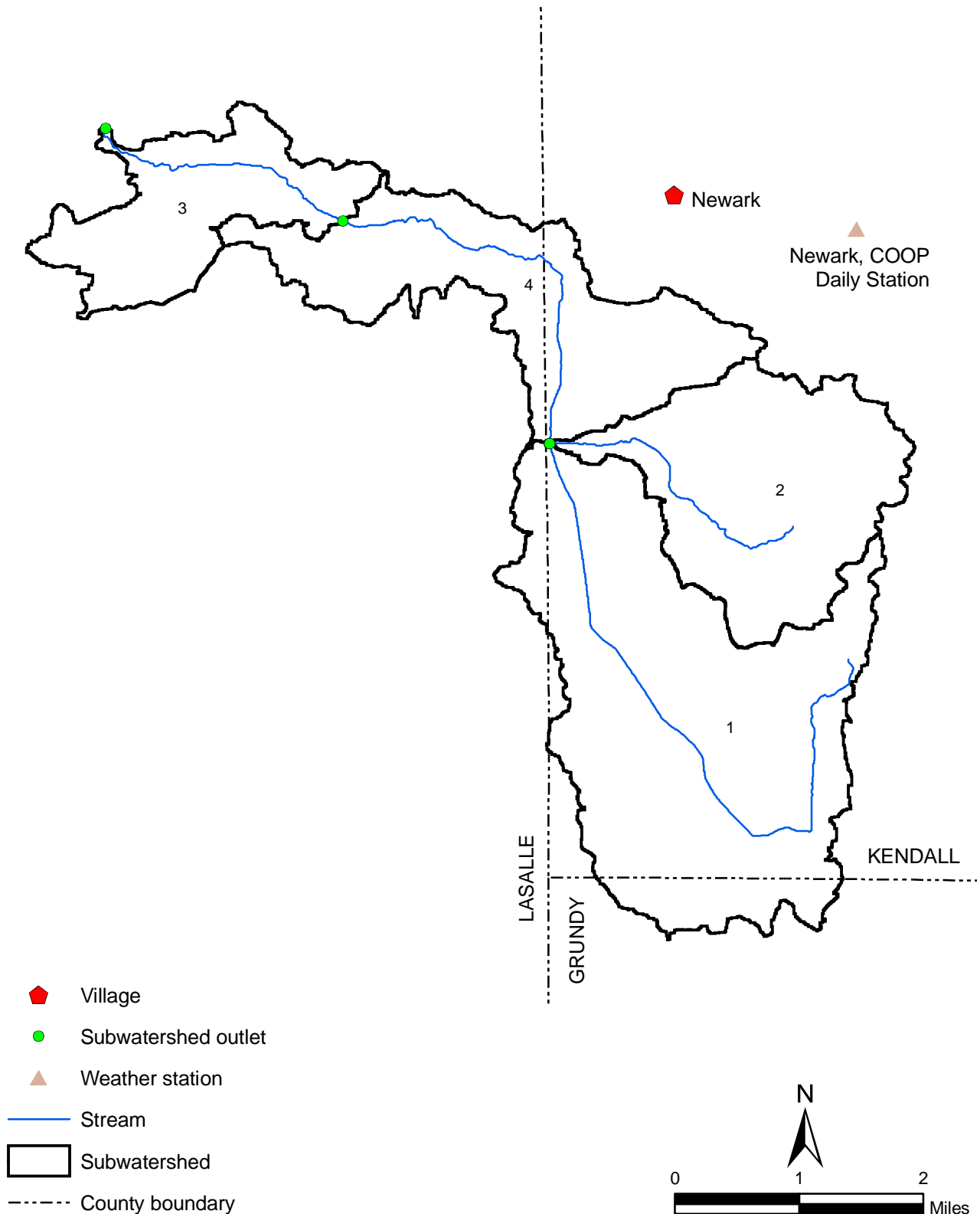
# Rob Roy Creek Watershed



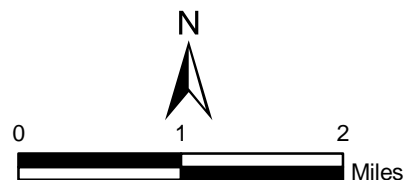
-  City
  -  Subwatershed outlet
  -  Weather station
  -  Stream
  -  Subwatershed
  -  County boundary
-  Yorkville, COOP Daily Station



# Roods Creek Watershed

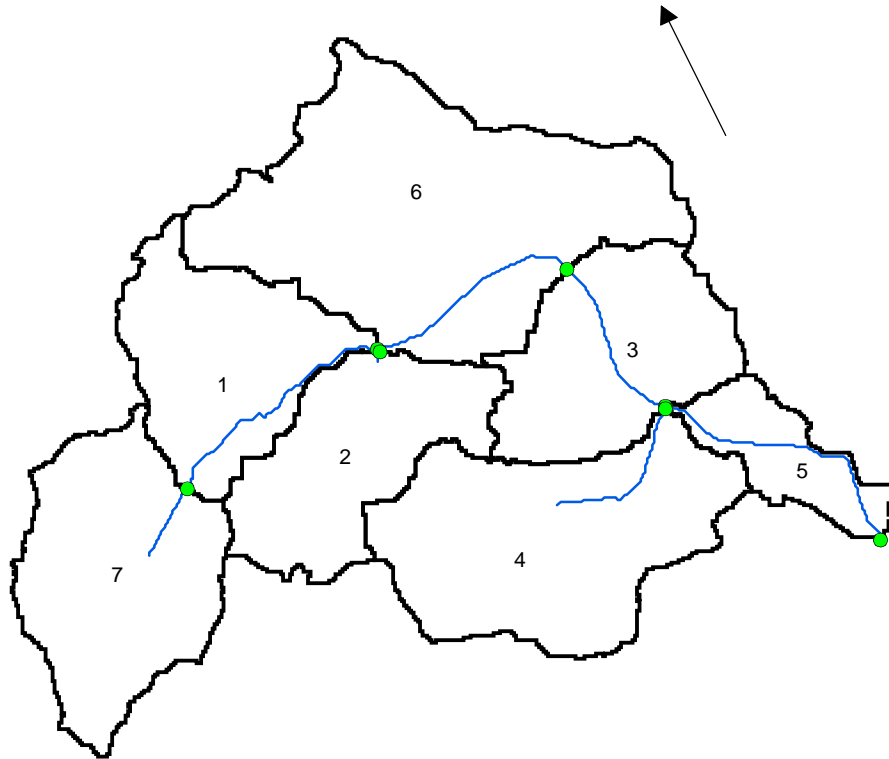


- ◆ Village
- Subwatershed outlet
- ▲ Weather station
- Stream
- ▭ Subwatershed
- - - - County boundary



# Silver Lake Outlet Watershed

McHenry, COOP  
Daily Station  
(5.2 miles from the outlet)

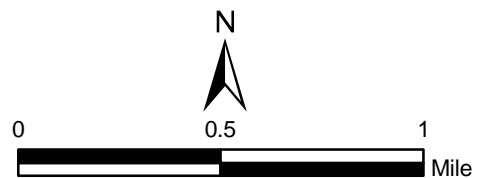


● Subwatershed outlet

— Stream

□ Subwatershed

This watershed completely lies within McHenry County

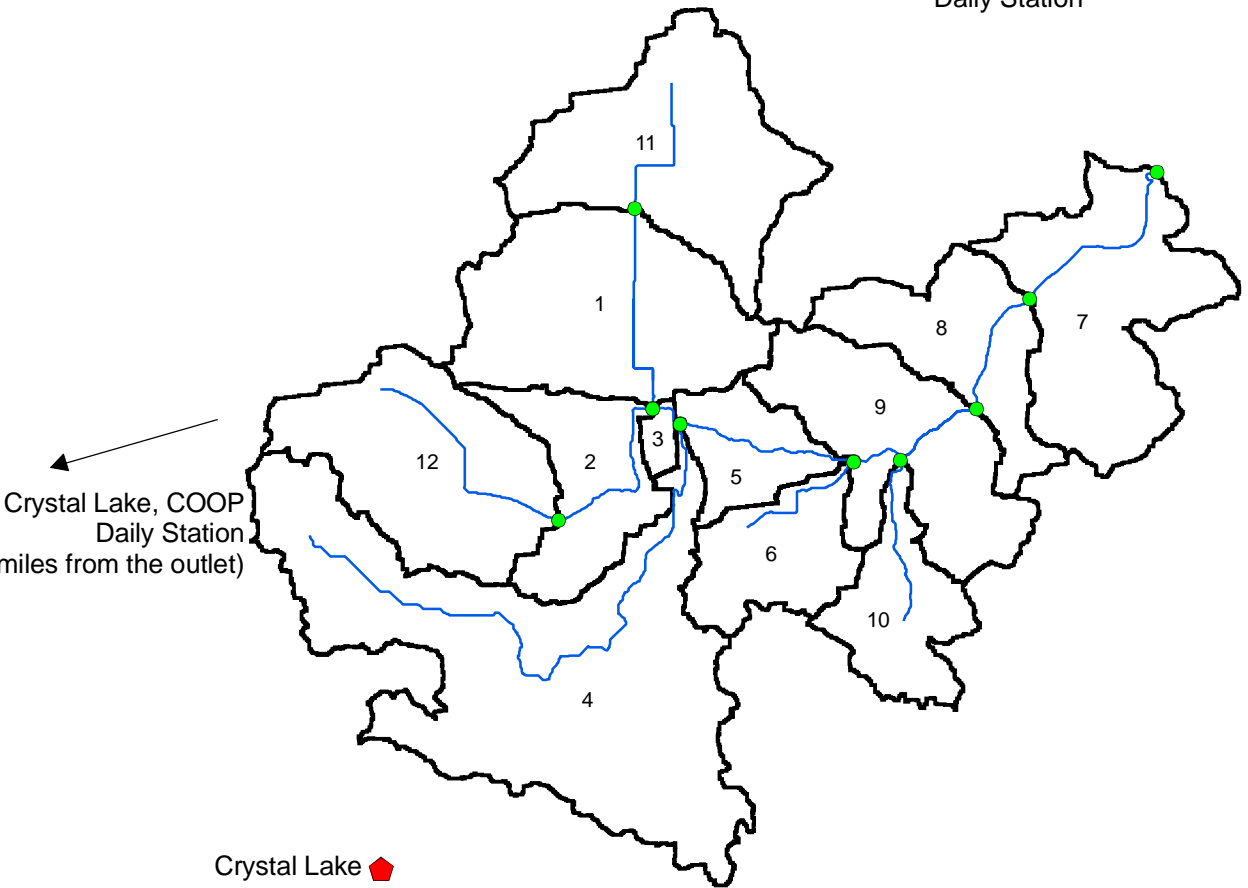


# Sleepy Hollow Creek Watershed

McHenry, COOP  
Daily Station ▲

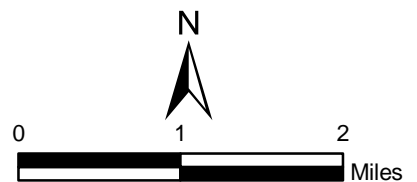
Crystal Lake, COOP  
Daily Station  
(8.26 miles from the outlet)

Crystal Lake ◆

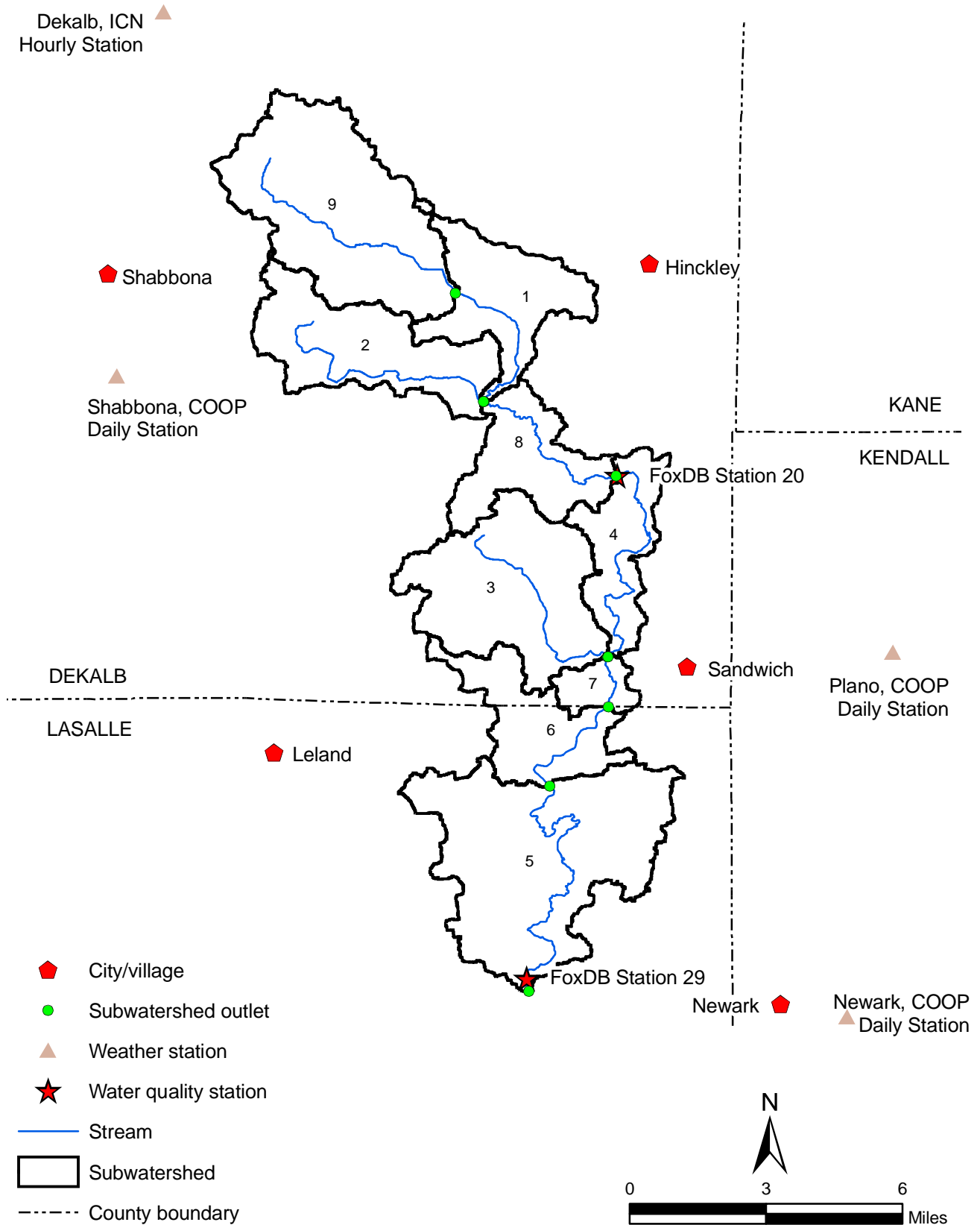









- ◆ Village
- Subwatershed outlet
- ▲ Weather station
- Stream
- ▭ Subwatershed

This watershed completely lies within McHenry County

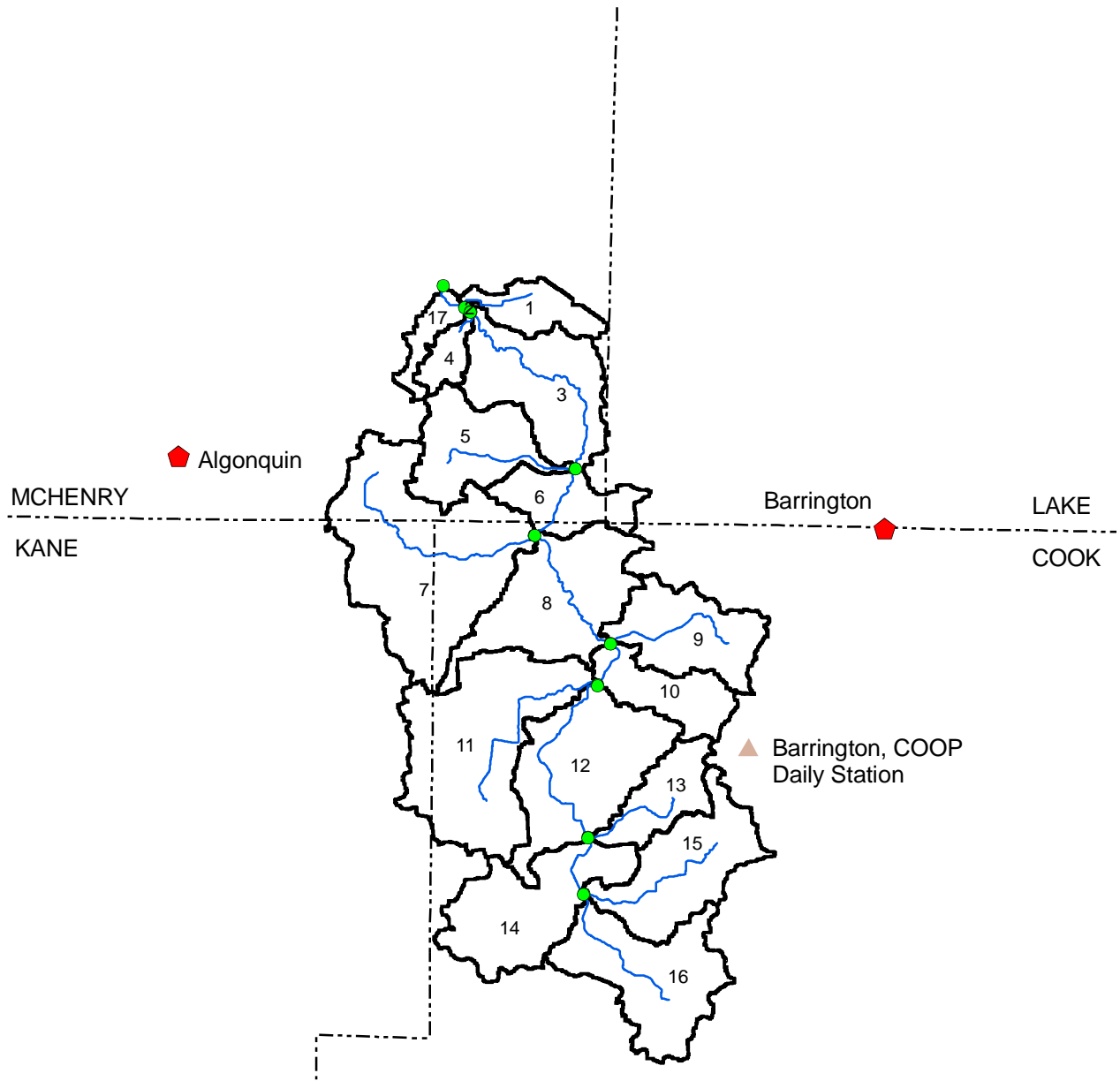








# Somonauk Creek Watershed

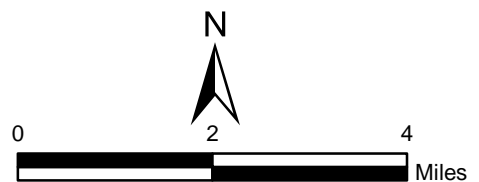


-  City/village
-  Subwatershed outlet
-  Weather station
-  Water quality station
-  Stream
-  Subwatershed
-  County boundary

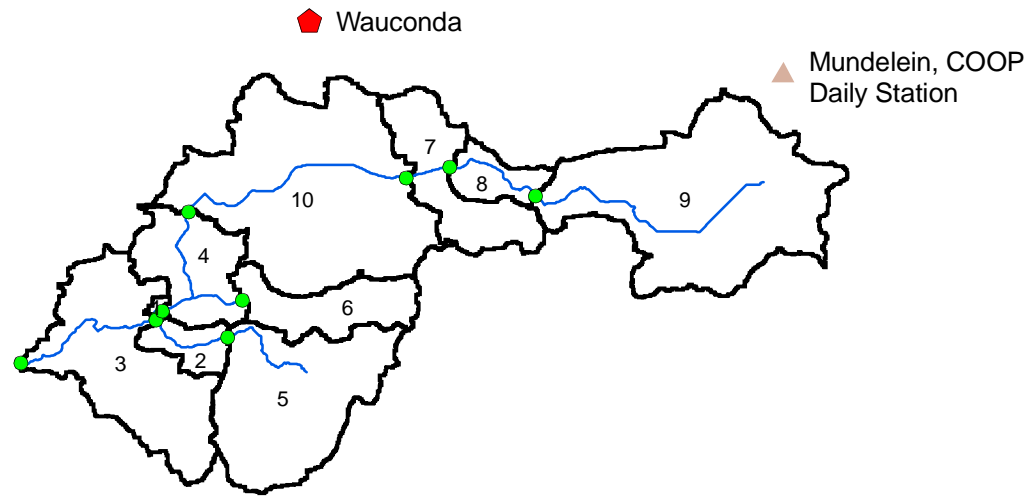
# Spring Creek Watershed








-  Village
-  Subwatershed outlet
-  Weather station
-  Stream
-  Subwatershed
-  County boundary

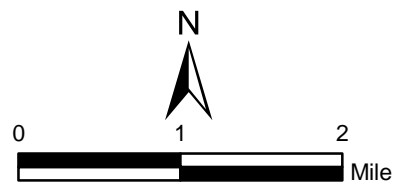


# Tower Lake Outlet Watershed

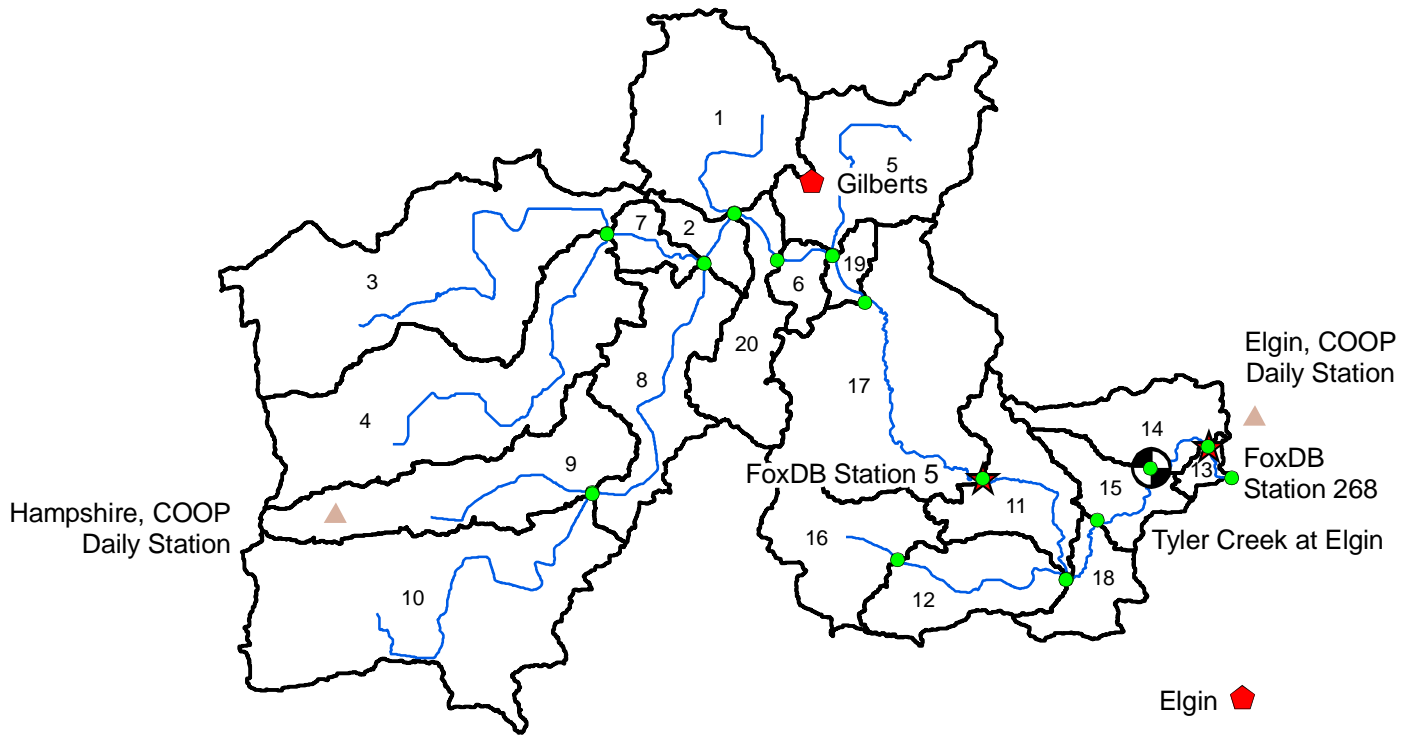









-  Village
-  Subwatershed outlet
-  Weather station
-  Stream
-  Subwatershed

This watershed completely lies within Lake County



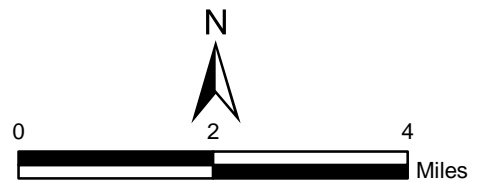
# Tyler Creek Watershed



-  City/village
-  Subwatershed outlet
-  Weather station
-  Water quality station
-  USGS gage station
-  Stream
-  Subwatershed

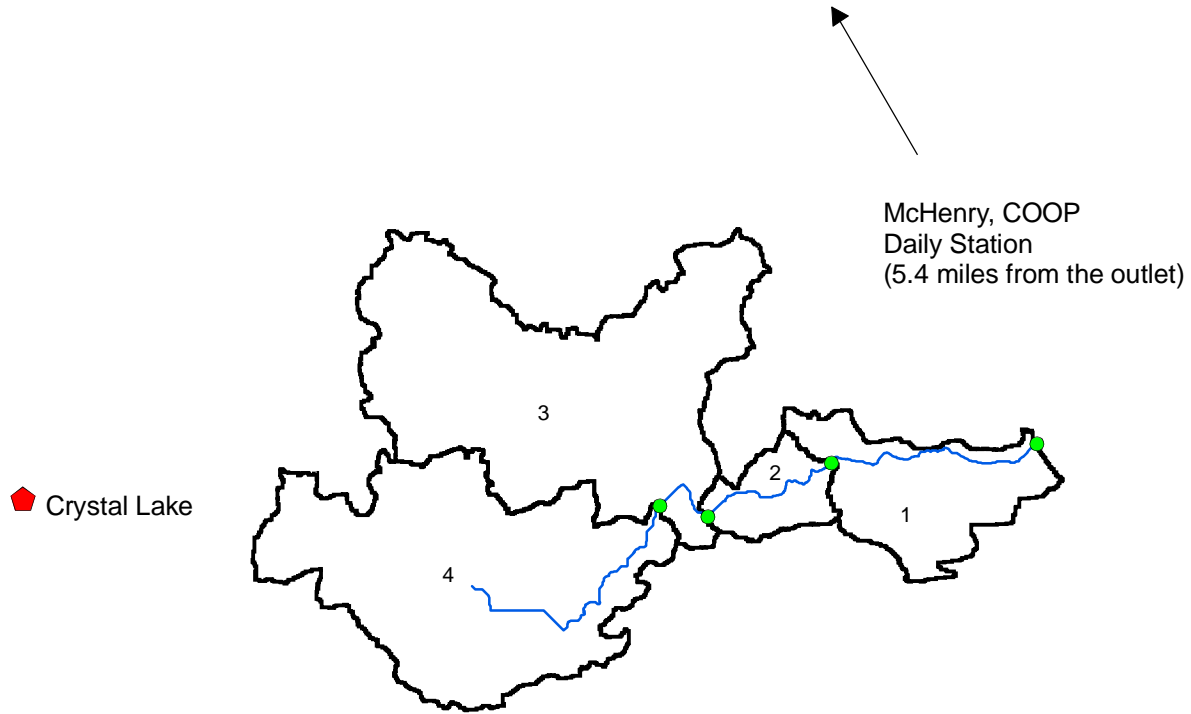
This watershed completely lies within Kane County

St. Charles, COOP  
Daily Station  
(8.9 miles from the outlet)

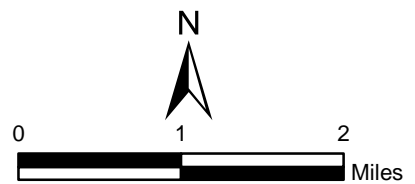




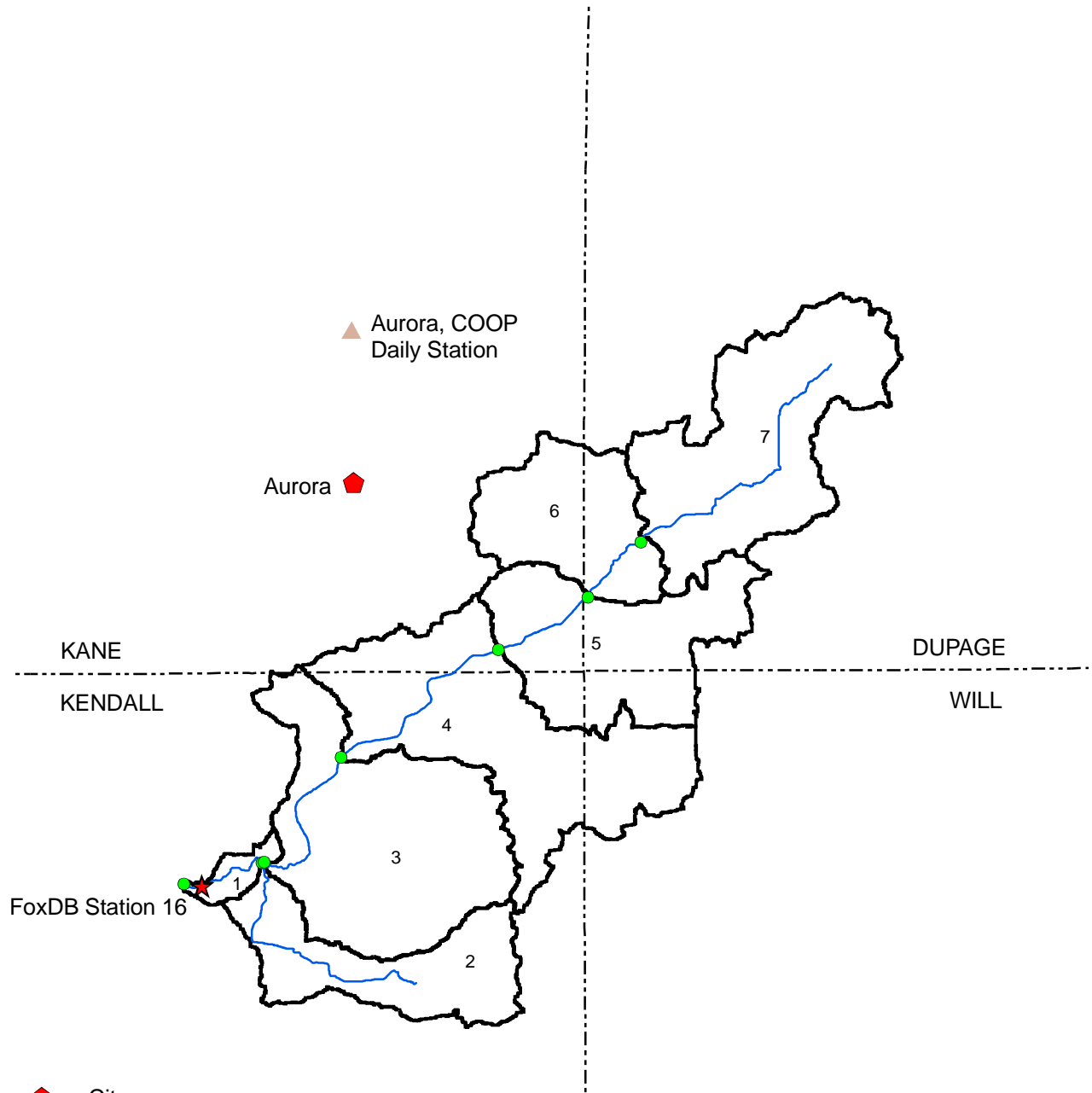
# Unnamed -tributary Watershed (downstream of the Silver Lake Outlet)










- City
  - Subwatershed outlet
  - Stream
  - Subwatershed
- This watershed completely lies within McHenry County



# Waubonsie Creek Watershed



-  City
-  Subwatershed outlet
-  Weather station
-  Water quality station
-  Stream
-  Subwatershed
-  County boundary

