

Outline

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Overview

The two main rivers in the Cannon River watershed are the Cannon and Straight Rivers. The Cannon River originates in Shields Lake and flows west before turning south. The river turns east as it goes through Waterville, and continues on to Faribault, where the Straight River drains into it. The Straight River begins in Oak Glen Lake south of Owatonna. It flows directly north before it joins the Cannon River at Faribault. From Faribault, the Cannon flows north through Northfield and turns east. It travels through the Byllesby Reservoir and Cannon Falls and finally drains to the Mississippi River just north of Red Wing. Figure 3 shows the course of both the Cannon and Straight Rivers.

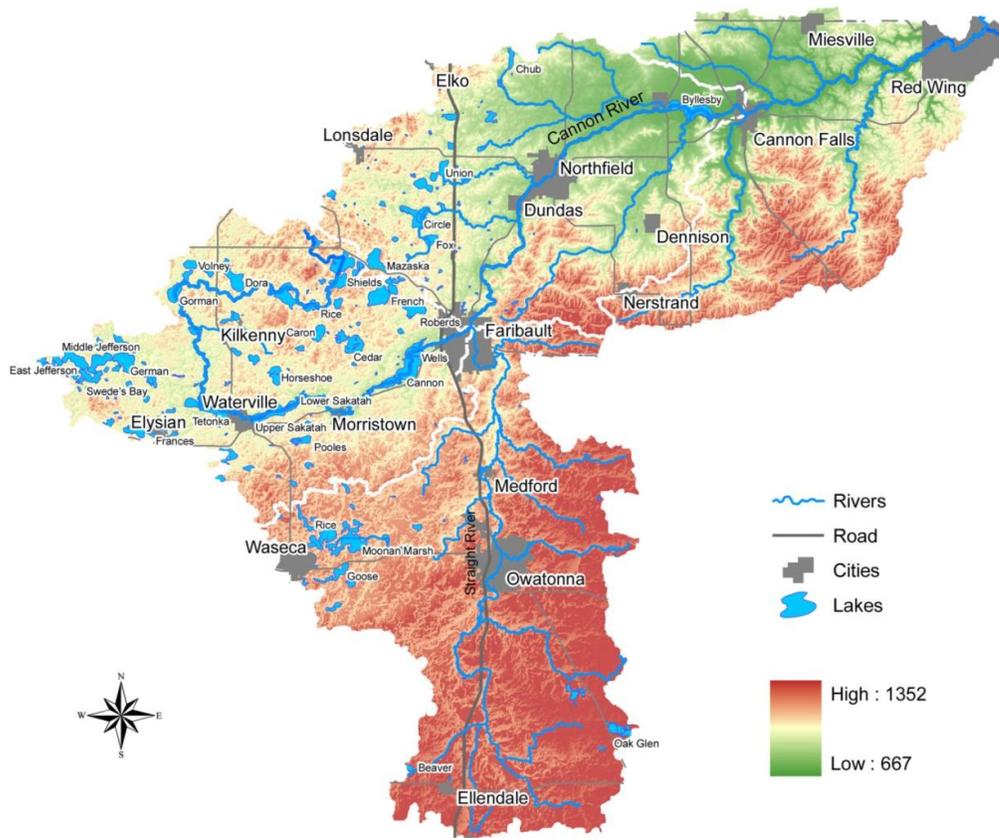


Figure 3. Cannon River watershed (Appendix A, p. 4). This figure shows the course of the Cannon and Straight Rivers, major cities in the watershed, and elevation.

The Cannon River watershed is approximately 1,460 square miles in size (946,440 acres). That’s nearly the size of the state of Rhode Island! The watershed includes parts of six counties—Steele, Rice, Goodhue, Le Sueur, Dakota, and Waseca, shown in Figure 4.



Figure 4. Cannon River watershed counties.

From the highest point of the Straight River to the confluence of the Mississippi and the Cannon, the river drops over 500 feet in altitude. The Cannon flows nearly 130 miles from Shields Lake to the Mississippi, while the Straight River flows approximately 45 miles north to its confluence with the Cannon. Add over 630 miles of smaller perennial streams flowing into the Cannon and Straight, and water courses in the Cannon River watershed cover over 800 linear miles.

Population

Cannon River Watershed population estimate includes just under 194,000 people for all counties within the watershed (NRCS, 2007). The population chart below, Table 1, shows steady population growth in the watershed from 1960-2000. Population growth is not evenly distributed throughout the watershed but concentrated in the northern portion of the watershed, closer to the Twin Cities Metropolitan Area.

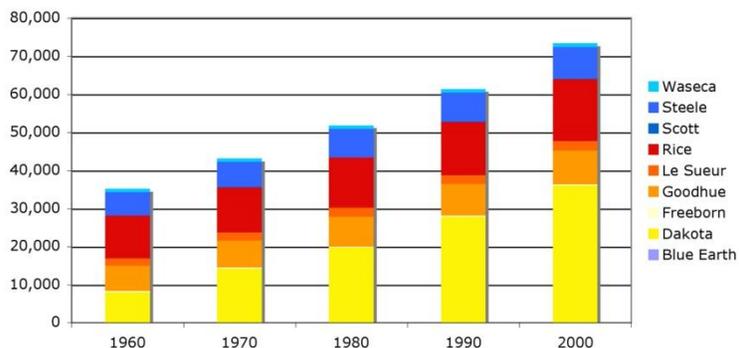


Figure 5. Cannon River watershed population 1960-2000. This figure illustrates the population growth in the Cannon River watershed from 1960-2000.

Flooding

A river’s riparian zone or flood zone allows a river to naturally overflow its banks during winter snowmelt or intense rain storms. Normally, this doesn’t present a problem except in times of extreme weather events combined with a human impacted floodplain that could involve structures, crop fields, roads, etc. The amount of impervious surface, man-made drainage systems and lack of natural water storage can also have a dramatic affect on the severity of flooding. To put it simply, a flood takes place when the capacity of the river channel exceeds its ability to hold all the water draining from a watershed. Flooding can also provide numerous benefits like recharging groundwater, settling out sediment and supporting wildlife habitat.

In the Cannon River Watershed, there have been significant past flooding events causing damage in communities along both the Cannon and Straight Rivers. Flood events occurred on the Cannon River in March 1949, July 1951, June 1954, April 1965, April 1969 March 1973, and September 2010. Figure 6 shows river levels on the Cannon River at Welch and the Straight River at Faribault during these floods. Prior to the 2010 flood, the largest flooding event took place in April of 1965 due to rapid spring snowmelt and heavy rains.

Over the two-day period of September 22-23, 2010, southern Minnesota was hit with a 100-year storm. Water levels on many southern Minnesota rivers and streams approached or exceeded all-time highs. Numerous communities experienced major flooding including Owatonna, Faribault and Northfield. The Minnesota Climatology Working Group reported this event was one of the most significant “flash floods” in the state’s climate history.

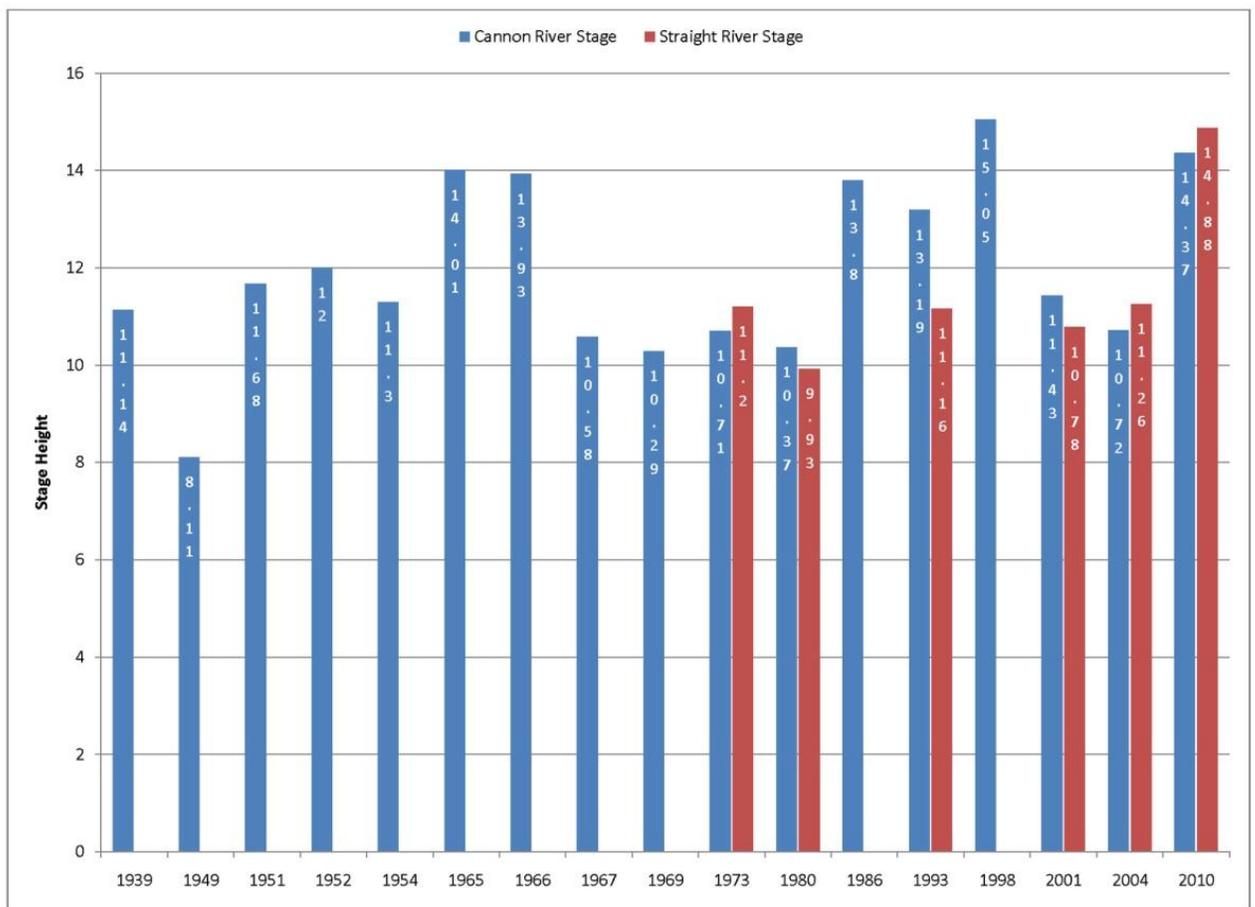


Figure 6. Historic flooding: Cannon and Straight Rivers (Appendix A, p. 19). This figure shows the stage heights of the Cannon River (at Welch) and Straight River (at Faribault) during floods since 1939. Stage height is the level, or height, of the river water above a fixed zero level at a given location.

Land Use

Land use within the watershed is largely agricultural, with cultivated crop and pasture lands accounting for approximately 70% of the overall watershed acres. Approximately 97% of the land is in private ownership. Development pressure is moderate to considerable in some areas. In particular, some farms, timberland, and lakeshore lots are being parceled out for recreation, lake or country homes and expanding suburban populations (NRCS, 2007). An analysis showed little land use change between 1992-2001 (MSU-WRC, 2010).

Today, much of the land in the Cannon River watershed has been converted for agricultural use. The highly productive land was once covered in nutrient rich prairie soils made of windblown sediment called loess that coated the region after the glaciers receded. Today, these soils provide valuable land for corn, soybean, and other crop production.

The Cannon River watershed is a large and diverse watershed. The four watershed lobes have major differences in land use, shown in Figure 7. The Straight River has more agricultural land, the Upper Cannon

contains more lakes and wetlands, the Middle Cannon has more urban land use, while the Lower Cannon contains more forested land.

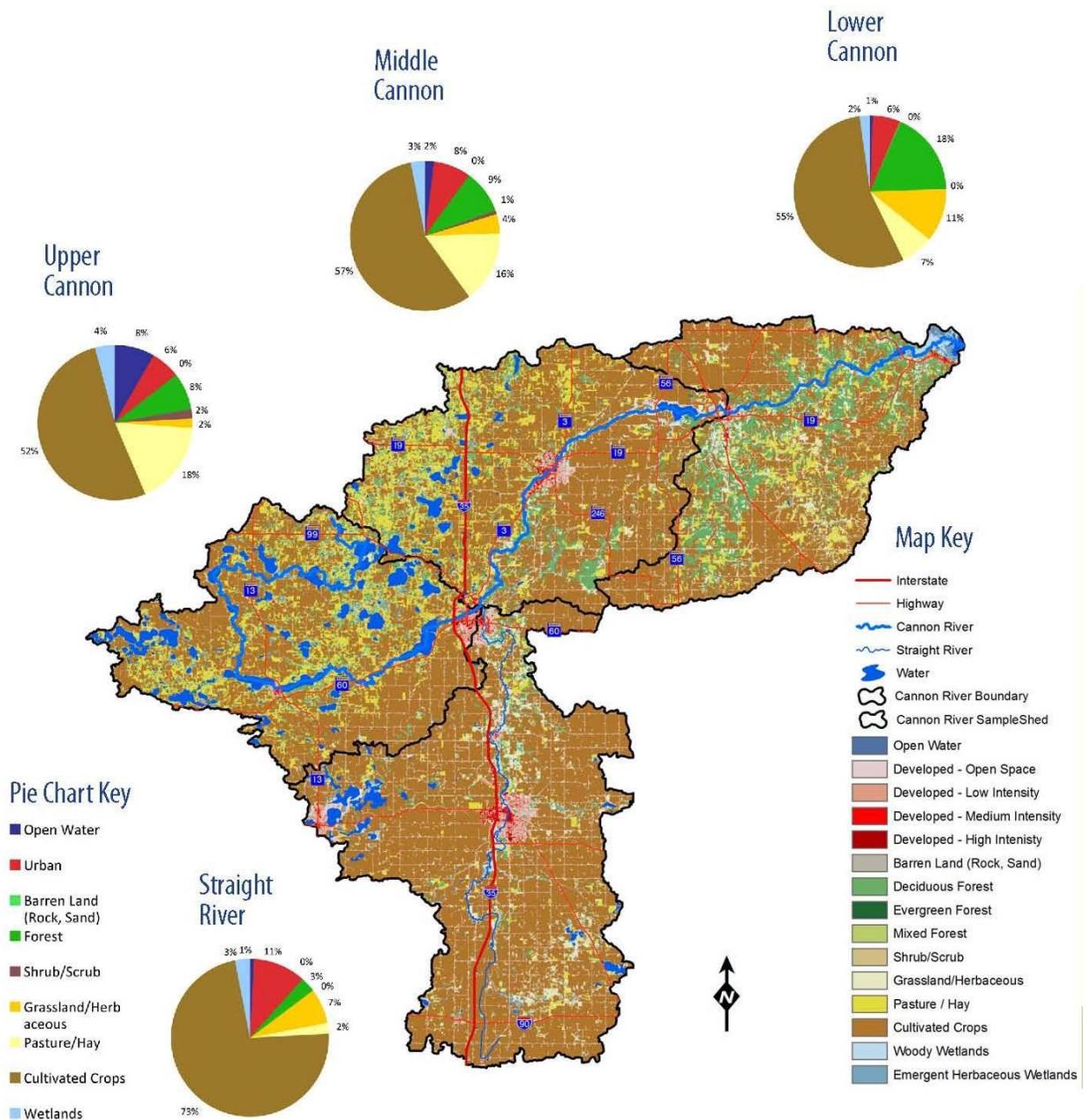


Figure 7. Cannon River watershed land use by lobe. This figure shows the land use in the Cannon River watershed on a map and broken out by watershed lobe in pie charts.

References

NRCS. (2007). Rapid watershed assessment cannon river. Retrieved from <http://www.mn.nrcs.usda.gov/technical/rwa/Assessments/07040002.html>