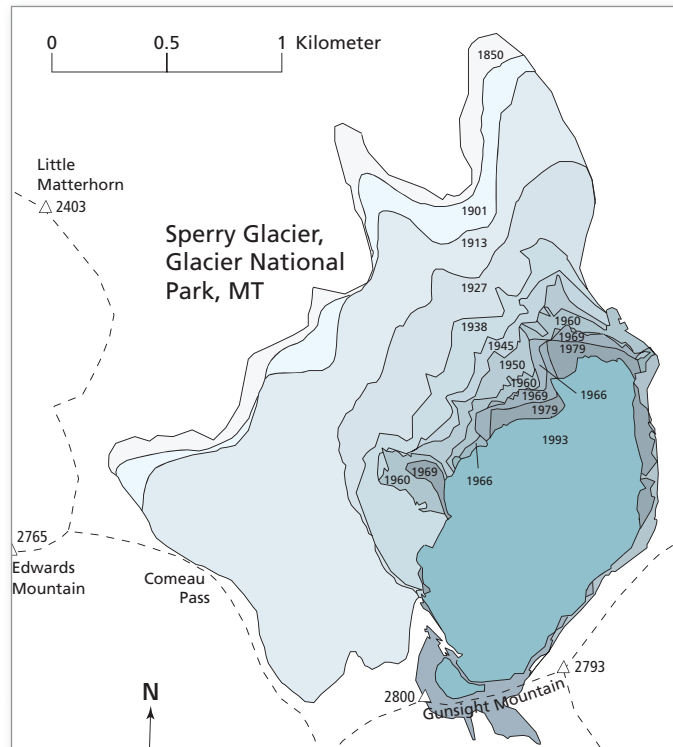


# 4.3 Exercises

**DATA** **Glaciers** In Exercises 1–6, use the information below. (See Examples 1 and 2.)

The size of a glacier is measured in the same way as land, in acres or hectares. In 1900, the size of a glacier was about 320 hectares. Between 1900 and 2000, its size decreased by about 14% per decade.

1. Write a formula that represents the size of the glacier at the beginning of each decade from 1900 to 2000.
2. Make a table showing the size of the glacier at the beginning of each decade from 1900 to 2000.
3. Sketch a graph showing the decrease in the area of the glacier from 1900 to 2000.
4. Use the graph in Exercise 3 to estimate the area of the glacier in 2000.
5. A general rule is that a moving piece of ice and snow is called a glacier when its size is at least 10 hectares. Assuming the trend continues, when will the glacier be too small to be considered a glacier?
6. Suppose that a recent study predicts that the glacier will be completely melted by 2040.
  - a. Does this prediction agree with your answer in Exercise 5? What does the research suggest about the melting rate of the glacier after 2000?
  - b. When do you think an exponential model would be appropriate to model glacial melting? When do you think a linear model would be appropriate? Explain.



Sperry Glacier in 1913 (top) and 2008 (bottom). The more recent image shows how the glacier has diminished and separated into smaller pieces. Recent studies indicate that there may be no glaciers left in Glacier National Park by 2030.