

Springs of Iowa County

Sue Swanson, Department of Geology, Beloit College

Educational Series 50-4 | 2010

Springs occur where groundwater emerges at a focused position on the earth's surface. Iowa County's springs have important ecological, recreational, and agricultural uses. They support native flora and fauna that may only be found near springs and are important in maintaining the cold, consistent temperatures that are necessary for high-quality trout streams. Alternatively, many springs have importance as livestock watering holes.

Iowa County contains over 400 springs, and it is likely that more springs exist than are shown on the map on the reverse. Spring flows in the county range from seasonal seepages to perennial flows of over 450 gallons per minute (gpm), but most spring flows are less than 100 gpm. Springs are found in stream valleys across the county except in the far north near the broad floodplain of the Wisconsin River. Some springs form the headwaters of streams, whereas others discharge directly into a stream channel or flow into wetlands and low-lying areas at the base of a valley.

Springs can form in a variety of geologic environments and usually indicate that groundwater has flowed along complex pathways influenced by fractures and faults or variations in aquifer materials. Depending on the geologic environment, spring flows can be fairly constant or quite variable. Similarly, the temperature of the water may be close to the mean annual air temperature (46°F) all year long or it can vary in response to seasons or individual storms.

The distribution of springs across the county and the chemistry of spring waters provide information on important geologic factors that influence their formation. Bedrock in the county is composed of sandstone and dolomite with some shale. These rocks were deposited in mostly horizontal layers, which have been intersected by the many stream valleys in the region. Groundwater generally flows from areas of high elevation to low elevation, but the stacked nature of the rocks in the region influences its pathway through the subsurface. Groundwater flows more easily through high-permeability materials, like sandstone, and less easily through low-permeability materials, like shale. Therefore, when groundwater encounters

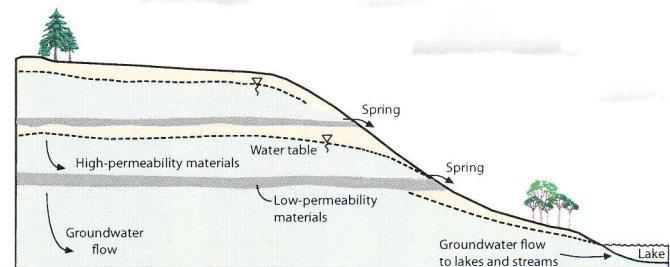


Figure 1. How springs form. When groundwater encounters a low-permeability material like shale, it flows laterally until it discharges as a spring on a hillside.

low-permeability materials, it will more likely flow laterally and ultimately discharge as a spring on a valley wall rather than continue flowing downward into underlying rock layers (figure 1). In addition, fractures often form at the interface of differing geologic materials. These fractures also promote groundwater flow, and springs often form where the fractures meet the valley wall. Many of the springs in Iowa County occur near transitions between bedrock layers of differing compositions and springs often emerge directly from fractures.

Many of Iowa County's springs were mapped in 1958 as part of a statewide effort by the Wisconsin Conservation Department (WCD). The WCD gathered information on location, flow rate, land use, and a variety of other spring characteristics relating to the potential to support fisheries. Spring locations were verified in 2006 by contacting the current owners of properties that, according to historical data, contain springs. The springs map is accurate to the nearest quarter-section. Additional springs that were identified by property owners and through field work in 2006 were also added to the map.

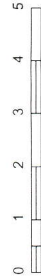
For more information about springs and groundwater resources in Iowa County, please contact the Wisconsin Geological and Natural History Survey.

Springs in Iowa County, Wisconsin



• Spring

Stream, dashed
where ephemeral



UW
Extension
Cooperative Extension

