



Gold in Ohio

About gold

Gold (atomic symbol Au) belongs to a chemical class of minerals known as *native elements*—those elements found in nature not in chemical combination with other elements. Gold has a bright yellow “gold” color and does not tarnish. It is a relatively soft metal and is malleable and ductile; that is, it can be beaten into thin sheets or drawn into fine wires. Gold is a highly efficient conductor that can carry tiny electric currents. Electronic components made with gold in mobile phones and computers are highly reliable, as gold is a corrosion-free metal element. In addition to these distinguishing properties, gold is extremely heavy, having a specific gravity of 19.3 in a pure state—almost 2.5 times heavier than an equal volume of iron. Gold is commonly confused with a variety of similarly colored minerals, most notably pyrite and marcasite (known as “fool’s gold”), chalcopyrite, and weathered mica flakes.

How is gold formed?

Gold primarily originates in vein deposits that are formed in association with silica-rich igneous rocks. These veins are rich in quartz and sulfide minerals such as pyrite and are deposited by hot, mineral-bearing (hydrothermal) solutions that ascended from deep within crystalline rocks. Upon weathering and erosion, gold is washed into streams and is mechanically concentrated by flowing waters to form secondary, or placer, deposits.

Porphyry copper deposits (low-grade ore in coarse-grained crystalline igneous rocks) are among the largest reserves of the gold in the world. Though the concentration of gold in porphyry rocks is very low, these deposits are abundant throughout the world. Today, most of the world supply of gold is produced from massive porphyry copper mines.

Where to find gold in Ohio

Gold can be found in small quantities throughout the glaciated two thirds of Ohio (fig. 1). During the 1800s and early 1900s, many attempts were made to mine gold in Clermont and Richland Counties and in portions of north-central Ohio, but all attempts were financial failures. All gold that has been found in Ohio is of the secondary or placer type. Placer gold occurs as dust, flakes, or nuggets (fig. 2) that can be found by panning and sluicing in a creek or river. Geological studies show that the placer gold in the state originated in the igneous rocks of Canada and was transported to Ohio during the Pleistocene glaciation; Ohio gold has always been found in association with glacial deposits formed by meltwater from the glaciers. In addition, gold-bearing areas of Canada lie north of Ohio, in line with the projected paths of the southward flow of glacial ice sheets. Most reported gold occurrences are in the zone of Illinoian and Wisconsinan end

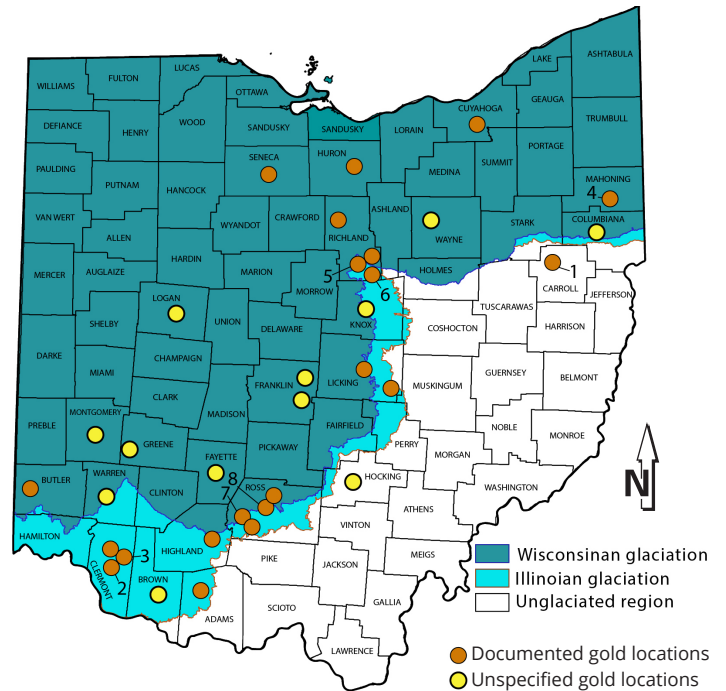


Figure 1. Reported occurrences of gold in Ohio. Carroll County: 1—Sandy Creek. Clermont County: 2—Stonelick Creek, adjacent to Anstaett Road, north of Owensville; 3—Brushy Fork, north of Owensville. Mahoning County: 4—Middle Fork of Little Beaver Creek, about 1 mile east of Salem. Richland County: 5—Deadmans Run, adjacent to Bellville Road, north of Bellville; 6—Wildcat Hollow, 1 mile west of Butler. Ross County: 7—Buckskin Creek, south of Humboldt; 8—Paint Creek and its tributaries.

moraines—areas which commonly mark the farthest advance of these ice sheets. Almost all gold recovered is in the form of tiny, flattened flakes only a millimeter or so in diameter. Less common are pieces the size of a wheat grain, and rare are those the size of a pea. No locality has been demonstrated to have concentrations sufficient for commercial exploitation.

Theoretically, any stream in the glaciated portion of the state has the potential to produce small amounts of gold. The oldest glacial deposits in southwestern Ohio may have a higher probability of gold deposits. These glacial deposits were transported by the earliest glaciers, which swept most of the gold-bearing surficial deposits from Canadian source areas. Some studies have indicated that the most productive areas may be the result of several episodes of localized concentration by running water. Some evidence shows that modern streams are locally eroding and concentrating gold that was originally concentrated in glacial meltwater channels.

Gold is extremely heavy compared to rocks of similar size. As a result, gold is concentrated by stream waters (particularly during floods) in certain areas of a stream bed. Because of its high specific gravity, gold moves along a bed of the stream



Figure 2. Gold flakes, found by gold panning glacial drift in Stonelick Creek near the confluence with Brushy Fork Creek, near Owensville, Clermont County. Terry Huizing specimen and photo.

and will tend to drop into joints or other openings. These crevices can be searched in shallow water by using a meat baster to extract the gold-bearing sand from the joint.

Gold also will concentrate at the upstream end of gravel bars, on the inside bend of stream meanders, or behind large boulders. Coarse gravel associated with large boulders commonly produces gold flakes in favorable areas (fig. 3). Experienced gold panners attempt to sample this gravel as close as possible to its contact with underlying bedrock or clay.

Most searchable areas in Ohio are on private property and permission should always be obtained from the landowner (including lands owned by the State of Ohio) before searching for gold. Hobby gold prospecting does not require a permit from the State of Ohio as long as the activity is recreational, the gold collected is of little or no commercial value, and there are no adverse impacts to the environment.

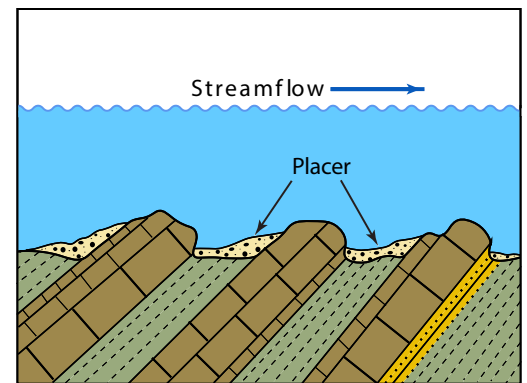
Numerous resources on how to pan for gold are available both online and in local libraries. Local rock-and-mineral clubs and gold-panning groups often have experienced panners who offer valuable knowledge to those new to the hobby of gold panning. Though the principal value of Ohio gold is recreational, numerous individuals derive many pleasant hours of satisfying activity as weekend prospectors. Their rewards are monetarily low but high in the intangible commodity of outdoor enjoyment.

References & Further Reading

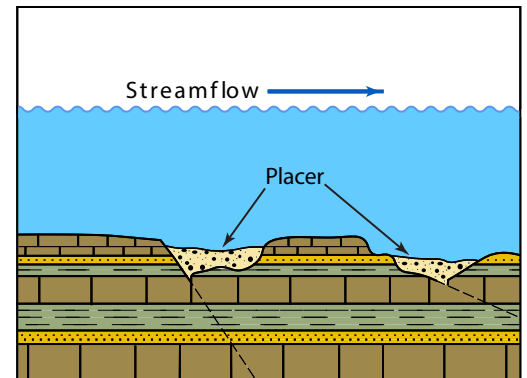
Hansen, M.C., 1985, Gold in Ohio: Columbus, Ohio Department of Natural Resources Division of Geological Survey, Ohio Geology Newsletter, Spring 1985, p. 1-7. <https://ohiodnr.gov/static/documents/geology/OGN_1985_n4Spring.pdf>.

American Museum of Natural History, Forming Deposits, in Gold [exhibition], November 18, 2006–August 19, 2007: New York, American Museum of Natural History, last accessed July 7, 2022, at <<https://www.amnh.org/exhibitions/gold/incomparable-gold/forming-deposits>>.

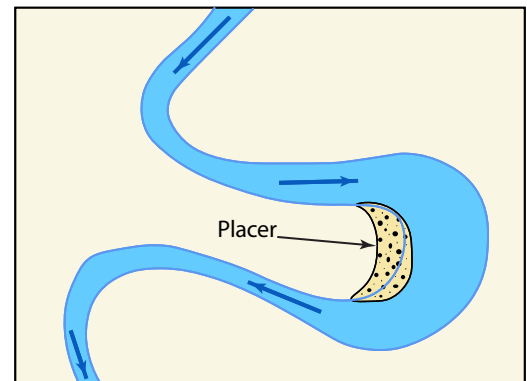
Clermont County Park District, The Clermont County Gold Rush: Batavia, Clermont County Park District, last accessed September 2, 2022 at <<https://www.clermontparks.org/news/entry/the-clermont-county-gold-rush/>>.



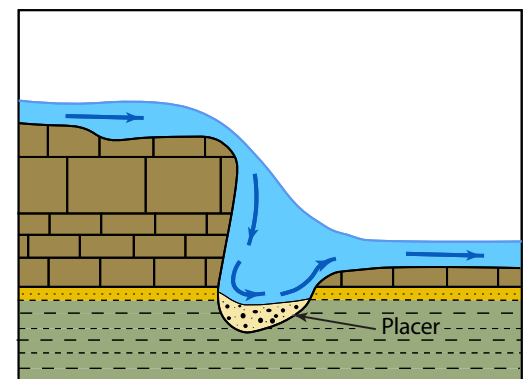
Between and behind rock bars



Streambed holes



Inside meander loop point bars



Below waterfalls

Figure 3. The most common points along streams to look for concentrations of placer gold.