## Cave of the Mounds Ecosystem Decomposers and Oxidizers: Springtails and Bacteria

Cave of the Mounds has three main cave adapted organisms; one variety of springtail, and two oxidizing bacteria.

Cave of the Mounds was discovered in 1939 during a routine quarry blast in Blue Mounds, Wisconsin. Prior to its discovery, there was no sizable entrance to the cave. This means the ecosystem in the cave is exceptionally small; small enough to fit through the cracks in the rock.

> Leptothrix bacteria are able to oxidize manganese as a byproduct of metabolizing organic matter; usually expired springtails and other bacteria. The oxidized manganese can be seen on cave formations (speleothems) as a black or gray stain. Leptothrix is found in many aquatic environments and is known to cause clogs in water pipes owing to its manganese and sometimes iron deposits, but it is not known to be harmful to humans. Photo: Bertram Schmidt

### Leptothrix spp.

### Gallionella ferruginea

Gallionella are iron-oxidizing chemolithotrophic bacteria. This means that by chemically changing ("chemo-") iron ("-litho-") it is able to gain energy ("-trophic"). Speleothems with Gallionella present can be stained red or have a mineral crust of this oxidized iron. Better known as rust, oxidized iron is also responsible for the color of your blood! Photo: Makk Judit

# A second to poly a seco

#### Springtails: Coecobrya tenebricosa

Springtails are tiny hexapods often less than 1mm in length, and use a spring (furcula) on their abdomen to "jump" on the surfaces of pools. Springtails are decomposers and survive on the bacteria in the cave water. These springtails are white and eyeless with long segmented antennae; adaptations for living in dark soil and leaf litter on the surface. These traits are also well suited to living in the total darkness of caves. Approximately 8,000 species of springtails live in caves and soil around the world.