WILDLIFE NOTES

Sangre de Cristo peaclam

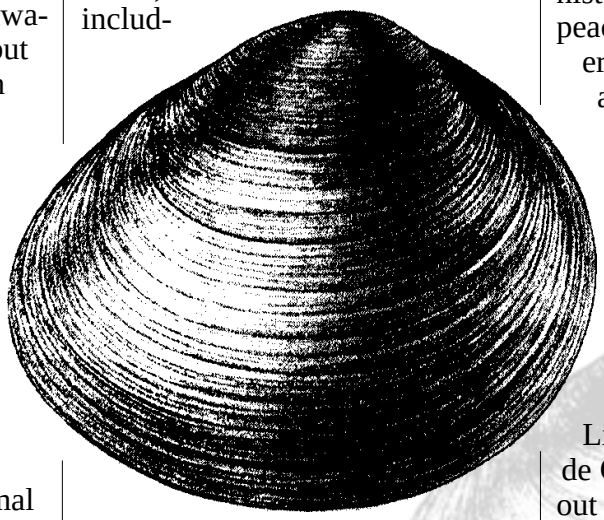
The rare Sangre de Cristo peaclam is only found in high-mountain Middle Fork Lake at the foot of Wheeler Peak near Taos. It was listed by the New Mexico State Game Commission as a State Endangered Species in 1983.

DESCRIPTION

Contrary to popular belief, many bivalves (clams and mussels) live in fresh water. Freshwater bivalves occur worldwide but attain their greatest diversity in North America. Nearly 300 different types are found in North America, with more than 90 percent of these native to the eastern United States. One such group is the genus *Pisidium*, found throughout the world, which includes the Sangre de Cristo peaclam (*Pisidium sanguinichristi).* This tiny anmal looks like a flattened pea — smaller in diameter than the circle made by a paper punch (up to 3.2mm). Its thin, delicate, rounded shells are smooth and yellowish-gray, with softly ribbed bands and a narrow hinge connecting the two halves of the shell. It has a protective mantle (tissue layer) lining the inside of the shell to cover its gills and soft, moist body. One end of the mantle is modified to form inhalant/exhalant siphons. By means of these adaptations, the peaclam ingests food through the inhalant siphon, carries out respiration, and provides a secure place in which embyronic peaclams mature before birth.

LOCALIZED SPECIES

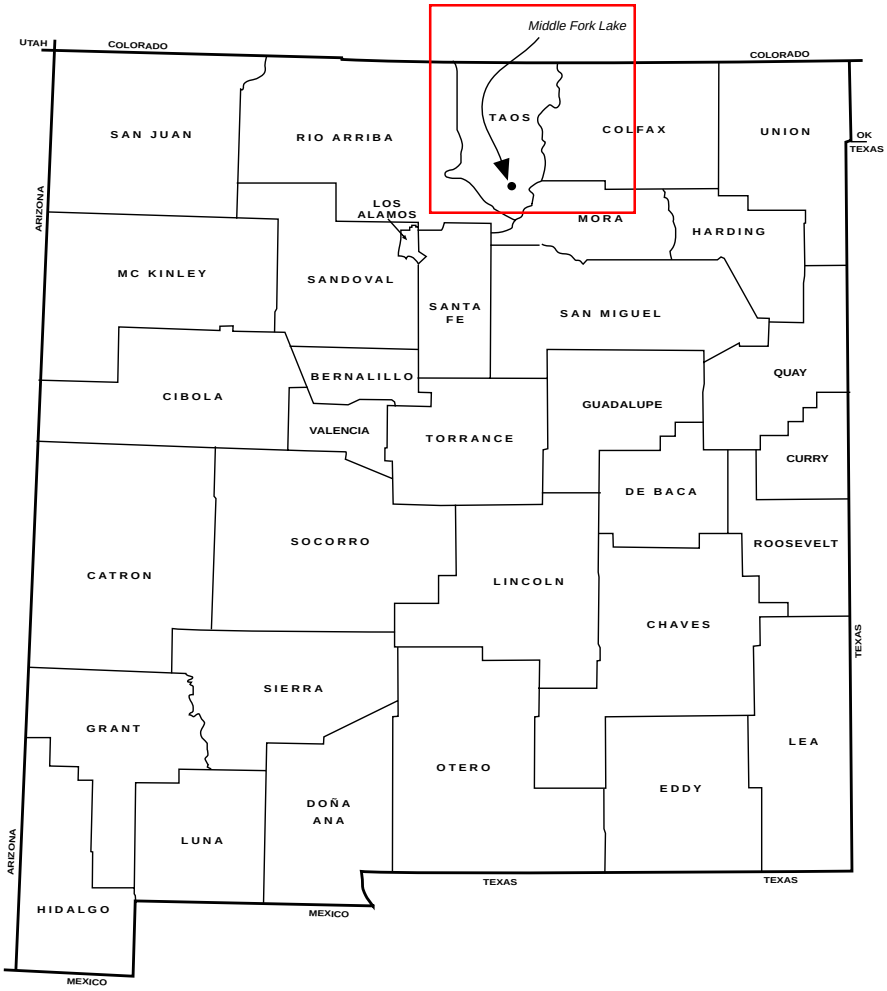
New Mexico is home to at least 50 different types of native freshwater mollusks (bivalves and snails), including the Sangre de Cristo peaclam. Many of these species are localized and 'endemic' to New Mexico. That means these species are usually found in only *one* lake, *one* spring, or *one* wetland seepage area and no where else on earth. The Sangre de Cristo peaclam is unique in that it is the most narrowly localized *Pisidium* in all of North America. This localization points to a long history of species isolation and evolution since the days of the late Cenozoic Era, one to five million years ago. The ancient origin of these peaclams is a principal reason for their conservation. Scientists study these ancient mollusks as living clues that indicate prehistoric river drainages.



BIOLOGY and BEHAVIOR

Little is known of the life history of the Sangre de Cristo peaclam since it was only discovered in 1983. We do know it is a filter feeder, drawing water into its mantle through microscopic spaces in the mud through which it burrows. Its diet probably consists of small algae and other organic matter. Locomotion is achieved by means of its muscular foot.

Like other peaclams, the Sangre de Cristo peaclam needn't seek out a member of the opposite sex in order to reproduce. Instead of being male or female, each peaclam is a hermaphrodite, bearing the organs of both sexes within a single body. Eggs are self-fertilized, and embryos are sheltered in the gills where oblong sacs contain individual chambers for the young, much like a bee's honey-comb. The young develop within the parent and are subsequently released into the water. Reproduction occurs year-round, but few immature animals are released in winter months.



MIDDLE FORK LAKE

The one and only home of the Sangre de Cristo peaclam is Middle Fork Lake near Wheeler Peak. This high elevation body of water (10,845 feet above sea level) is a cirque lake, created by retreating glaciers during the last ice age. Middle Fork Lake contains no submerged aquatic vegetation, only a few emergent grasses in the shallows of sheltered bays. Sangre de Cristo peaclams inhabit mud flats where emergent grasses grow at the edge of the lake, and in the lake outlet where it flows into a small stream. In both situations, the clam is commonly found, but no population studies have been conducted yet.

THREATS and CONCERNS

The isolation and localization of this rare clam population is of concern to scientists. The small size of the lake renders the population extremely vulnerable to the slightest of habitat alterations. Adequate water quality is also a concern. Appropriate water quality conditions, habitat requirements, and limitations of the species are not yet known or well defined. Pollution is also a threat, particularly from chemicals that may be used for fish or forest management purposes. As of 1995, the U. S. Forest Service (Carson National Forest) has been conducting an on-going conservation assessment of the Sangre de Cristo peaclam at Middle Fork Lake.

PROTECTION FOR THE FUTURE

A certain degree of protection is afforded the Sangre de Cristo peaclam simply because of Middle Fork Lake's remote location on federal lands. In 1988, usage of motorized vehicles around Middle Fork Lake was restricted. Barriers were installed around a parking area to keep vehicles away from the shoreline. Signs were placed in the lot requesting cooperation from users. These conservation efforts seem, thus far, to be successful. The U. S. Forest Service is proposing to prohibit any dredging activities in the lake and outlet stream; to identify and define the watershed above Middle Fork Lake on U.S. Geological Survey quadrangle maps; and to keep a sharp eye on any proposed activities in the vicinity of the lake. For the moment, the Sangre de Cristo peaclam continues to flourish in cold waters that mirror Wheeler Peak.

Published 1996/Jane S. MacCarter

Wildlife Notes is published by the Department of Game and Fish. If you are interested in obtaining additional copies, please send your request to:
Conservation Education Section
Department of Game and Fish
PO Box 25112
Santa Fe, NM 87504
(505) 476-8119