



Fish Communities at Pea Ridge National Military Park

Importance: Fish indicate stream health

Fish community composition offers a good indication of long-term environmental conditions within a stream. Many native fish populations have decreased in abundance throughout their ranges, largely because of land use changes that contribute to habitat degradation. This is particularly the case in areas with karst geological features, such as at Pea Ridge NMP. Sink holes, caves, springs, and losing reaches of streams permit close interaction between groundwater and surface water. Interpretation of data collected through long-term monitoring of fish equips park managers with science-based understanding needed to make informed decisions on water quality issues that protect the entire aquatic community.



Measuring fish length and weight.

Long-Term Monitoring:¹ Findings inform decision-making

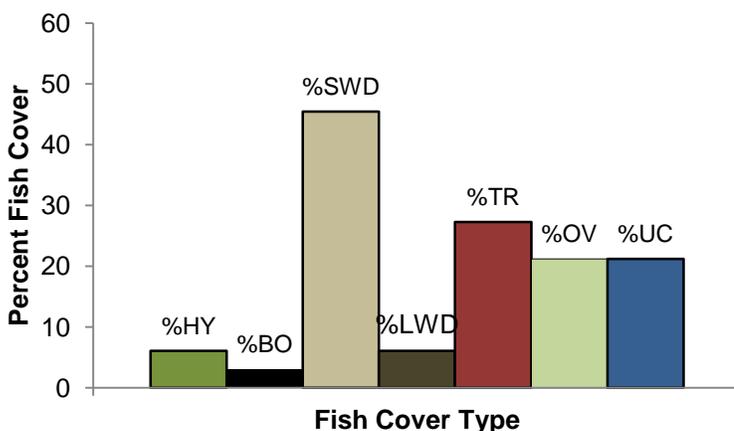
The Heartland Inventory and Monitoring Network began sampling Pea Ridge NMP's fish communities in 2009, gathering information on fish community structure, physical habitat, and water quality in Pratt Creek. A computation of species diversity, abundance and composition are important to determining overall community condition. These data contribute to establishing a baseline for examining long-term trends in fish community composition. The data also contribute to correlating fish community conditions to water quality and habitat conditions.

Status and Trends: Diverse and stable fish communities

Scientists found that, generally speaking, the fish community had low species richness, moderate diversity and an overall stream integrity rating of fair. Although Pratt Creek contained few species, all four species collected require clean gravel substrate for spawning and are intolerant of poor water quality conditions. Presence of these species indicates that Pratt

Creek is a good quality Ozark stream. Scientists also found:

1. The low fish diversity may be attributable to Pratt Creek being a headwater stream with the section above a spring only flowing intermittently. The low water levels reduce the availability of deep pools for large fish.
2. The reach of Pratt Creek included in the sample contains fairly diverse fish habitat for a headwater stream. Ground water from the spring contributes to the stream's stability during drought.



Percent fish cover for Pratt Creek in 2009 shows a diversity of habitat; HY = hydrophytes (aquatic plants), BO = boulder, SWD = small woody debris, LWD = large woody debris, TR = trees/roots, OV = overhanging vegetation, UC = undercut bank.

Heartland Inventory and Monitoring Network of the National Park Service. Visit

www.nps.gov/im/units/htln/index.htm

... protecting the habitat of our heritage



¹ Dodd, H. R., J. A. Hinsey, and S. K. Mueller. 2011. Fish community monitoring at Pea Ridge National Military Park: 2009 report. Natural Resource Data Series NPS/HTLN/NRDS—2011/217. National Park Service, Fort Collins, Colorado.