



## ABOUT THE STUDY

The Ecological Health of Bull Creek and Swan Creek Study was conducted by James River Basin Partnership, Southwest Missouri State University, Drury University and Missouri Department of Conservation.

Major support provided by SMSU, Drury and a grant through National Fish and Wildlife Foundation in cooperation with Johnny Morris Conservation Creel and the American National Fish and Wildlife Museum.

Doe Run Company, Bass Pro Shops, and Springfield Southwest Wastewater Treatment Plant provided additional support for this project.

This study was made possible with assistance and cooperation of landowners on Bull Creek and Swan Creek.



## ECOLOGICAL HEALTH OF BULL CREEK & SWAN CREEK



## FOR MORE INFORMATION

The complete technical report is available from:

James River Basin Partnership  
205 Park Central East, Suite 200  
Springfield, Missouri 65806  
417-836-8878  
[www.jrbp.smsu.edu](http://www.jrbp.smsu.edu)



## INDEX OF BIOTIC

### INTEGRITY

### INTRODUCTION

The James River Basin Partnership (JRBP) was established in 1995 to "protect and improve our springs, streams, rivers and lakes." JRBP's goal is to achieve our mission through the use of sound, scientific data. This collected information is to be disseminated to the public through our numerous outreach and education programs. This study was conducted to collect meaningful baseline data for two of the most undisturbed creeks in the region.

During the summers of 2001 and 2002 the Index of Biotic Integrity (IBI) was used to assess fish population health and stream health in Bull Creek and Swan Creek in southwest Missouri. The IBI method used in this study followed Missouri Department of Conservation procedure for application in wadeable streams in the Ozark Plateau.

## METHODS

Eighteen randomly selected sites in Bull Creek and nineteen randomly selected sites in Swan Creek were chosen for sampling. Each sampling site was between 150 to 300 meters in length and was blocked off at each end with block nets. Seining and electrofishing were then used to collect and identify as many fish as possible. The fish were released back into the stream as following their identification. The species and numbers of fish were recorded.

Water chemistry and physical habitat data was also collected.



## RESULTS

Over 53 species of fish were collected, identified and returned to the stream. This data alone will be invaluable baseline data for future years.

IBI scores range from 100-0. A score of 100-90 is excellent, 90-80 good, 80-70 fair and 70-below impaired (impaired as compared with historical conditions).

IBI scores for Bull Creek ranged from 82-42 with an average of 68.4. IBI scores for Swan Creek ranged from 86 to 46 with an average of 73.6.

## INTERPRETATION & CONCLUSIONS

IBI scores are not intended to rank individual sites, rather they are used to determine the ecological health of an entire watershed. In this study greater impairment was found than anticipated. These results will be used to assist watershed managers to make more informed decisions regarding the management of valuable water resources.