

ATTACHMENT 8

LOUISIANA BLACK BEAR SIGHTINGS  
LOWER MISSISSIPPI-YAZOO RIVER AREA

## **Louisiana Black Bear Sightings Lower Mississippi-Yazoo River Area**

### ***Statistical Analysis***

In the analysis of Louisiana Black Bear sightings in the lower Mississippi-Yazoo River area, a Tobit model was used to regress the number of bear sightings against time. The Tobit model is used due to the large number of 0 observations, and the fact that there is no possibility of negative observations. The Tobit model will truncate the 0 observations at 0 and the distribution will only occur in positive space. When all bear sightings from 1988 through 2004 were regressed, the number of bear sightings showed an upward trend and was found to be statistically significant at the 1% significance level.

A dummy variable was used in the regression analysis for the years 1988-2004 (0 for years 1988-1994, 1 for 1995-2004). In this model an upward trend was evident but the time variable was not statistically different from 0. The dummy variable was statistically significant at the 12% level and did show an average increase in the number of bear sightings for the years 1995-2004.

An analysis of the number of bear sightings against time from 1995-2004 also indicates an upward trend in bear sightings; however, the time variable is not statistically different from 0. One possible reason the time variable is not statistically significant is the 0 sightings in 2001 and 2002. When a dummy variable is included to discount the effects of these two years (1 for 2001 and 2002, 0 otherwise) the time variable becomes statistically significant at the 1% significance level.

### ***Conclusions***

During the entire time period, from 1988 to 2004, there has been an upward trend in Louisiana Black Bear sightings in the area (See figure 1). In the time period from 1995 to 2004 there has also been an increase in the number of bear sightings. The increase in the later time period does not appear to be significant from the regression analysis; however, there are two years (2001, 2002) with 0 bear sightings. When these two years are taken out of the sample the increase in bear sightings becomes highly significant. In fact, the slope of the increase in the later time period is significantly steeper than the slope of the entire time period (See Figure 2).

The conclusion of this analysis is that, given the data, there has been a significant increase in Louisiana Black Bear sightings in the Lower Mississippi-Yazoo River Area. However, there is no indication from the data as to why this is occurring. The increase in sightings may come from an increase in human population, an increase in human interaction in bear habitat, an increase in bear population or variances in annual environmental conditions such as floods, droughts, limited food supply, etc. Also, this

data only reflects reported bear sightings and does not account for the possibility of sightings that have gone unreported. Therefore, no valid conclusion concerning changes in bear populations in the area can be made from this data.

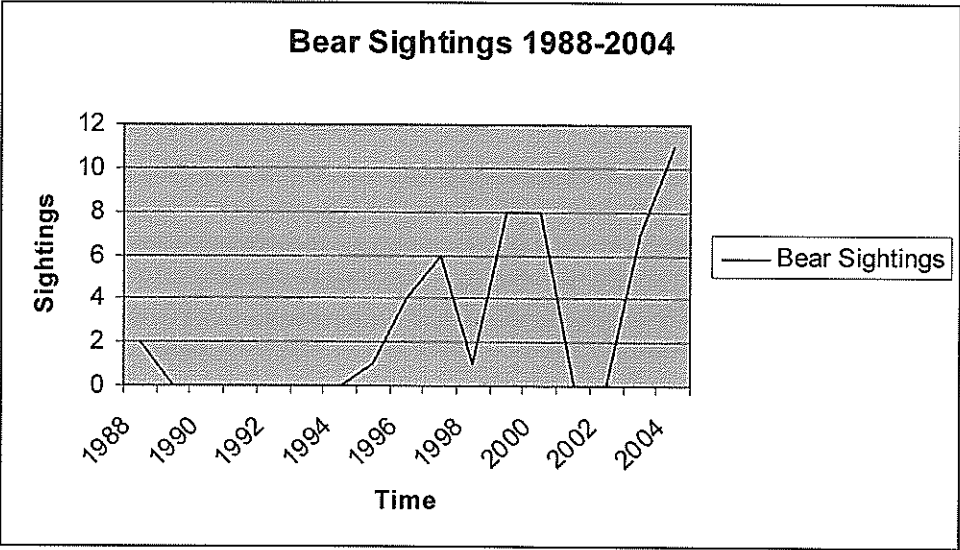


Figure 1. Bear Sightings 1988-2004

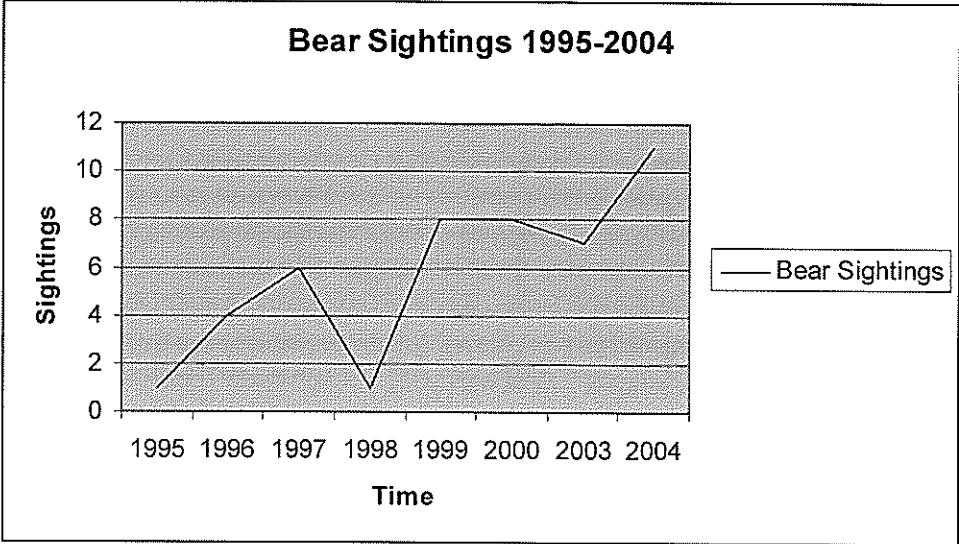


Figure 2. Bear Sightings 1995-2004