

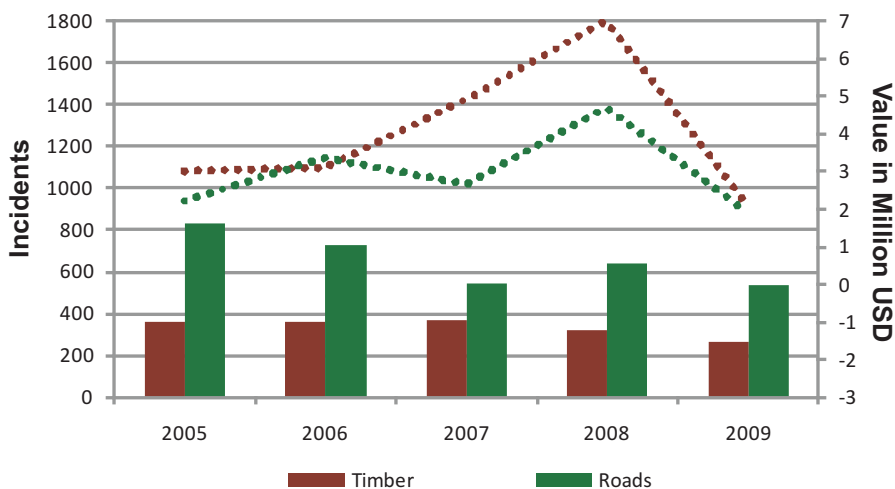
The Value of Beaver Management to Protect Resources and Jobs in Mississippi



Beavers (*Castor canadensis*) in Mississippi have seen significant population changes over the last 150 years, as their status has changed from a game species to protected species to nuisance species. In 1990, the Beaver Control Assistance Program (BCAP) was created. This program was designed to control beaver damage and to provide relief to beaver-affected landowners rather than to eradicate beaver populations statewide, with most activities performed by Wildlife Services. The primary focus of BCAP is beaver trapping or removal of beaver dams on county roads in participating counties and state highways. Supplemental activities, such as educational efforts and private land trapping are also part of the program. BCAP protects a variety of resources, though most damage (both in number of incidents and reported damage) is inflicted upon timber and roads/bridges.

An independent benefit-cost analysis was conducted by the Economics Project at the National Wildlife Research Center to assess beaver-caused economic impacts to timber and roads/bridges in Mississippi and estimated the average annual savings resulting from BCAP activities during a five year period (2005 to 2009). To accomplish this, it was necessary to identify the amount of resources damaged by beaver in Mississippi, then estimate the amount of damage that would have occurred in the absence of the program. Overall savings of BCAP was determined by calculating the difference between the actual and estimated potential damage.

Reported Beaver Damage in Mississippi



BENEFITS OF BCAP

- ☞ The total annual estimated revenue saved (from timber and road/bridge protection) ranges from \$44 to \$99 million.
- ☞ Savings of between 126 and 282 local jobs were realized within the economy annually by protecting timber resources.
- ☞ The benefit-cost ratios range from 40 to 89, meaning that for every \$1 spent on BCAP, between \$40 and \$89 in benefits is realized within the State. *

*The BCAP average annual operations cost approximately \$1.1 million (from 2005 to 2009) in 2009 dollars.



Measuring the Cost of Beaver Damage to Timber and Roads

Timber

Beaver will gnaw bark around the base of a tree and potentially fell the tree. This loss can be significant, particularly if high-grade hardwood trees are damaged. Additionally, beaver dams can cause flooding over large areas and trees become more prone to rot and disease and will die. One beaver dam can flood and destroy thousands of acres of timber, and flooding caused by beaver dams can also cause the field to be inaccessible to harvesting equipment.



Methods

1. The current amount of resources damaged by beaver was identified. Data for the analysis were obtained from the WS-Mississippi Management Information Systems database. Data was recorded for both “direct” control activities and “technical assistance”. The minimum, maximum, and mean reported damage were used in calculations.
2. Damage that would have occurred without BCAP was predicted. Published estimates of beaver damage to timber in Mississippi prior to the program being initiated were referenced. Both high and low estimates of predicted damage were used in the calculations.
3. Actual damage was subtracted from predicted damage to determine overall savings. An input/output model was then used to model the loss of timber production within the regional economy, in terms of jobs and revenue.

Estimated direct annual savings from the protection of timber resources ranged from \$25 million to \$57 million. The additional savings in economic activity ranged from \$19 million to \$42 million and from 126 to 282 jobs in the region.

About BCAP

BCAP is operated as a cooperative service agreement with the Mississippi Department of Agriculture and Commerce, Mississippi Department of Wildlife, Fisheries and Parks, Mississippi Forestry Commission, Mississippi Department of Transportation, Mississippi Association of Supervisors, Mississippi Extension Service, Delta Council and Mississippi Farm Bureau.



Roads and Bridges

Beaver dams can cause damage to public transportation areas, flooding of roads or eroding of culverts and bridges. This may cause car accidents and the need for repair and replacement of roads and bridges.



Methods

1. Data were obtained from the WS-Mississippi Management Information Systems database regarding the number of incidents of road damage. Data was recorded for both “direct” control activities and “technical assistance” (i.e., consultation/advice or brochures).
2. Overall savings were calculated. The number of incidents saved by WS-Mississippi was measured as the incremental decrease in the number of recorded incidents per year. Both high and low estimates of damage were used in the calculations

Estimated annual savings from the protection of roads, bridges and culverts ranged from \$121,367 to \$221,728.

Further information regarding BCAP and the results of this economic study can be obtained by contacting the Mississippi Wildlife Services State Director:

Kris Godwin
P.O. Drawer FW, 200
Thompson Hall,
Mississippi State, MS 39762
Phone: (662) 325-3014
kris.godwin@aphis.usda.gov
www.aphis.usda.gov/wildlife_damage