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Department  
of  
Agriculture

Animal and  
Plant  
Health  
Inspection  
Service

October 1, 2013  
through  
September 30, 2014

**FY 2014**

**22ND  
ANNUAL  
REPORT**

# NORTH CAROLINA BEAVER MANAGEMENT ASSISTANCE PROGRAM



**WS Wildlife  
Services**

Protecting People  
Protecting Agriculture  
Protecting Wildlife

The North Carolina Beaver Management Assistance Program (BMAP) was created by state legislative action in 1992 with the express purpose of helping manage ever-increasing problems caused by beaver on private and public lands. The program primarily focuses on public health and safety and on assistance to landholders experiencing beaver damage problems. Because of practical and ecological considerations, the program is designed to address specific beaver damage problems rather than to eliminate beaver. It seeks to assist the North Carolina Department of Transportation (DOT), local governments, private landholders, and others. The BMAP has grown from four counties in FY 1993 to 42 counties in FY 2014. At the same time, BMAP services specifically delivered to the DOT now covers all 100 counties.



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**Front Cover and Above:** Beaver dam removed from inside a 60” culvert in Brunswick County. Photo credits: Todd Menke, USDA Wildlife Services.

# Background Information

The BMAP is a cooperative endeavor funded by the North Carolina Wildlife Resources Commission (NCWRC), DOT, USDA Wildlife Services, participating counties, and cost-share collections from private landholders, businesses, municipalities, and others. (See program funding sources and expenditures on page 10.) The BMAP is administered by USDA Wildlife Services through a cooperative service agreement with the NCWRC. In FY 2014, BMAP services were available in all 100 counties for the DOT, as well as landholders, local governments, soil/water conservation districts, and others in 42 participating counties, each of which opted to contribute \$4,000 to the program.

## BMAP Participating Counties FY 2014

- |             |              |
|-------------|--------------|
| •Bertie     | •Lenoir      |
| •Bladen     | •Martin      |
| •Brunswick  | •McDowell    |
| •Camden     | •Nash        |
| •Carteret   | •New Hanover |
| •Catawba    | •Northampton |
| •Columbus   | •Onslow      |
| •Craven     | •Pamlico     |
| •Cumberland | •Pasquotank  |
| •Duplin     | •Pender      |
| •Edgecombe  | •Perquimans  |
| •Franklin   | •Pitt        |
| •Gates      | •Robeson     |
| •Granville  | •Rutherford  |
| •Halifax    | •Sampson     |
| •Harnett    | •Union       |
| •Henderson  | •Vance       |
| •Hoke       | •Warren      |
| •Iredell    | •Washington  |
| •Jackson    | •Wayne       |
| •Johnston   | •Wilson      |



**Above:** Beaver dam built below Hampton Road SR 1603 in Durham County creating a potential driving hazard. Photo credit: Todd Menke, USDA Wildlife Services.

# BMAP Advisory Board

- Ann May (Chair), NC Wildlife Resources Commission
- Greg Perfetti / Rick Nelson, NC Department of Transportation
- James Jeuck, NC Cooperative Extension Service
- Charles Bowden, NC Division of Soil and Water Conservation
- Dewitt Hardee / Keith Larick, NC Dept. of Ag and Consumer Services
- Bill Pickens, NC Forest Service
- Anne Coan, NC Farm Bureau Federation
- Chris Brown, NC Forestry Association
- Jon Heisterberg / Todd Menke USDA Wildlife Services

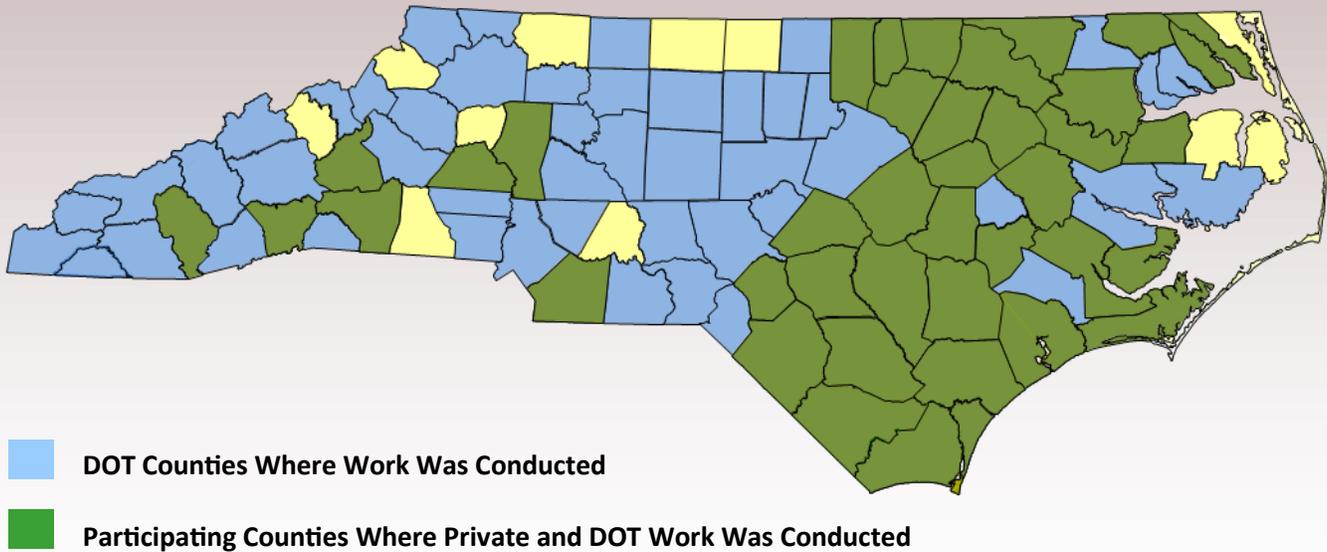
The BMAP is overseen by a nine-member Advisory Board with current members and respective affiliations listed above. In FY 2014, the BMAP Advisory Board met on March 4, 2014 to review program accomplishments and to make recommendations on future activities to the Executive Director of the NCWRC.



**Above:** Playground in the Pine Valley HOA subdivision in Creedmoor flooded by beaver dams where the BMAP Advisory Board met on March 4, 2014. Photo credit: Todd Menke, USDA Wildlife Services.

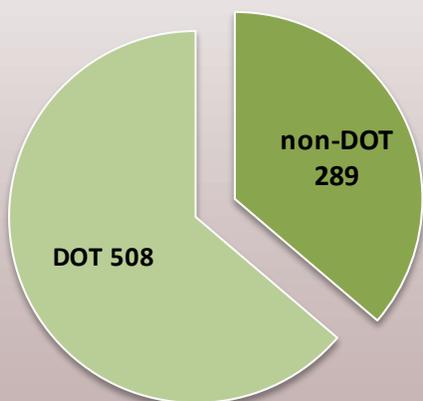
# Program Activities and Accomplishments

## BMAP Statistics

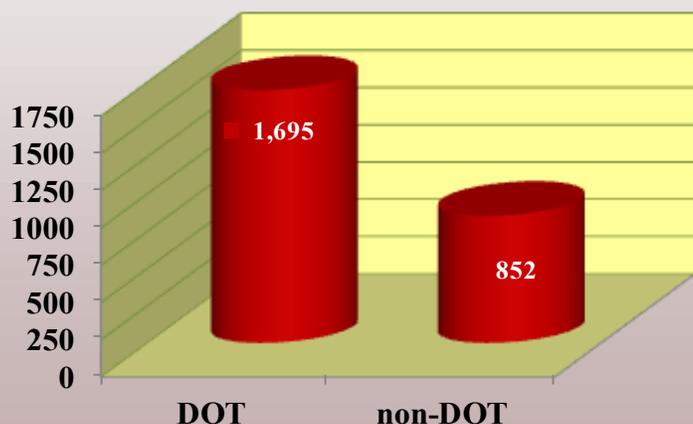


Beaver damage control activities were conducted in 89 counties under 797 agreements with 2,547 beavers being removed (see charts below). BMAP services are available to DOT in all 100 counties as well as any counties contributing the \$4,000 participation fee. These were agreements with both the DOT and non-DOT including private landholders or businesses, local governments, soil/water conservation districts and others. An additional 17 agreements were in place as of September 30, 2014. This work also benefitted an additional 507 adjacent landholders where WS wildlife specialists worked on private properties adjoining DOT rights-of-way and other private property to resolve beaver damage. Agreements with private landholders may include several noncontiguous areas, all of which are identified as one agreement. Agreements with local governments and soil/water conservation districts sometimes involve numerous landholders; however, all are identified as just one agreement.

### Service Agreements



### Beavers Removed By Service Agreements

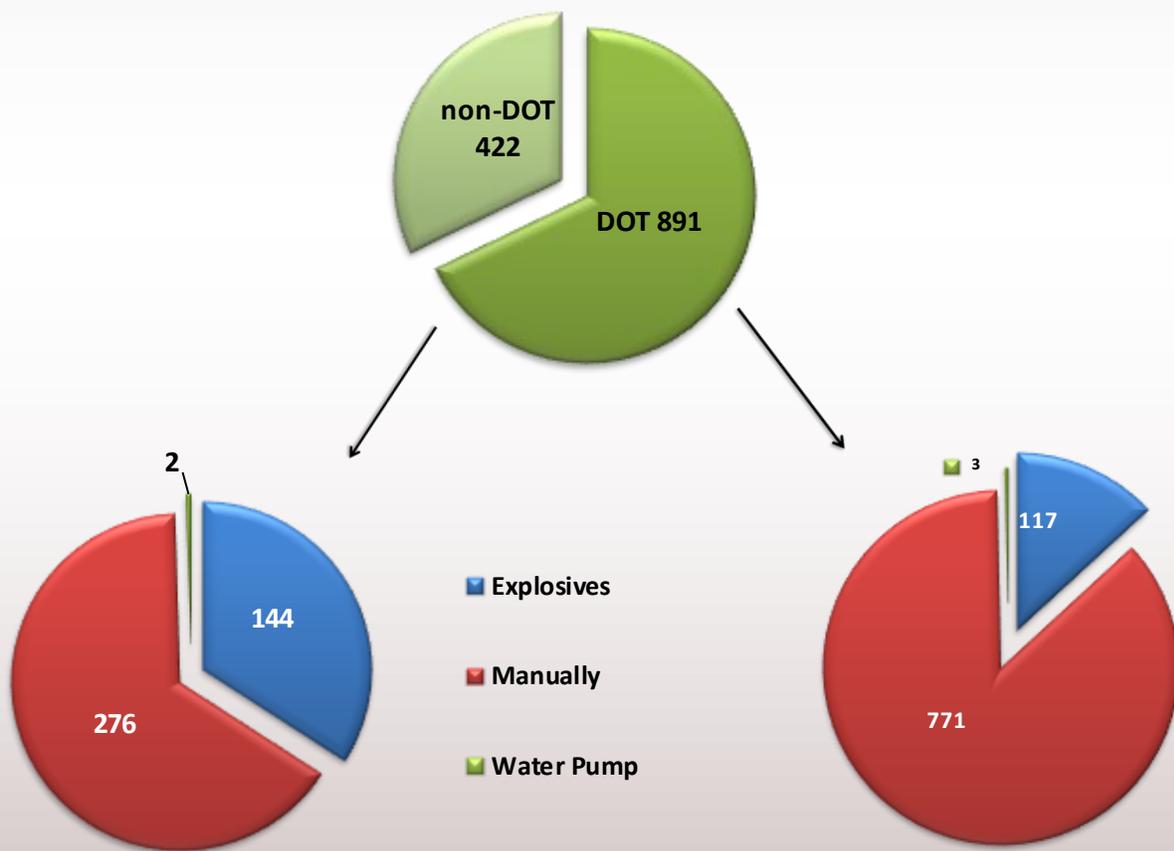


# BMAP Statistics

In FY 2014, the numbers of agreements completed, beaver removed, beaver dams removed and value of resources saved decreased compared to the previous years. This decrease was mostly due to reduction in funding and reduced number of staff years worked compared to previous years.

FY	Agreements Completed	Beaver Removed	Dams Removed	Resources Saved
2014	797	2,547	1,313	\$6,842,669

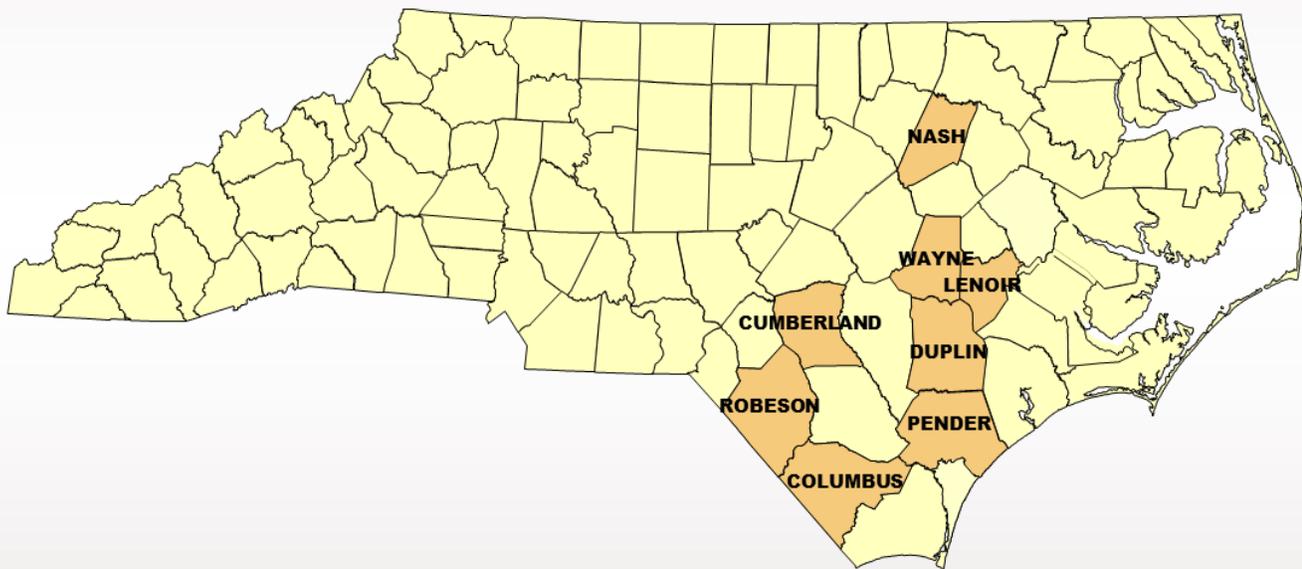
## Beaver Dams Removed



BMAP wildlife specialists used explosives, hand tools, and high pressure water pumps to remove 1,313 beaver dams, which were backing up water and flooding public roads and highways, timber, croplands, sewer and septic systems and other lands.

# Counties Paying for Beaver Damage Management Services in Addition to BMAP

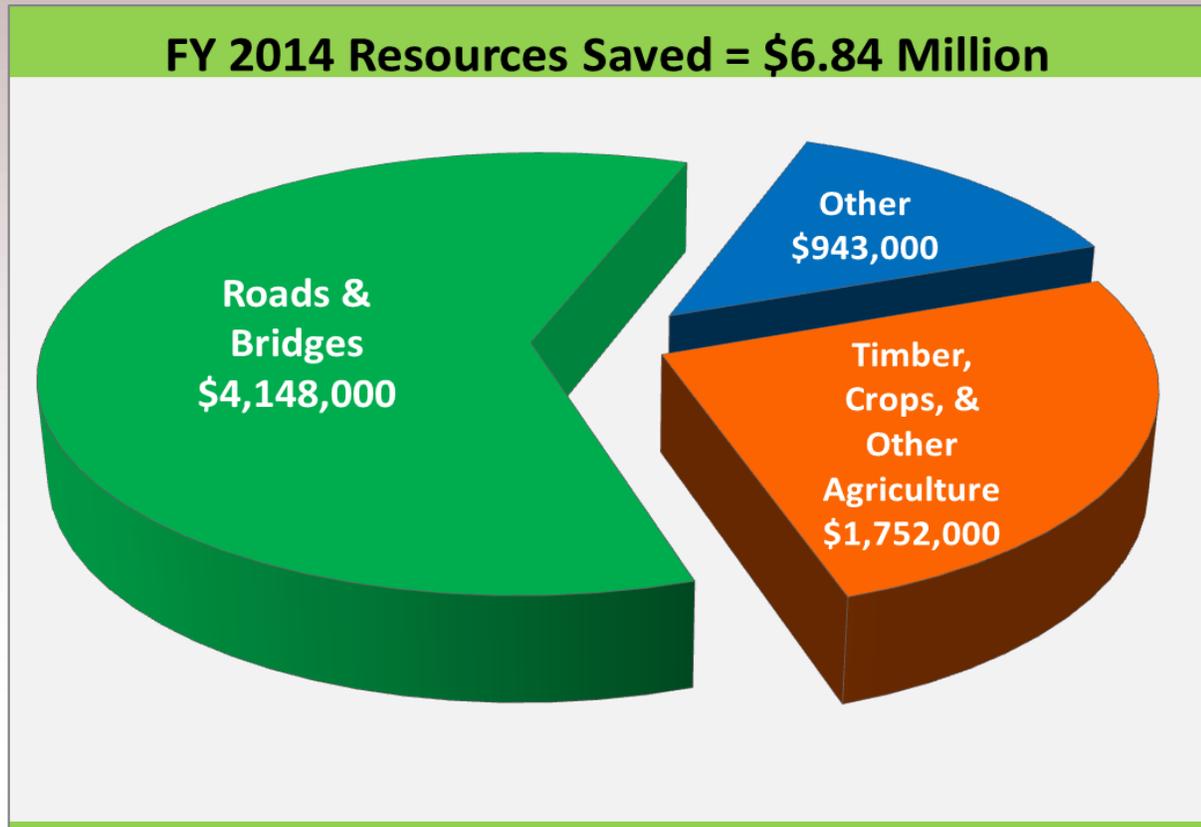
Eight BMAP-participating counties (highlighted below) requested beaver damage management services over and above those received through the BMAP. These counties paid directly for these additional services and also paid for a portion of the DOT work conducted in these counties, per BMAP guidelines. In conjunction with these agreements, a total of \$2.4 million dollars in resources was saved during FY 2014 (see table below).



FY 2014*	Agreements Completed	Beaver Removed	Dams Removed	Resources Saved
Non-DOT	150	347	216	\$1,026,621
DOT	102	416	335	\$1,380,811

\* Results above are not included in the overall BMAP data

# Damage Economics



**For every \$1 spent,  
\$6.31 in resources was saved**

In FY 2014, WS wildlife specialists and cooperators reported that BMAP services prevented the impending loss or repair expenditures of an estimated \$6.84 million in roads and bridges, timber and other agricultural resources, railroad trestles, dams and ditches, city and county sewer systems and water treatment facilities, landscape plantings, and other resources such as homes, airport runways, and golf courses. Comparing BMAP expenditures to savings, the estimated cost benefit ratio was 1 to 6.31. In other words, for every \$1.00 spent, \$6.31 in resources was saved. Also, the benefits of BMAP services reported by the DOT does not include projected future savings estimates, which can be significant. Furthermore, the cost-benefit ratio does not include the benefits of educational activities such as training individuals to address their own beaver damage problems. It does not include any state revenue generated from taxes on timber sales that otherwise would have been lost had beaver destroyed the timber.

# Damage Economics - DOT



Flooding of DOT rights-of-way and underground utility lines in Hertford County off US Hwy 13/158/45 near Winton (above) was alleviated (below) after BMAP personnel removed beaver and beaver dams. Photo credits: Dan Hesseling, USDA Wildlife Services.



# Damage Economics - Non-DOT



**Before:** Property damage and flooding of septic system near Grifton off Braxton Road in Lenoir County. Photo credit: Chris Raynor, USDA Wildlife Services.

**After:** Septic water backed up into the home but was alleviated after beaver dams were removed on March 14, 2014. Photo credit: Chris Raynor, USDA Wildlife Services.



# BMAP Funding Sources and Expenditures

The table below outlines BMAP funding sources and expenditures from October 2013 through September 2014. USDA Wildlife Services personnel worked 14.03 staff years on the BMAP. In addition, State Director Heisterberg and Assistant State Director Menke provided an estimated 1.0 staff years supporting BMAP activities. Their salaries were not charged to the BMAP program.

Expenditure Type	Expenditures (\$\$) (a) by Funding Source			Totals
	NCWRC/DOT/ Counties	USDA Wildlife Services (WS)	WS Cost Share Collections	
Personnel Costs	\$693,331	\$24,426	\$ 17,872	\$735,629
Travel & Per Diem	\$7,988	\$0	\$0	\$7,988
Vehicle Usage (fuel, maintenance, repair)	\$53,469	\$0	\$0	\$53,469
Other Services (telephone, data lines, non-vehicle repairs & maintenance, etc.)	\$3,037	\$11,654	\$0	\$14,691
Supplies and Materials (trap supplies, tools, ammo, work gear, explosives, misc.)	\$79,860	\$0	\$1,242	\$81,102
Equipment (vehicles, ATV's, canoes, misc.)	\$127,177	\$0	\$20,002	\$147,179
Indirect costs to APHIS	\$38,138	\$0	\$6,317	\$44,455
Total spent (10/1/13-9/30/14)	\$1,003,000	\$36,080	\$45,433	\$1,084,513
Amount Funded (10/1/13-9/30/14)	\$1,003,000	\$36,080	\$45,433	\$1,084,513
	(b)	(c)	(d)	
<b>BALANCE (10/1/14)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

(a) Expenditure figures are subject to adjustment.

(b) Funding sources:           NCWRC.           NCDOT    42 Counties  
                                   **\$385,000**       **\$450,000**   **\$168,000**

(c) USDA Wildlife Services contributed \$36,080 to fund the BMAP in FY 2014. Wildlife Services provided additional indirect support to administer the program that is not included in the \$36,080.

(d) BMAP cost-share collections by Wildlife Services from landowners, municipalities, and other sources. As of October 1, 2014, \$365 in outstanding landowner cost-share invoices were over 90 days past due.

# Customer Service



**Before:** The drainage canal near Birchwood Sands Mobile Home Park was blocked by a beaver dam that flooded this mobile home. Photo credit: Tim Wilson, USDA Wildlife Services.

**After:** Beaver and dams were removed resulting in another satisfied customer in Pitt County. Photo credit: Tim Wilson, USDA Wildlife Services.



# Customer Service



**Before:** Beaver had flooded the backyards of several homes in this Creedmoor subdivision in Granville County. Photo credit: Todd Menke, USDA Wildlife Services.

**After:** One homeowner had difficulty trying to sell their home until BMAP successfully resolved the flooding issues. Photo credit: Todd Menke, USDA Wildlife Services.



# Protecting Roadways and the Traveling Public



**Before:** A dammed culvert raised concerns for potential flooding at the entrance road to Granville County Central High School near Stem. It was also flooding an adjacent landowner's timber. Photo credit: Todd Menke, USDA Wildlife Services.

**After:** School officials were afraid the ball fields on the other side of the road would eventually have been flooded as well, if the beaver population was allowed to expand. Photo credit: Todd Menke, USDA Wildlife Services.



# Removing Beaver Dams



**Above and below:** Beaver dammed this culvert in Graham County completely flooding a driveway near Robbinsville. Photo credits: Ryan Williamson and Kyle Childers, USDA Wildlife Services.



# Using Explosives to Remove Beaver Dams



**Before:** Beaver had dammed the pond's overflow spillway causing a breach, which weakened the integrity of the pond dam structure. Photo credit: Todd Menke, USDA Wildlife Services.

**After:** Delayed detonation explosives were used to safely remove this beaver dam near overhead power lines and adjacent homes in a Creedmoor subdivision in Granville County. Photo credit: Todd Menke, USDA Wildlife Services.



## Educational Activities

Advice and information, or “technical assistance”, was provided to landholders statewide through on-site visits, written/telephone consultations, and educational programs and exhibits. USDA Wildlife Services distributed thousands of leaflets to landholders and the general public on how best to address beaver damage on their property. BMAP strives to educate landholders and others, about both the positive and negative aspects of beaver activity on their land so that they can make informed decisions about management options. If landholders decide to use non-lethal or lethal means to address a beaver damage problem, they are always given the option to do the work themselves with direction and training provided by the WS wildlife specialist at no cost.



**Right:** The amount of damage that beaver can cause often surprises individuals. Photo credit: Rachael Schwartz, USDA Wildlife Services.

**Left:** Airboats are being used more often as waterways become difficult to navigate with the increase in vegetation. Photo credit: Gregg Lee and Bo Benton, USDA Wildlife Services.



# FY 2015

The BMAP continues to be a popular program among landholders, counties, municipalities, businesses, and the DOT. Landholders requesting BMAP services are faced with significant losses as a result of beaver activity. The severity is evident by the value set on BMAP services. As in previous years, BMAP participants continued to show little interest in conducting damage management activities themselves. This is most likely because of a lack of ability and/or time. WS wildlife specialists will, however, continue to make concerted efforts to encourage individuals to solve their own problems through on-site training and damage management workshops.

The NCWRC conservatively estimates state beaver populations to be near 500,000 and increasing. With increased beaver populations comes increased beaver damage problems for private landholders, businesses, county and local governments, and the DOT, especially where humans and beaver live in close proximity. In 2012-2013, the NCWRC reported both recreational trappers and wildlife damage control agents trapped and removed 10,815 beaver. This is a minimum figure because, as a “nuisance species,” reporting take is not required of private trappers or landholders. Even if the combined recreational and nuisance beaver take was as much as 20,000 (4% of the estimated statewide population), this low take percentage will have little effect on keeping beaver numbers and damage in check, and populations are expected to continue to increase into the future.

<b>Estimated Funding Sources for FY 2015</b>	
<b>NCWRC</b>	<b>\$385,000</b>
<b>DOT</b>	<b>\$450,000</b>
<b>Federal</b>	<b>\$25,000</b>
<b>Counties</b>	<b>\$176,000</b>
<b>Private Cost-Share (a)</b>	<b>\$50,000</b>
<b>Total</b>	<b>\$1,086,000</b>

*(a) estimate based on FY 2014 collections*

# Obtaining BMAP Services in FY 2015

## How to Participate

All counties are eligible to participate in BMAP through an annual cost share assessment of \$4,000 per county. In FY 2015, 44 counties are in the program. Individuals residing in these counties may obtain assistance with beaver damage by contacting their county Cooperative Extension or Soil and Water Conservation District office (see below). Statewide assistance with beaver damage problems is also provided to the DOT. All requests for assistance receive an immediate response, but due to current workloads the start of direct assistance activities may vary.

## Cost Share

Individuals in participating counties pay a small cost-share fee for services. There is no charge for time spent discussing the program and signing paperwork. During this assessment the Wildlife Specialist discusses with the landholder the positive and negative impacts of beaver and recommends the best course of action. If damage management activities are recommended, time and costs are estimated and the Wildlife Specialist begins work. Landholders wishing to conduct their own work are provided individualized training at no cost. The cost-share fee for individuals in participating counties is \$20 for each visit to their property, with no charge for travel time. There is also a \$125 charge for dam removal. Wildlife Specialists average about 10 visits over a 30-day period to resolve a beaver problem. After 15 visits to a landholder's property in any one year, costs increase.

## Assistance Priorities

Requests for assistance are handled on a first-come, first-served basis with top priority given to addressing threats to public health and safety, particularly along highway rights-of-way and county-owned property. Work for individual landholders is next, followed by work for soil and water conservation districts, municipalities, corporate landholders, and others.

## Additional Information

For additional information about the BMAP, please call or write the USDA Wildlife Services at 6213-E Angus Drive, Raleigh, NC 27617, telephone: 1-866-487-3297, or the NC Wildlife Resources Commission, Division of Wildlife Management at 1751 Varsity Drive, Raleigh, NC 27606, telephone: 919-707-0050.

Bertie	252-794-5317	Halifax	252-583-3481	Pamlico	252-745-4121
Bladen	910-862-4591	Harnett	910-893-7530	Pasquotank	252-338-3954
Brunswick	910-253-2610	Henderson	828-694-5026	Pender	910-259-1235
Camden	252-338-1919 ext. 262	Hoke	910-875-3461	Perquimans	252-426-5545
Carteret	252-222-6352 (Todd)	Iredell	704-872-5061 Ext. 3	Pitt	252-902-3250
Catawba	828-465-8240	Jackson	828-586-4009	Robeson	910-671-3022
Cleveland	704-482-4365	Johnston	919-989-5380	Rutherford	828-287-4220 ext. 3
Columbus	910-642-2196 ext. 3	Lee	919-775-5624	Sampson	910-592-7161
Craven	252-633-1477	Lenoir	252-527-2191	Union	704-283-3801
Cumberland	910-321-6860	Martin	252-789-4370	Vance	252-438-8188
Duplin	910-296-2120 ext. 3	McDowell	828-652-7121 ext. 375	Warren	252-257-3640
Edgecombe	252-641-7821	Nash	252-459-9810	Washington	252-793-4561 ext. 3
Franklin	919-496-3344	New Hanover	910-798-7660	Wayne	919-731-1521
Gates	252-357-1400	Northampton	252-534-2711	Wilson	252-237-5147 ext. 3
Granville	919-603-1350	Onslow	910-455-0181		



Flooding, caused by beaver dams, was alleviated in this Hertford County driveway near Winton on February 14, 2014. Photo credits: Dan Hesselting, USDA Wildlife Services.

For more information contact USDA

Wildlife Services at 866-487-3297

-or-

North Carolina Wildlife Resources

Commission at 919-707-0050

**WS Wildlife Services**  
Protecting People  
Protecting Agriculture  
Protecting Wildlife

