



# N.C. DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

## NORTH CAROLINA FOREST SERVICE



## ANNUAL LEGISLATIVE REPORT ON WILDFIRES

October 1, 2016

Agriculture Commissioner Steve Troxler  
Assistant Commissioner Scott Bissette

Pursuant to G.S. 106-911, the North Carolina Department of Agriculture and Consumer Services, North Carolina Forest Service respectfully submits this annual report on wildfire in North Carolina for Fiscal Year 2016.

## Contents

STATUTORY REQUIREMENT .....	3
§ 106-911. Annual report on wildfires.....	3
OVERVIEW OF FIRE CONTROL.....	3
Table 1: Historical Wildfire Activity .....	4
Graph 1: Wildfire Activity/Year .....	4
SUMMARY OF ALL WILDFIRE DATA FOR FY16 .....	5
Effects of Weather .....	5
Table 2: Wildfires by Region (All Fires FY16) .....	6
Graph 2: Wildfires by Region (FY16) .....	6
Table 3: Property Protected/Damaged by Region (All Fires FY16) .....	7
Table 4: Wildfire Causes (FY16) .....	7
Graph 3: Wildfires by Cause Class (FY16) .....	8
Table 6: Top Five Counties with Most Acres Burned by Wildfire(FY16) .....	8
MAJOR OR PROJECT WILDFIRE DATA FOR FY16 .....	9
Table 7: Major or Project Fires - Dates, Locations, and Impacts (FY16) .....	10
Overtime Data .....	11
Table 8: Overtime/Compensatory Time for Major or Project Fires (FY16) .....	11
Fiscal Impacts.....	12
Table 9: Estimated Fiscal Impacts (FY16) .....	13
CONTACT INFORMATION .....	14

## **STATUTORY REQUIREMENT**

### **§ 106-911. Annual report on wildfires**

No later than October 1 of each year, beginning October 1, 2012, the Commissioner shall submit a written report on wildfires in the State to the Chairs of the House Appropriations Subcommittee on Natural and Economic Resources and the Senate Appropriations Committee on Natural and Economic Resources, the Joint Legislative Commission on Governmental Operations, and the Fiscal Research Division of the General Assembly. The report shall include the following information for all major or project wildfires during the prior fiscal year:

- (1) The date, location, and impacts (property damage and any casualties) from the wildfire.
- (2) The following data for firefighters and related support personnel involved in fighting the wildfire:
  - a. Total overtime hours worked.
  - b. Total compensation paid for overtime.
  - c. The portion of compensation paid that was reimbursed to the State.
- (3) The fiscal impact of the wildfire, including total costs, reimbursable costs, and costs incurred by the State.

## **OVERVIEW OF FIRE CONTROL**

There are more than 18 million acres of woodland in North Carolina. Wildfire is one of the greatest threats to this important and valuable natural resource. The North Carolina Forest Service (NCFS) is responsible for protecting state and privately-owned forestland from forest fires. The NCFS forest fire protection program is managed on a cooperative basis with the State's county governments. All 100 counties participate in the program. Emphasis in the fire program includes fire prevention efforts, pre-suppression activities (including extensive training of personnel and cooperators), aggressive suppression efforts on all wildfires, and law enforcement follow-up.

NCFS, local fire departments, and communities across the State are working together to prevent, prepare for, and lessen the impact of wildfires. Maintaining a well-trained, proficient forest fire control organization is very similar to maintaining a well-trained army. Fire training occurs year-round. New personnel are constantly being trained to maintain capabilities. Veteran fire fighters regularly undergo refresher training in suppression tactics, strategy, organization, and management.

A study conducted by the U.S. Forest Service and the University of Wisconsin-Madison indicated that North Carolina leads the nation in the amount of area classified as wildland-urban interface (WUI). The WUI is the area where structures and other human development meet or intermingle with undeveloped wildland, forest, or vegetative fuels. While North Carolina has the most WUI acres, it also ranks fifth in most housing units within the WUI. The interface creates great challenges for fire

managers, as nearly every fire or its associated smoke may impact homes, roads, farms, or other development.

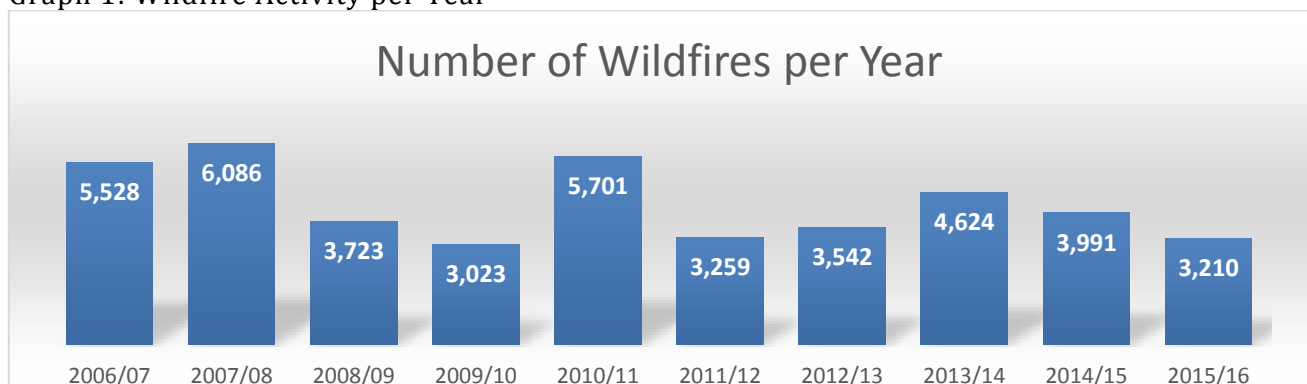
Table 1 illustrates the need to keep fires as small as possible through early detection and rapid response, which are critical to reducing fire size, protecting property, and minimizing overall loss.

From FY07-16, 264,489 acres of woodland burned in North Carolina wildfires. Of these, 156,057 acres, or 59%, were burned in fires larger than 100 acres. However, 100+ acre fires only made up 0.56% of the total fires for this 10-year period.

Table 1: Historical Wildfire Activity

FY	Fires	Acres	100+ Acre Fires	100+ Acres Burned	Percent of Total Fires	Percent of Acreage Burned on 100+ Ac. Fires
2006/07	5,528	28,331.30	42	13,862.90	0.76%	48.90%
2007/08	6,086	59,377.50	63	38,113.40	1.04%	64.20%
2008/09	3,723	14,966.20	18	5,056.00	0.48%	33.80%
2009/10	3,023	10,903.60	16	3,346.80	0.53%	30.70%
2010/11	5,701	85,857.40	36	70,165.60	0.63%	81.70%
2011/12	3,259	11,958.00	14	2,779.00	0.43%	23.20%
2012/13	3,542	11,026.30	14	3,647.00	0.40%	33.10%
2013/14	4,624	13,357.90	14	4,448.00	0.30%	33.30%
2014/15	3,991	9,902.90	9	2,647.00	0.23%	26.70%
2015/16	3,210	18,808.00	12	11,992.14	0.37%	63.76%
<b>Total</b>	<b>42,687</b>	<b>264,489.10</b>	<b>238</b>	<b>156,057.84</b>	<b>0.56%</b>	<b>59.00%</b>
Average	4,269	26,448.91	23.8	15,605.78	0.52%	43.94%

Graph 1: Wildfire Activity per Year



## SUMMARY OF ALL WILDFIRE DATA FOR FY16

From July 1, 2015 through June 30, 2016, there were 3,210 State jurisdictional wildfires<sup>1</sup> that burned on 18,808 acres. The average fire size was 5.85 acres with the largest fire being the multi-jurisdictional Whipping Creek Road fire that burned a total of 15,453 acres.

<b>Whipping Creek Fire Jurisdictions</b>	<b>Approximate Acreage</b>
Federal, Dare County Bomb Range, USAF	821
Federal, Alligator River National Wildlife Refuge, USFWS	7,692
State and Private	6,940
<b>TOTAL</b>	<b>15,453</b>

### Effects of Weather

Weather plays a very important role in determining wildfire activity and severity in North Carolina. FY16 was generally above average for temperature and precipitation when compared to the same time period going back to 1895. Weather patterns that included regular, widespread rains for the majority of the state kept both fire numbers (3,210 fires) and fire acreage (18,808 acres burned) below average.

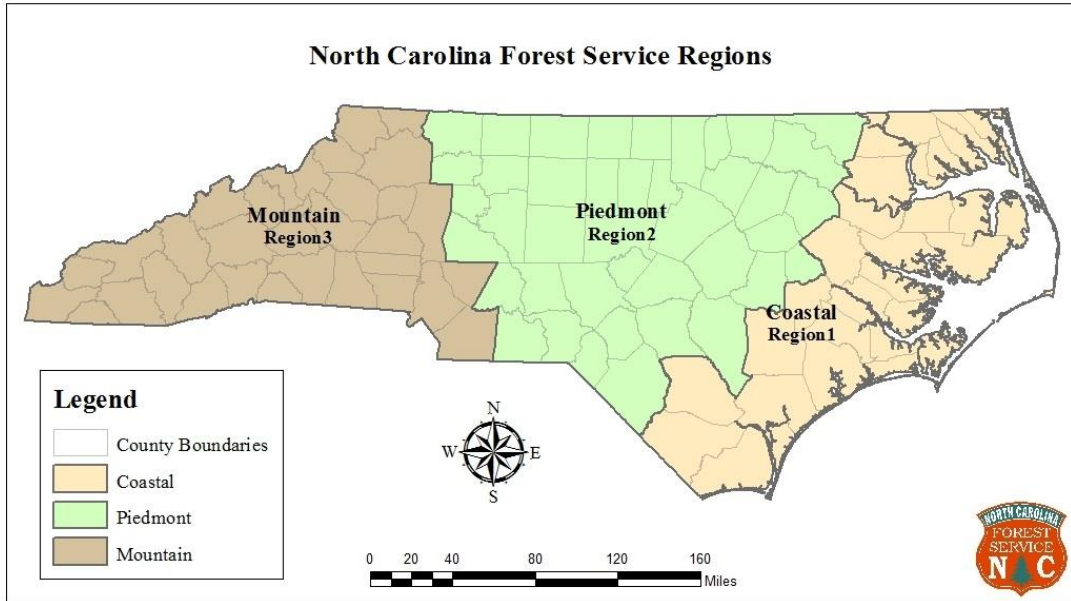
March and April 2016 had the highest level of fire activity during this 12-month period. March had the highest number of fires for the year (884 fires) and the second highest acreage (5,951 acres). Two (2) homes were destroyed by wildfire during the month of March with a total of six (6) homes lost due to wildfire during FY16. April saw the most acreage burned during the year (11,064 acres) on 691 reported fires.

The most significant effect on North Carolina weather during FY16 was El Niño. This weather pattern is the warm phase of the El Niño-Southern Oscillation (ENSO) which is a naturally occurring weather pattern in the tropical Pacific Ocean. During this weather pattern, the extended Pacific Jet Stream tends to amplify moisture for much of the southeast United States. This held true for much of the state for FY16 with many areas receiving above normal precipitation.

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<sup>1</sup> NCFS has the statutory (G.S. 106-895) requirement of prevention and control of forest fires in any and all parts of this State with the exception of Federal Government owned property. Through administrative decision, areas within municipal limits are considered beyond the jurisdiction of the Forest Service.

Tables 2 through 6 outline all FY16 wildfires occurring by Region, including estimated damages and causes.



Map created by:  
 North Carolina Forest Service

Date: 10/1/2012

Data from: North Carolina Forest Service  
 Data current as of 10/1/2012.

Table 2: Wildfires by NCFS Region (All Fires FY16)

NCFS Region	# of Wildfires	Wildfire Acres
Coastal	463	10,030.03
Piedmont	1,631	6,074.53
Mountains	1,116	2,703.44
<b>Total</b>	<b>3,210</b>	<b>18,808.00</b>

Graph 2: Wildfires by NCFS Region (FY16)

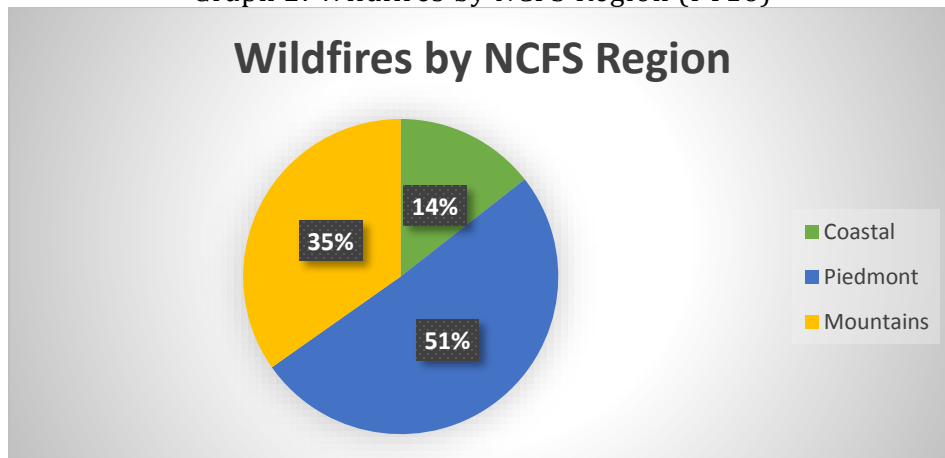


Table 3: Property Protected/Damaged by Region (All Fires FY16)

NCFS Region	Homes and Structures Protected	Est. Value of Homes and Structures Protected	Homes and Structures Damaged or Destroyed	Est. Value of Homes And Structures Damaged or Destroyed	Est. Value of Other Property Damaged (Timber, Livestock, Crops, Vehicles)
Coastal	704	\$95,317,700	30	\$118,400	\$2,842,798
Piedmont	2,755	\$280,909,735	130	\$806,700	\$891,925
Mountains	1,418	\$310,511,848	64	\$915,060	\$497,619
<b>Total</b>	<b>4,877</b>	<b>\$686,739,283</b>	<b>224</b>	<b>\$1,840,160</b>	<b>\$4,232,342</b>

Table 4: Wildfire Causes (FY16)

Wildfire Cause	# of Wildfires	Wildfire Acres
Camping	39	56.0
Children	152	146.9
Debris Burning	1237	4645.8
Fireworks	25	116.6
Incendiary	309	954.9
Lightning	47	879.2
Machine Use	349	8302.1
Miscellaneous	525	1514.5
Railroad	17	6.5
Smoking	56	20.9
Undetermined	454	2164.8
<b>Total</b>	<b>3,210</b>	<b>18,808</b>

Graph 3: Wildfires by Cause Class (FY16)

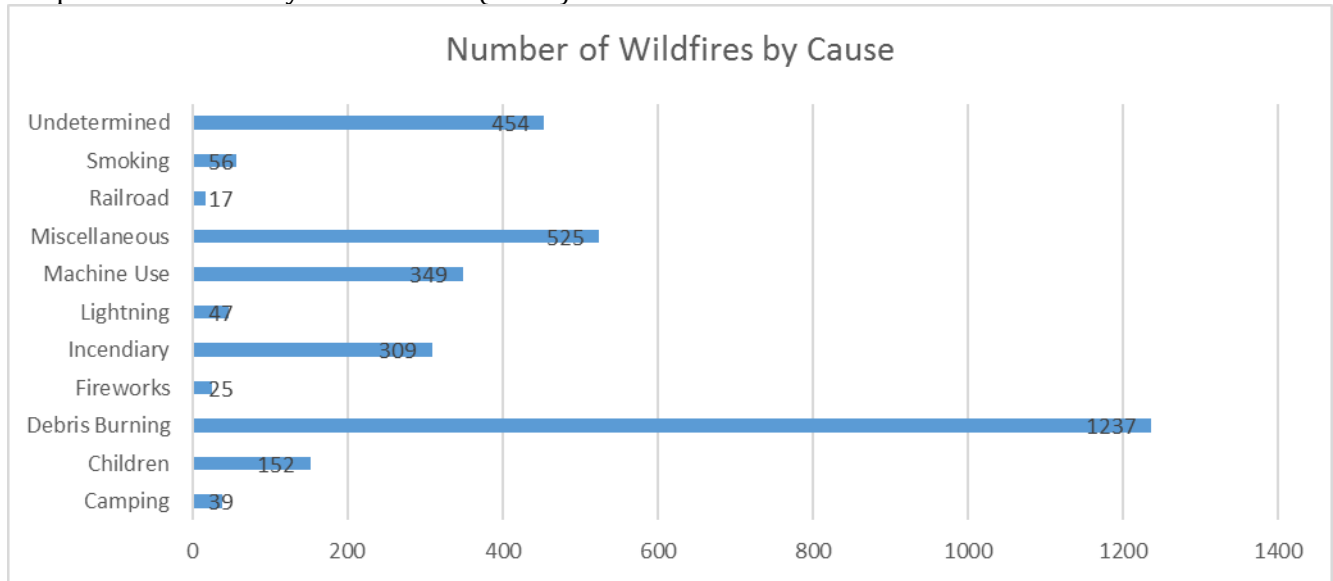


Table 5: Top Five Counties with the Most Fire Response (FY16)

County	NCFS Region	# of Wildfires	Wildfire Acres	Suppression Cost
Moore	Piedmont	149	190.8	\$60,827
Richmond	Piedmont	111	472.88	\$80,482
Robeson	Piedmont	98	818.65	\$65,823
Rutherford	Mountain	79	693.3	\$89,764
Iredell	Mountain	65	27.04	\$39,463
<b>Total for the 5 counties</b>		<b>502</b>	<b>2,203</b>	<b>\$336,358</b>
% of annual total		16%	12%	13%

Table 6: Top Five Counties with Most Acres Burned by Wildfire (FY16)

County	NCFS Region	# of Wildfires	Wildfire Acres	Suppression Cost
Hyde	Coastal	8	6938.76	\$38,272
Scotland	Piedmont	62	2130.73	\$42,301
Brunswick	Coastal	50	2082.65	\$628,667
Robeson	Piedmont	98	818.65	\$65,823
Rutherford	Mountain	79	693.3	\$89,764
<b>Total for the 5 counties</b>		<b>297</b>	<b>12,664.09</b>	<b>\$864,827</b>
% of annual total		9%	67%	33%



## MAJOR OR PROJECT WILDFIRE DATA FOR FY16

Twenty (23) major or project fires had a start date between July 1, 2015 and June 30, 2016.

NCFS classifies a major or project fire when any of the following occurs:

- A wildfire is 100 acres or more in size.
- Any inhabited or inhabitable dwelling has been destroyed regardless of value.
- Structure(s) destroyed with a value greater than \$50,000 (ex. commercial building, detached garage, farm shop).
- A firefighter fatality.
- Any significant firefighter injury that requires an emergency room visit or hospitalization.
- An Incident Management Team (Type 1, 2, or 3) is assigned to the incident.
- Central Office funding is requested.<sup>2</sup>

Table 7 shows the dates, locations, and impacts of each of the 23 major or project wildfires in FY16. It is important to note that while Table 7 shows approximately \$1,183,500 in property damage/loss to homes and structures, 205 homes and structures with an estimated

value of \$25,339,800 were protected on those same wildfires. Of the 23 fires, 12 were considered major fires due to the fire size, six were considered major due to the value of structures lost or damaged, and five fires were considered project fires due to the cost and difficulty of control. Project fires are shown in bold in Tables 7 through 9.

In addition to incidents like those included in Table 7, there are times when NCFS enters into "Severity Preparedness." This normally occurs when a geographic area has a higher fire danger than the rest of the state and has increased wildfire activity. This occurred once in FY16 in the Mountain Region. In these cases, additional resources from other portions of the state are moved to the area affected in order to give some relief to local resources and provide additional initial attack response capability.

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<sup>2</sup> When the cost of responding to an incident is projected to be more than the field unit can afford, financial support from the NCFS Raleigh Headquarters (Central Office) budget can be requested. Recently, the NCFS Central Office "fire contingency budget" has been limited to \$200,000. This has proven to be insufficient for multiple project or major fires, as shown in FY13.

FY16 Major or Project Fires

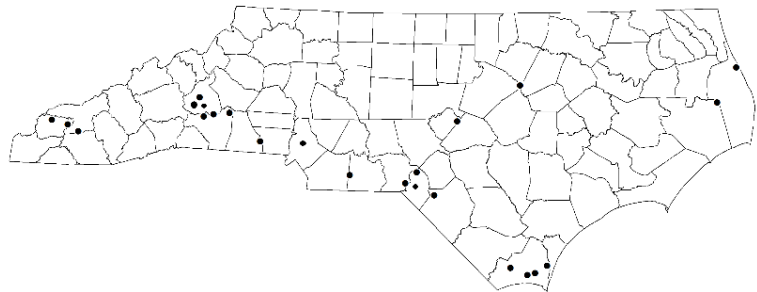


Table 7: Major or Project Fires - Dates, Locations, and Impacts (FY16)

County	Fire Name	Fire Start Date	Days to Control	Area Burned Total	Homes And Structures Damaged Or Destroyed	Estimated Value Of Homes And Structures Damaged Or Destroyed	Estimated Value Of Other Property Damaged (Timber, Livestock, Crops, Vehicles)
Brunswick	Boiling Springs Rd.	3/10/2016	2	345.88	0	\$0	\$0
Lee	Buckhorn Rd	4/9/2016	1	138.04	0	\$0	\$7,500
Brunswick	<b>Buddy-Smith Rd.</b>	4/24/2016	8	7.39	0	\$0	\$0
Rutherford	Camel's Knob	3/17/2016	2	99.82	0	\$0	\$30,000
Graham	Carringer Road	4/9/2016	1	110.28	0	\$0	\$0
Brunswick	Chapel Road	7/19/2015	4	105.7	0	\$0	\$0
Brunswick	<b>Clemmons Road</b>	4/19/2016	7	1577.65	1	\$1,500	\$2,335,500
Scotland	County Line Road	3/10/2016	1	83.68	0	\$0	\$100
Robeson	Doc Henderson Bay	8/1/2015	1	101	0	\$0	\$0
Franklin	Hagwood Road	3/17/2016	1	166.31	0	\$0	\$0
Swain	Hay House Fire	5/28/2016	1	0.62	3	\$87,000	\$5,000
McDowell	JoAnna	3/24/2016	1	0.02	1	\$40,000	\$0
Rutherford	Lower Switch Back Road	3/7/2016	1	0.73	1	\$350,000	\$10,000
Dare	Nags Head Woods	3/22/2016	3	254.03	0	\$0	\$0
Scotland	Rifle Range	7/25/2015	1	680.47	0	\$0	\$0
Graham	Shellstand	1/14/2016	1	0.58	1	\$75,000	\$0
Rutherford	<b>Tombstone</b>	3/9/2016	4	535.96	0	\$0	\$0
Richmond	Tower	3/16/2016	2	187.93	0	\$0	\$15,000
Anson	Upper White Store Road	7/18/2015	1	0.54	1	\$30,000	\$0
Hyde	<b>Whipping Creek Road</b>	4/18/2016	10	15453	0	\$0	\$0
McDowell	<b>North Peak</b>	3/23/16	4	570	0	\$0	\$0
Mecklenburg	Spy Glass	7/5/15	1	.1	12	\$600,000	\$0
Scotland	Old Wire Road	3/23/16	1	250	0	\$0	\$0
<b>TOTALS</b>			<b>59</b>	<b>20,669.73</b>	<b>20</b>	<b>\$1,183,500</b>	<b>\$2,403,100</b>

## Overtime Data

Employees record time worked on an incident with a charge object on their timesheet. Charge objects are assigned for project fires and major fires. Due to budgetary reductions, NCFS pays seasonal employees overtime (per FLSA and OSHR policy) and provides all permanent employees with compensatory time. Table 8 shows the overtime hours worked, hours paid out, reimbursements, and compensatory time for major or project fires in FY16. The Whipping Creek Road Fire was the only major/project fire that started July 1, 2015 through June 30, 2016 that was reimbursable. It was a joint fire with US Fish and Wildlife Service, Department of Defense, and the NC Forest Service.

Table 8: Overtime/Compensatory Time for Major or Project Fires (FY16)

County	Fire Name	Area Burned Total	Overtime Hours Worked	Overtime Paid	Reimbursement	Comp. Time
Brunswick	Boiling Springs Rd.	345.88	396.35	\$423.37	\$0.00	536.64
Lee	Buckhorn Rd	138.04	111.00	\$ 236.70	\$0.00	139.50
Brunswick	<b>Buddy-Smith Rd.</b>	7.39	1,637.25	\$2,356.59	\$0.00	2,078.38
Rutherford	Camel's Knob	99.82	300.96	\$177.54	\$0.00	408.61
Graham	Carringer Road	110.28	104.00	\$0.00	\$0.00	151.00
Brunswick	Chapel Road	105.7	124.70	\$0.00	\$0.00	187.05
Brunswick	<b>Clemmons Road</b>	1,577.65	2,040.10	\$2,742.74	\$0.00	2,560.78
Scotland	County Line Road	83.68	56.00	\$0.00	\$0.00	84.00
Robeson	Doc Henderson Bay	101	13.50	\$0.00	\$0.00	19.25
Franklin	Hagwood Road	166.31	45.50	\$0.00	\$0.00	68.25
Swain	Hay House Fire	0.62	0.00	\$0.00	\$0.00	0.00
McDowell	JoAnna	0.02	0.00	\$0.00	\$0.00	0.00
Rutherford	Lower Switch Back Road	0.73	7.00	\$0.00	\$0.00	10.50
Dare	Nags Head Woods	254.03	339.84	\$492.09	\$0.00	426.51
Scotland	Rifle Range	680.47	11.50	\$0.00	\$0.00	17.25
Graham	Shellstand	0.58	0.00	\$0.00	\$0.00	0.00
Rutherford	<b>Tombstone</b>	535.96	213.75	\$19.61	\$0.00	307.12
Richmond	Tower	187.93	72.00	\$373.67	\$0.00	71.50
Anson	Upper White Store Road	0.54	0.00	\$0.00	\$0.00	0.00
Hyde	<b>Whipping Creek Road</b>	15,453	9,177.60	\$240,463.79	\$240,463.79	11,587.90
McDowell	<b>North Peak</b>	570	579.67	\$213.14	\$0.00	771.92
Mecklenburg	Spy Glass	.1	0.00	\$0.00	\$0.00	0.00
Scotland	Old Wire Road	250	30.00	\$0.00	\$0.00	38.75
<b>TOTAL</b>		<b>20,669.73</b>	<b>15,260.72</b>	<b>\$247,499.24</b>	<b>\$240,463.79</b>	<b>19464.91</b>

## **Fiscal Impacts**

NCFS tracks cost information for reimbursable<sup>3</sup> and billable<sup>4</sup> fires. The Whipping Creek Road Fire was the only major/project fire that started July 1, 2015 through June 30, 2016 that was reimbursable. The Buddy-Smith Road Fire and Clemmons Road Fire, although not reimbursable, were large or difficult to control fires where expenses were covered and tracked through NCFS State level funds. This was done to minimize impact to local budgets. Actual fiscal impact data is not available for the remaining 20 fires, as they were all handled within local county budgets. However, the NCFS Fire Reporting System does track estimated costs. These estimated costs include employee salary (based on an average salary of the positions) and standard equipment use rates.

Table 9 shows the actual and estimated costs of each of the 23 major/project fires that started July 1, 2015 through June 30, 2016.

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<sup>3</sup> Reimbursable Fires – A fire where NCFS may obtain a reimbursement of funds from FEMA, U.S. Forest Service, or other agencies.

<sup>4</sup> Billable Fires – Fires where NCFS has a cost share or cooperative agreement, or provided suppression services to a Federal Agency.

Table 9: Estimated Fiscal Impacts (FY16)

County	Fire Name	Days to Control	Area Burned Total	Estimated Total Suppression Cost	Reimbursement	State Costs
Brunswick	Boiling Springs Rd.	2	345.88	\$50,196.96	\$0.00	\$50,196.96
Lee	Buckhorn Rd	1	138.04	\$32,045.28	\$0.00	\$32,045.28
Brunswick	<b>Buddy-Smith Rd.</b>	8	7.39	\$20,651.57	\$0.00	\$20,651.57
Rutherford	Camel's Knob	2	99.82	\$13,229.00	\$0.00	\$13,229.00
Graham	Carringer Road	1	110.28	\$14,355.88	\$0.00	\$14,355.88
Brunswick	Chapel Road	4	105.7	\$23,798.68	\$0.00	\$23,798.68
Brunswick	<b>Clemmons Road</b>	7	1,577.65	\$25,243.93	\$0.00	\$25,243.93
Scotland	County Line Road	1	83.68	\$8,353.28	\$0.00	\$8,353.28
Robeson	Doc Henderson Bay	1	101	\$1,616.75	\$0.00	\$1,616.75
Franklin	Hagwood Road	1	166.31	\$15,851.00	\$0.00	\$15,851.00
Swain	Hay House Fire	1	0.62	\$1,613.64	\$0.00	\$1,613.64
McDowell	JoAnna	1	0.02	\$39.60	\$0.00	\$39.60
Rutherford	Lower Switch Back Road	1	0.73	\$2,903.76	\$0.00	\$2,903.76
Dare	Nags Head Woods	3	254.03	\$59,678.00	\$0.00	\$59,678.00
Scotland	Rifle Range	1	680.47	\$608.86	\$0.00	\$608.86
Graham	Shellstand	1	0.58	\$633.50	\$0.00	\$633.50
Rutherford	Tombstone	4	535.96	\$44,850.68	\$0.00	\$44,850.68
Richmond	Tower	2	187.93	\$27,441.56	\$0.00	\$27,441.56
Anson	Upper White Store Road	1	0.54	\$318.56	\$0.00	\$318.56
Hyde	<b>Whipping Creek Road</b>	10	15,453	\$392,591.59	\$249,000.00	\$143,591.59
McDowell	North Peak	4	570	\$20,884.80	\$0.00	\$20,884.80
Mecklenburg	Spy Glass	1	.1	\$36.64	\$0.00	\$36.64
Scotland	Old Wire Road	1	250	\$390.32	\$0.00	\$390.32
<b>TOTALS</b>		<b>59</b>	<b>20,669.73</b>	<b>\$757,333.84</b>	<b>\$249,000.00</b>	<b>\$508,333.84</b>

## **CONTACT INFORMATION**

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