

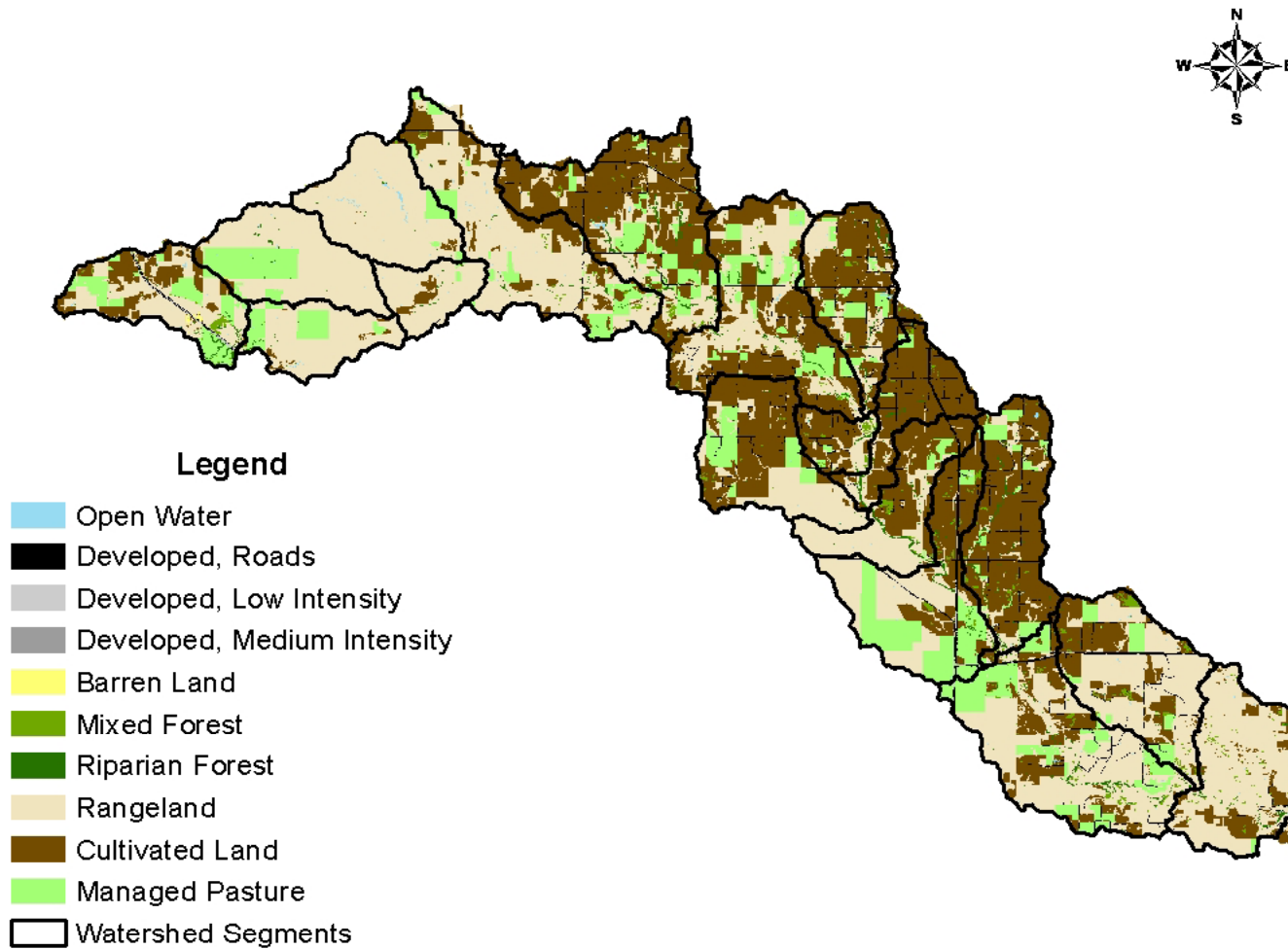
Modeling Support for Buck Creek Watershed – SELECT

10/27/2009

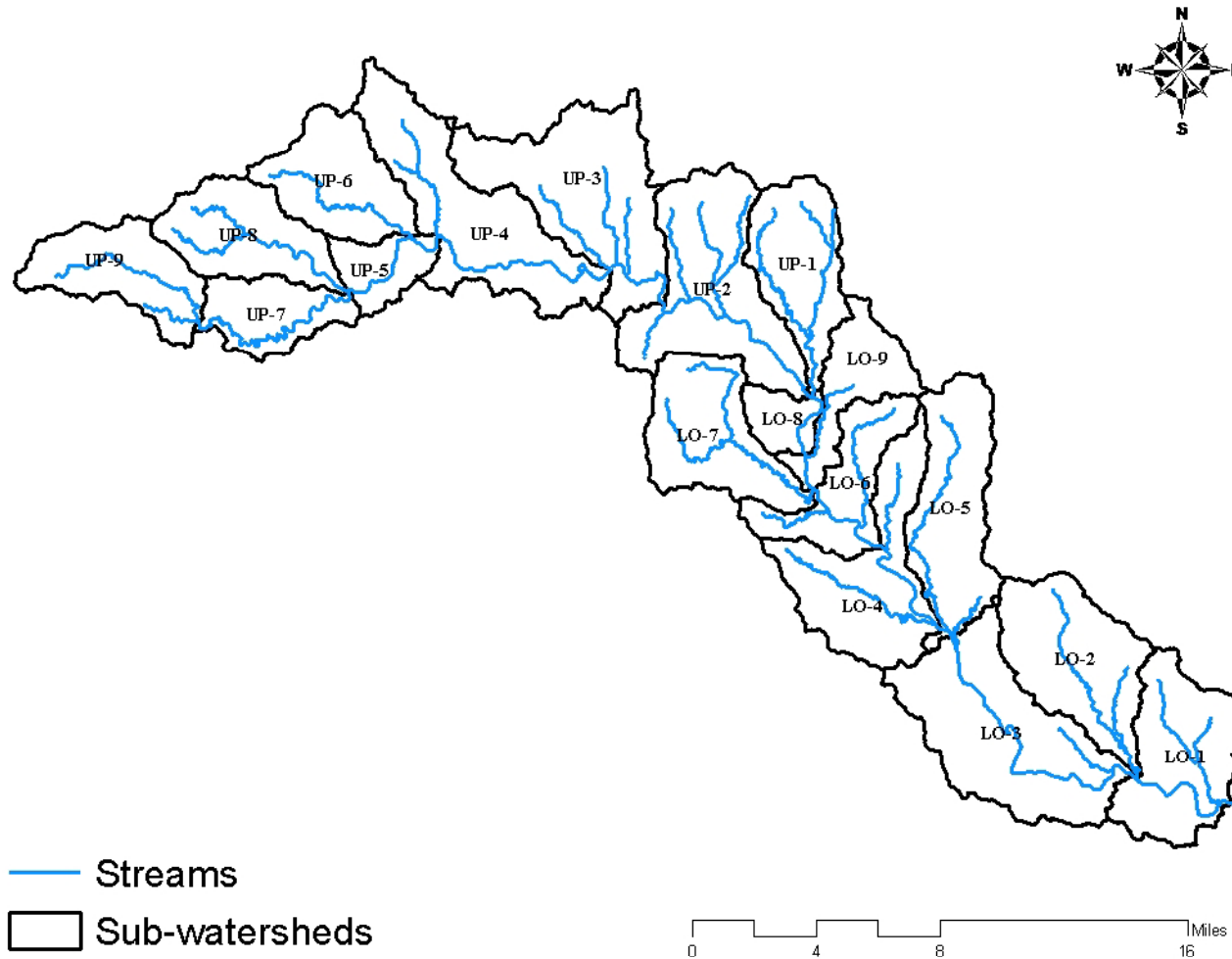
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Watershed Segments



Watershed Segments



SELECT

- Land use/ land cover data updated

 - Watersheds delineated

 - Data layers needed for SELECT
 - Land use
 - Hydrography (stream network)
 - Urban areas
 - Watershed boundary
 - County boundary
 - Soils
 - Wastewater treatment plants
 - Census

 - Population density
 - Cattle
 - Wildlife
-

Total Cattle – 6,640 head

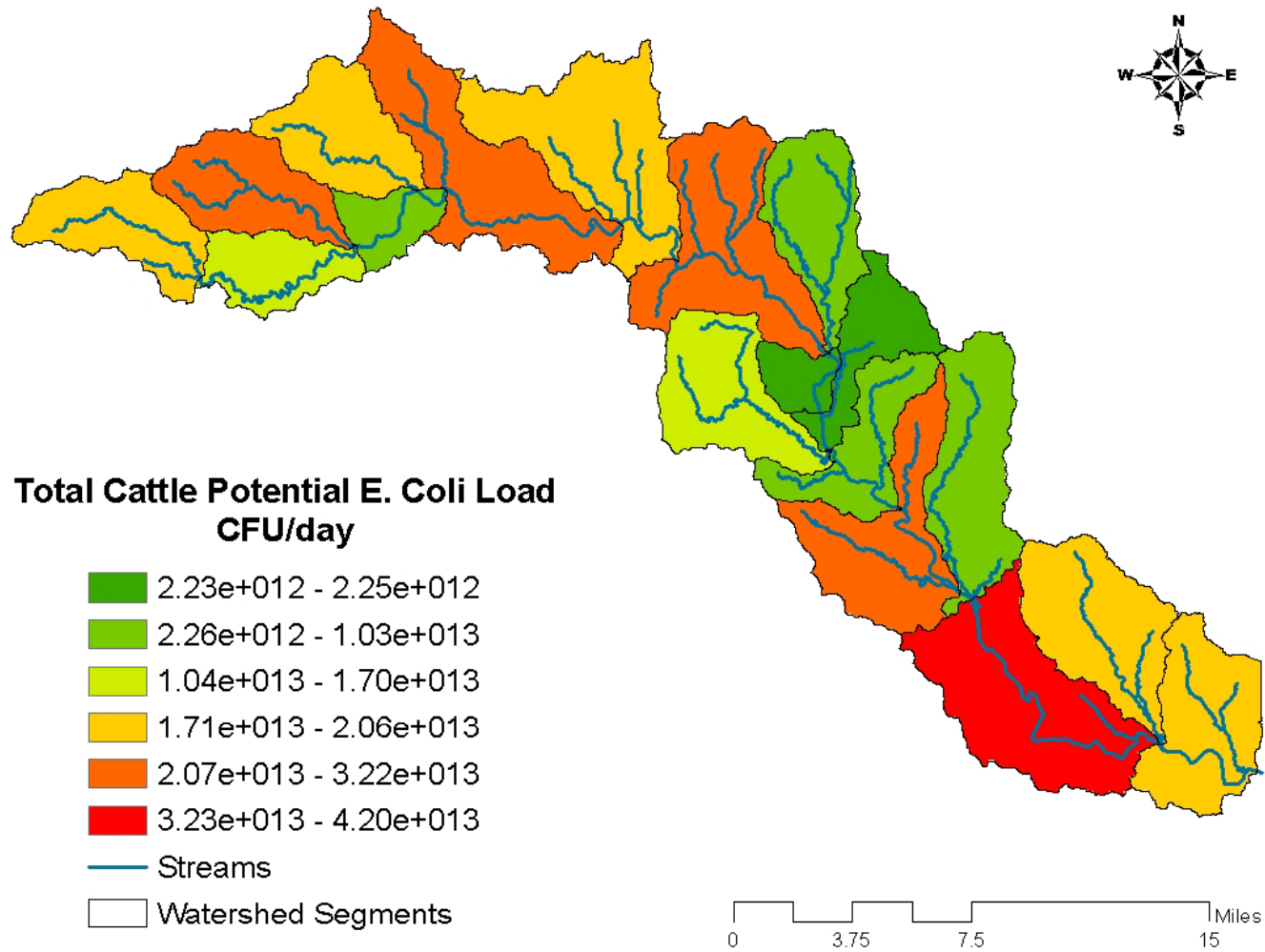
Range Cattle

- Density: 25 acres per animal
- Estimated Population: 3,664
- Land Use
 - Rangeland
 - Mixed Forest
 - Riparian Forest

Managed Pasture Cattle

- Density: 8 acres per animal
- Estimated Population: 2,976
- Land Use
 - Managed Pasture

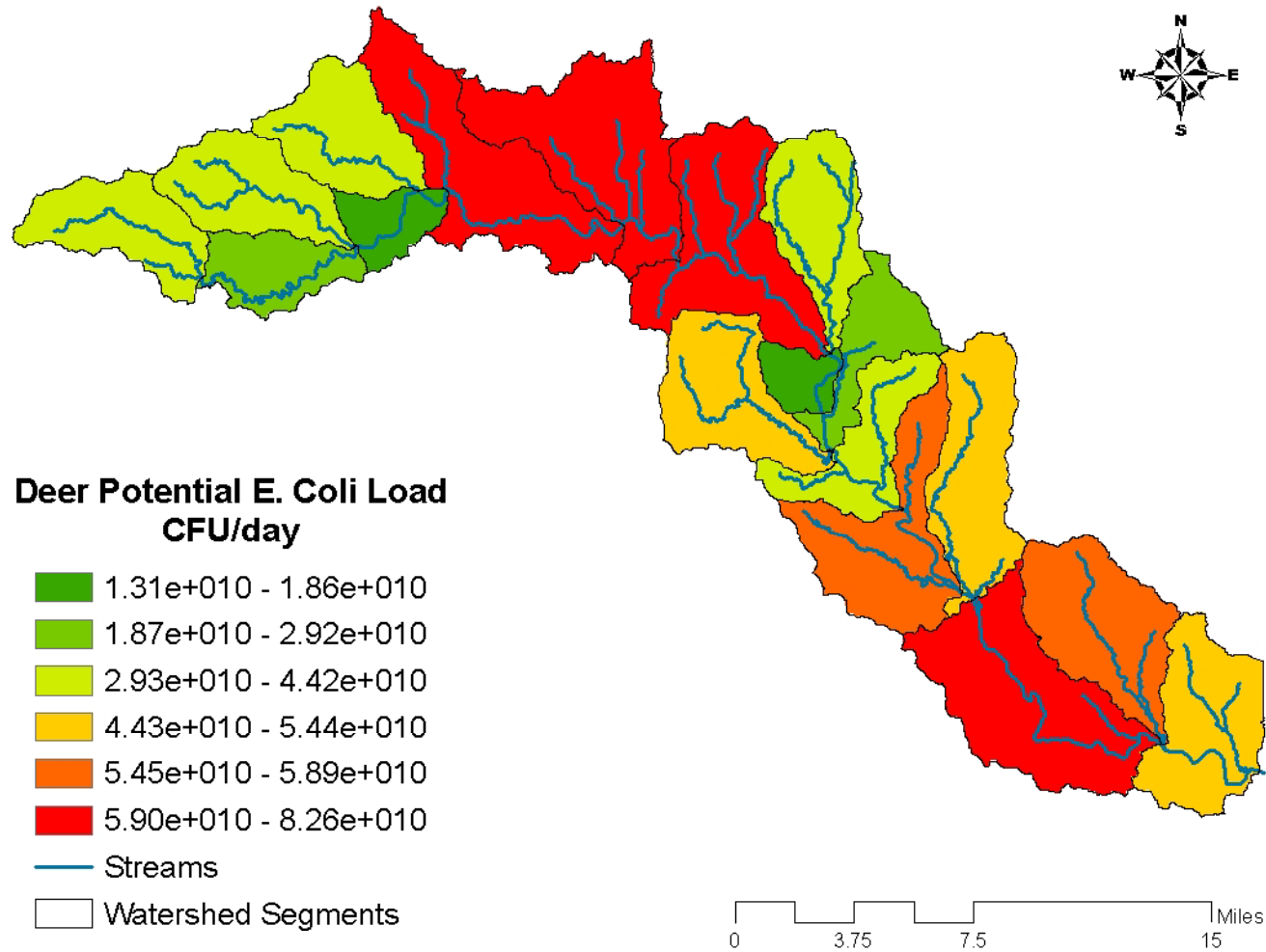
Potential *E. coli* loads from Total Cattle



Deer (white-tail & mule)

- Density: 36 acres per animal
- Estimated Population: 5,143
- Land Use
 - Rangeland
 - Managed Pasture
 - Mixed Forest
 - Riparian Forest
 - Cultivated Land
- White-Tailed deer
 - Estimated watershed population : 4,153
- Mule deer
 - Estimated watershed population : 990

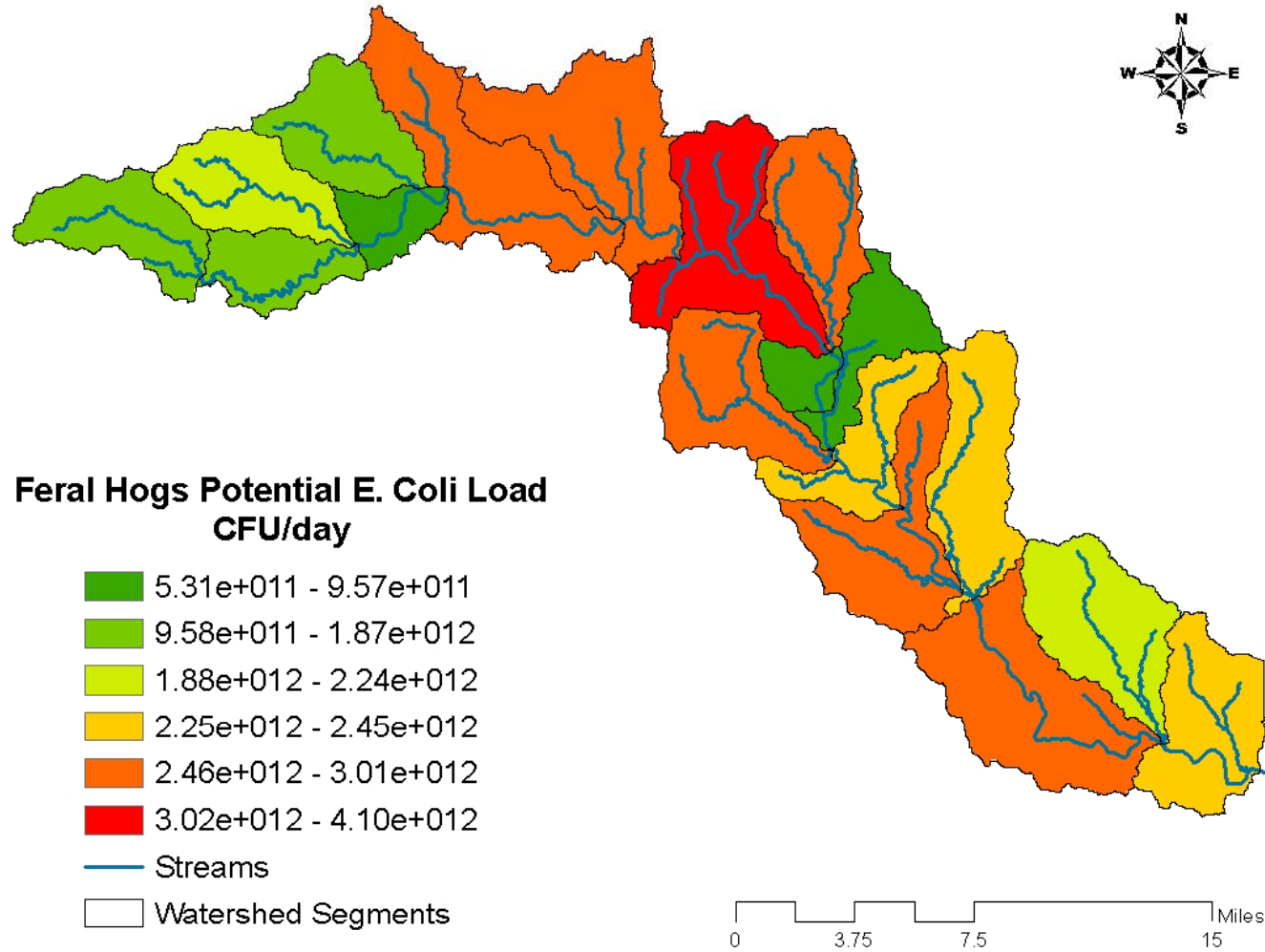
Potential *E. coli* loads from Deer



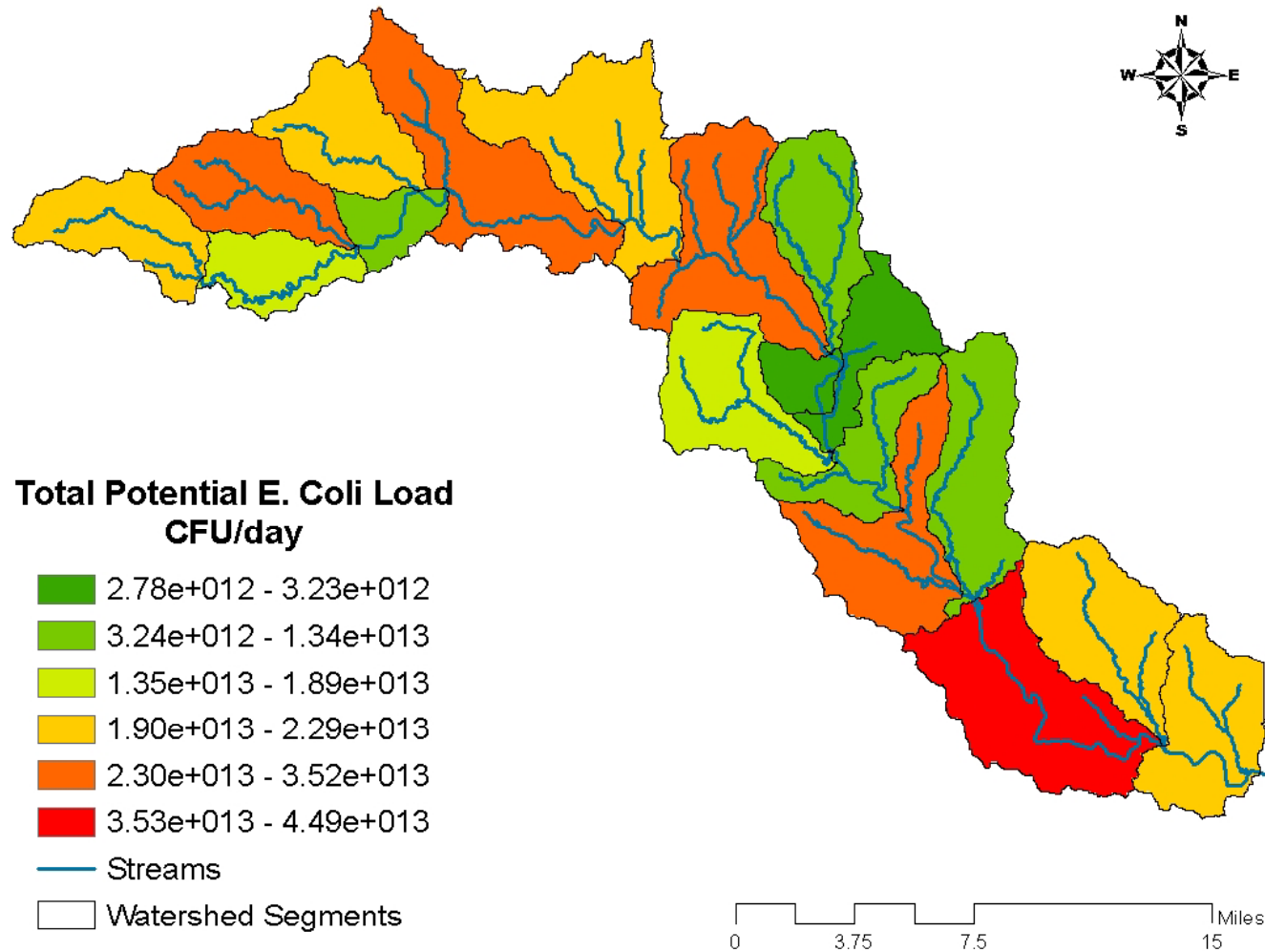
Feral Hogs

- Density: 25 acres per animal
 - Estimated Population: 7,310
 - Land Use
 - Managed Pasture
 - Rangeland
 - Cultivated Land
 - Mixed Forest
 - Riparian Forest
 - Barren Land
 - 100 meter buffer around streams
-

Potential *E. coli* loads from Feral Hogs



Total Potential Daily *E. coli* loads



Recommended Management Strategies

- Based on various inputs
 - Data collection 2004 – 2009
 - SELECT model
 - BST outcomes
 - Land Use
 - Watershed observations

Management Goal: To Address Pollutant Loading at
their Sources

Ag Management: Farming and Ranching

Table X: Sub-watershed targeted WQMP implementation schedule and interim milestones

Subwatershed	Acres		Estimated # of Farming or Grazing Operations†	Estimated Type and Number of WQMPs Needed**		Implementation Milestones for Prescribed WQMPs††			Total WQMP Implementation Costs
	Cropland	Grazing Land		Cropland	Grazing Land	Implementation Years			
						1 to 3	4 to 6	7 +	
LO-1	1,729	8,912	9	2	7			1 C / 3 G	\$60,000
LO-2	3,281	7,880	9	3	6		4 G	2 C	\$90,000
LO-3	3,338	12,990	14	3	11		7 G	2 C	\$135,000
LO-4	3,775	7,932	10	4	6	2 C / 3 G	2 C / 2 G		\$135,000
LO-5	8,748	2,047	9	7	2	4 C	2 C		\$90,000
LO-6	3,447	3,857	6	3	3	3 C / 3 G			\$90,000
LO-7	5,335	4,912	9	5	4	2 C / 2 G	2 C / 2 G		\$120,000
LO-8	1,740	754	3	2	1	2 C / 2 G	1 C		\$75,000
LO-9	5,117	676	5	4	1	4 C / 1 G	2 C		\$105,000
UP-1	5,629	2,789	7	5	2	3 C / 2 G	2 C		\$105,000
UP-2	7,228	7,615	12	6	6	2 C / 2 G	2 C / 2 G		\$120,000
UP-3	9,952	5,250	13	8	5	4 C / 4 G	2 C / 1 G		\$165,000
UP-4	3,298	11,673	13	2	11	2 G	4 G	3 G	\$135,000
UP-5	341	3,420	4	1	3			2 G	\$30,000
UP-6	181	8,807	8		8			2 G	\$30,000
UP-7	182	5,715	5		5			2 G	\$30,000
UP-8	174	8,726	8		8		6 G		\$90,000
UP-9	2,226	5,577	7	2	5		3 G	1 C	\$60,000
Watershed Totals	65,721	109,533	151	57	94	26 C / 21 G 47 Total	15 C / 31 G 46 Total	6 C / 12 G 18 Total	\$1,665,000 111 plans

† number of farming and grazing operations per subwatershed is estimated using the three county average farm size of 1243 ac. as reported by USDA NASS 2007

** C denotes a Cropland WQMP and G denotes a Grazing land WQMP

†† the actual number of recommended WQMPs per subwatershed is based on a mixture of SELECT modeling recommendations and observations from water quality monitoring data and field work

Wildlife Management

Table X: Estimated number of Wildlife Habitat Management Plans needed and implementation milestones

Subwatershed	Acres		Estimated Number of WHMPs Needed**	Implementation Milestones for Prescribed WHMPs ‡			Total WHMP Implementation Costs
	Forest	Other Habitat		Year	1 to 3	4 to 6	
LO-1	288	10,641	22			11	\$110,000
LO-2	356	11,160	24		4	8	\$120,000
LO-3	524	16,327	34		10	7	\$170,000
LO-4	321	11,707	25		8	5	\$130,000
LO-5	323	10,795	23		6	6	\$120,000
LO-6	274	7,304	16	5	5		\$100,000
LO-7	77	10,247	21	10	3		\$130,000
LO-8	180	2,494	6	4			\$40,000
LO-9	179	5,793	12	8			\$80,000
UP-1	193	8,418	18	12	6		\$180,000
UP-2	302	14,844	31	14	8		\$220,000
UP-3	539	15,202	32	16	8		\$240,000
UP-4	231	14,971	31		8	8	\$160,000
UP-5	31	3,761	8		2	2	\$40,000
UP-6	35	8,988	19			5	\$50,000
UP-7	38	5,897	12			3	\$30,000
UP-8	34	8,900	18			5	\$50,000
UP-9	364	7,803	17			5	\$50,000
Watershed Totals	4,289	175,253	369	69	68	65	\$2,020,000 202 plans

** the number of WHMPs needed is estimated at 1 per 500 acres of suitable wildlife habitat

‡ the actual number of recommended WHMPs to be implemented per subwatershed is based on SELECT model modeling recommendations and observations from water quality monitoring data and field work conducted by AgriLife Vernon

Feral Hog Management

Table X. Estimated feral hog populations per subwatershed within the larger Buck Creek watershed

Sub-watershed	Total Acres	Estimated Hog Population	Estimated Hog Removal Needed		
			Implementation Year		
			1 to 3	4 to 6	7 +
LO-1	10,982	438	110	110	110
LO-2	11,943	476	119	119	119
LO-3	17,298	690	173	173	173
LO-4	12,490	498	125	125	125
LO-5	11,546	460	115	115	115
LO-6	7,679	306	77	77	77
LO-7	10,507	419	105	105	105
LO-8	2,812	111	28	28	28
LO-9	6,299	250	63	63	63
UP-1	8,956	357	90	90	90
UP-2	15,411	615	154	154	154
UP-3	16,112	643	161	161	161
UP-4	15,328	612	153	153	153
UP-5	3,818	151	38	38	38
UP-6	9,029	360	90	90	90
UP-7	5,942	236	59	59	59
UP-8	8,938	356	89	89	89
UP-9	8,326	332	83	83	83
Sub-watershed Totals	183,416	7,310	1,832	1,832	1,832
Total Hogs To Be Removed					5,496

Education

Table X: Education and Outreach Programming, Implementation Milestones, Timeline and Costs

Education & Outreach Activity	Responsible Party	Implementation Milestones			Unit Cost	Total Cost
		1 to 3	Year 4 to 6	7+		
<i>Agricultural Programming</i>						
Crop Management Workshops	Extension & Research	3	3	3	N/A	N/A
Livestock Grazing Management Workshop	Extension	2	2	2	N/A	N/A
Nutrient Management Workshops	Extension & Research	3	3	4	N/A	N/A
Soil and Water Testing Campaign	Extension	3	3	4	\$2,500	\$25,000
<i>Domestic Waste</i>						
Hazardous Waste / Pesticide Collection	Extension & TCEQ	3	3	3	N/A	N/A
Septic System O&M Workshops	Extension	1	---	1	\$2,500	\$5,000
<i>Wildlife and Foreign Animal Programming</i>						
Feral Hog Management Workshop	Extension	2	1	1	N/A	N/A
Wildlife Management Workshops	Extension, Research & TPWD	2	2	2	N/A	N/A