

Cibolo Creek Watershed SELECT Model Results

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Estimating Potential *E. coli* Loads

Mid and Lower Cibolo Creek - Subwatersheds

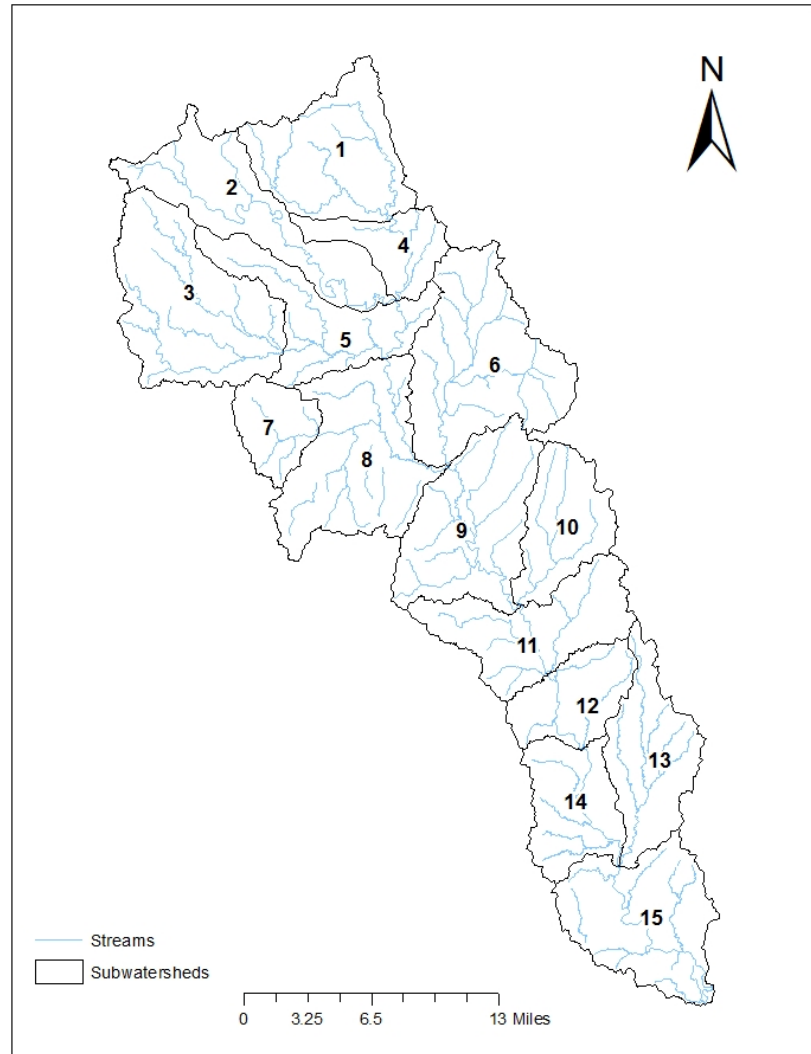
*Spatially Explicit Load Enrichment
Calculation Tool (SELECT)*

Characterizes *E. coli* sources based on
spatial factors

- Land use
- Soil
- Source population density

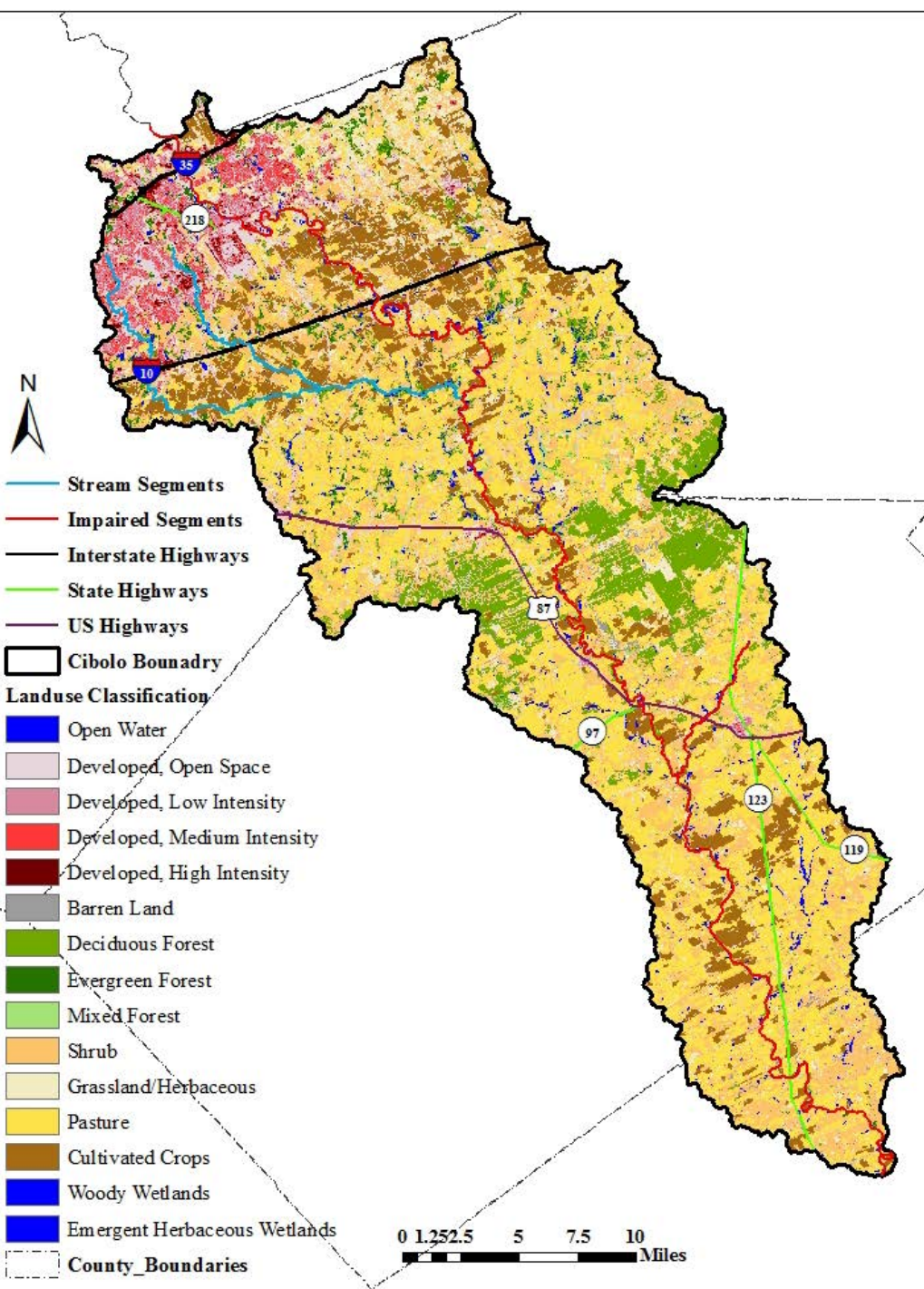
Input Data:

- Land use/land cover data updated
- Watersheds delineated
- Data layers used in SELECT
 - Land use
 - Hydrography (stream network)
 - Urban areas
 - Watershed boundary
 - County boundary
 - Soils
 - Wastewater treatment facilities
 - Census



Land Use & Land Cover

- Hay/Pasture: 29.2%
- Shrub/Scrub: 25.6%
- Developed Land: 13.9%
- Cropland: 11.2%
- Forest: 10.2%
- Herbaceous: 7.1%
- Wetlands: 1.9%
- Barren Land: 0.6 %
- Open Water 0.2%



Population Density

Livestock

Cattle

Sheep

Horses

Goat

Wildlife

Deer

Feral Hogs

Domestic

OSSF's

Pets - (Cats, Dogs)

Urban

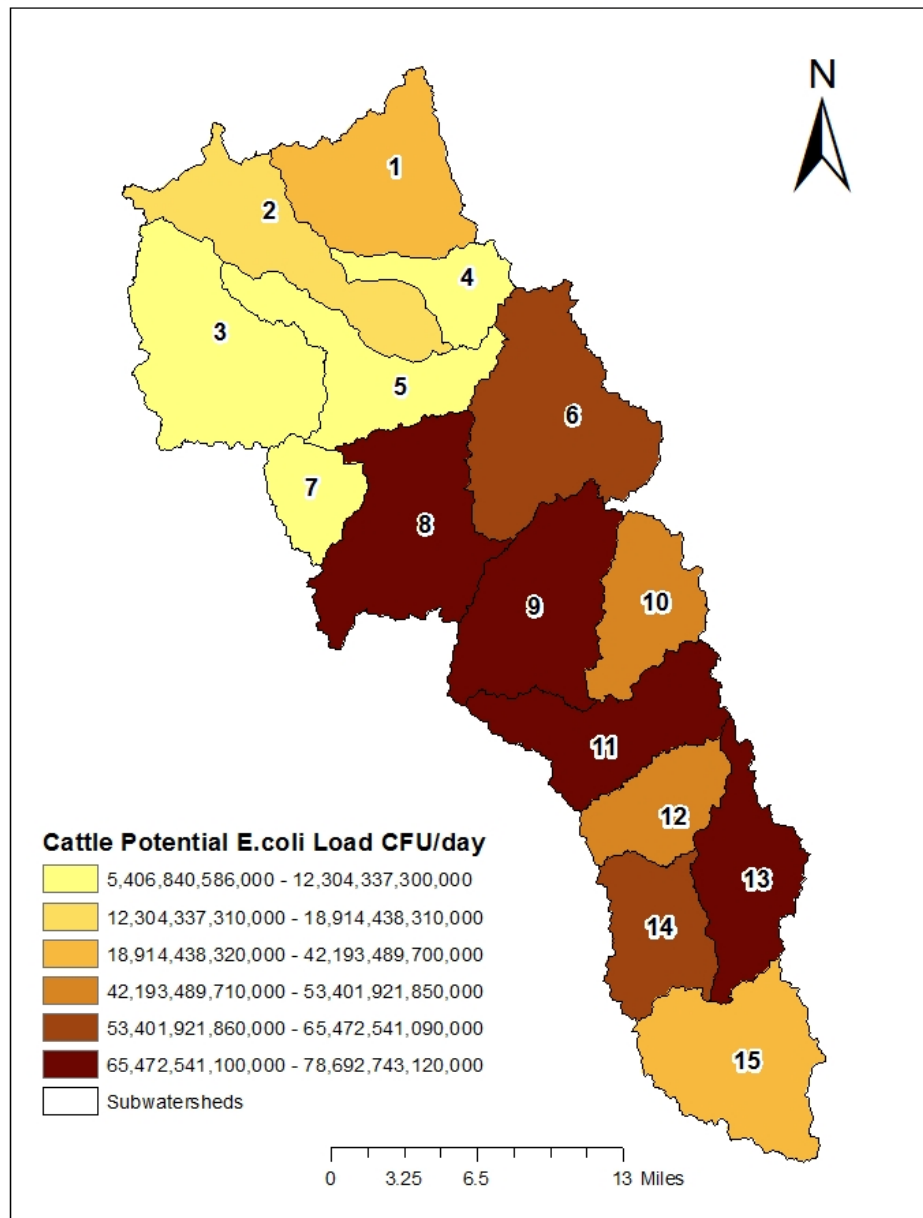
WWTPs

(Current and Future)

Potential Sources – Livestock, Wildlife, Pets

	Livestock				Wildlife			
County Name	Cattle	Horse	Goat	Sheep	Feral Hogs	Cat	Dog	Deer
BEXAR	4984	482	684	459	2029	29804	27314	3290
WILSON	16202	676	955	430	4798	4668	4293	7200
GUADALUPE	6267	564	1351	559	2798	14870	13639	4921
KARNES	3300	62	54	19	917	139	132	1197
COMAL	34	3	27	11	34	109	102	140
TOTAL	30787	1787	3071	1478	10576	49590	45480	16748
Pets per Household						0.63	0.58	

Cattle Potential E.coli Load CFU/day



E. coli Loads: Cattle

Estimated Population: 30,787

Land Use:

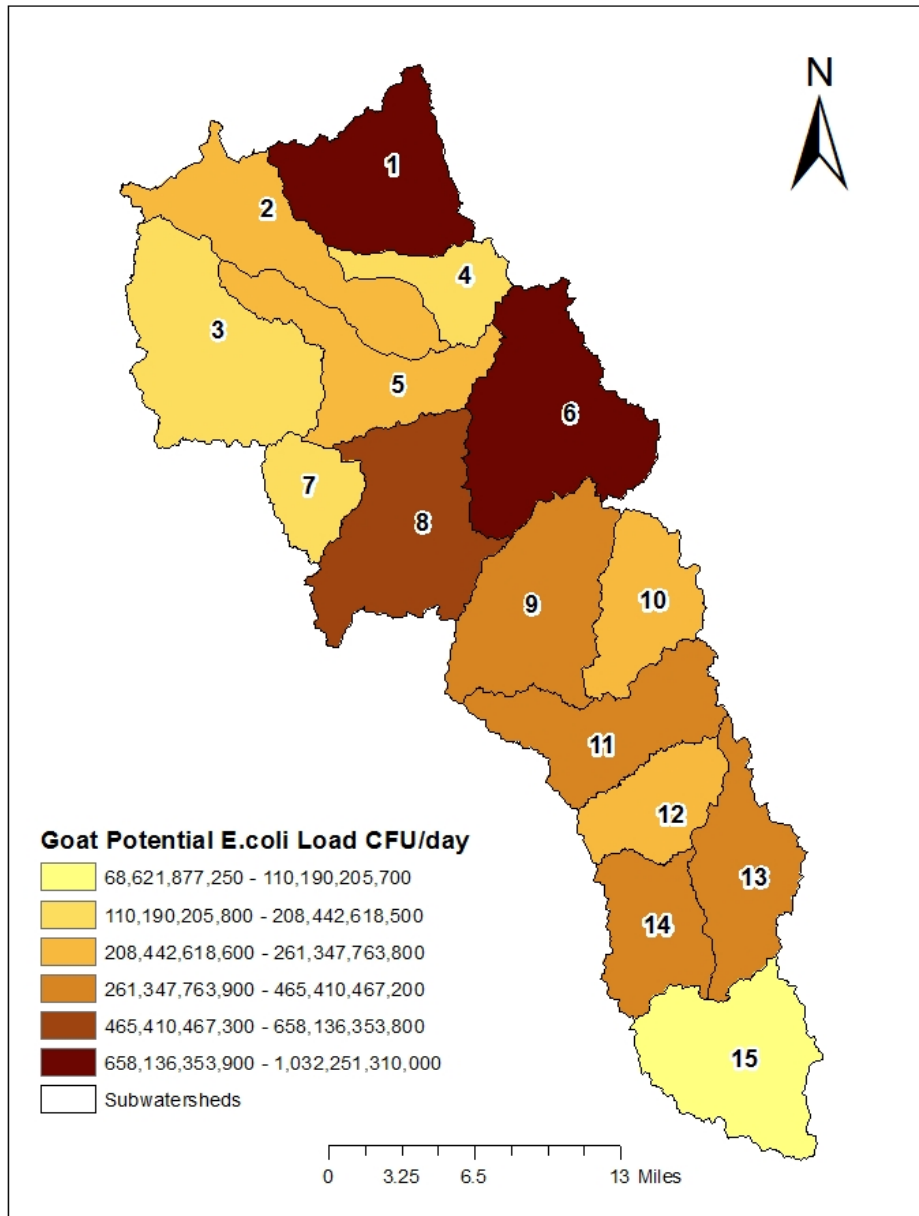
Rangeland (shrub/scrub, herbaceous)

Managed Pasture/Hay

E. coli Load

1×10^{11} CFU/animal/day

Goat Potential E.coli Load CFU/day



E. coli Loads: Goats

Estimated Population: 3,071

Land Use:

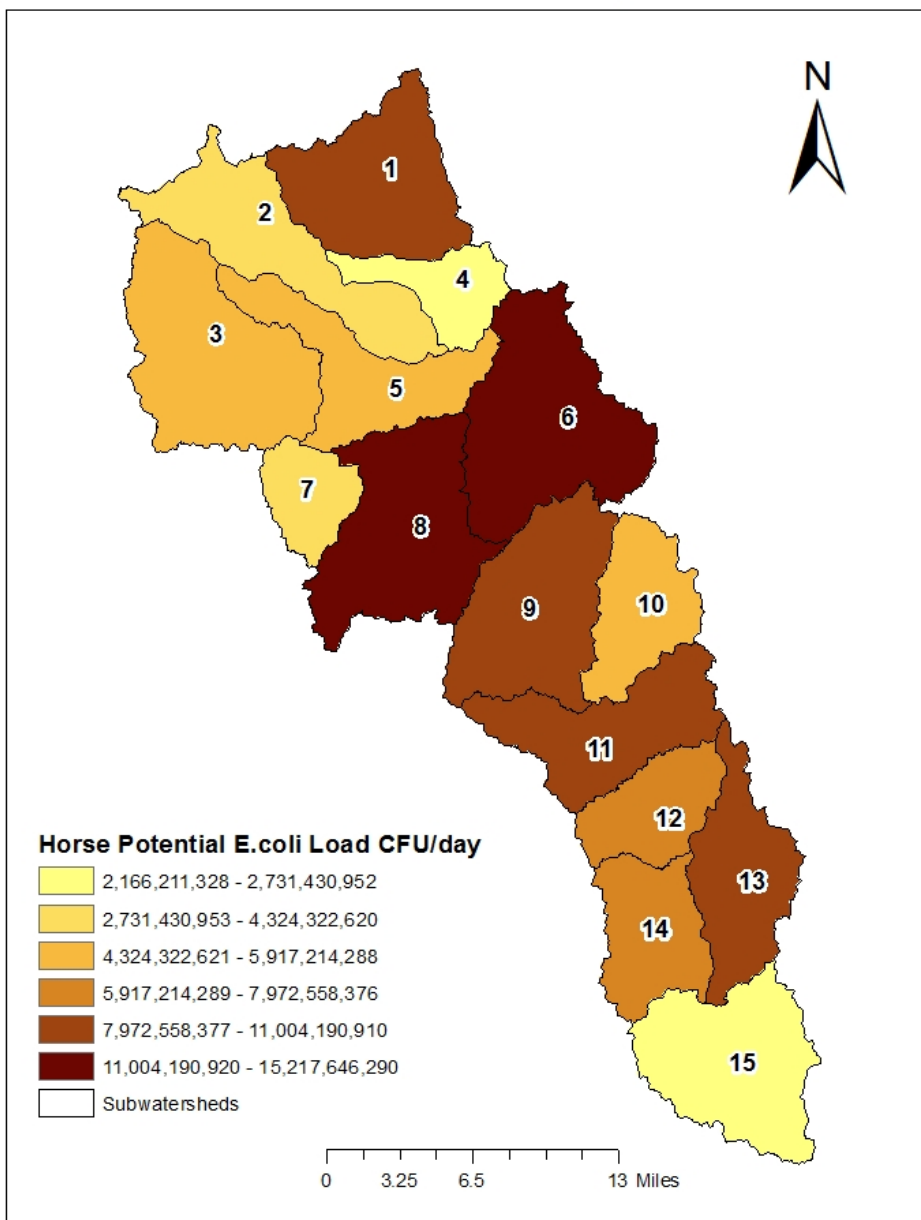
Rangeland (shrub/scrub, herbaceous)

Managed Pasture/Hay

E. coli Load

1.2×10^{10} CFU/animal/day

Horse Potential E.coli Load CFU/day



E. coli Loads: Horses

Estimated Population: 1,787

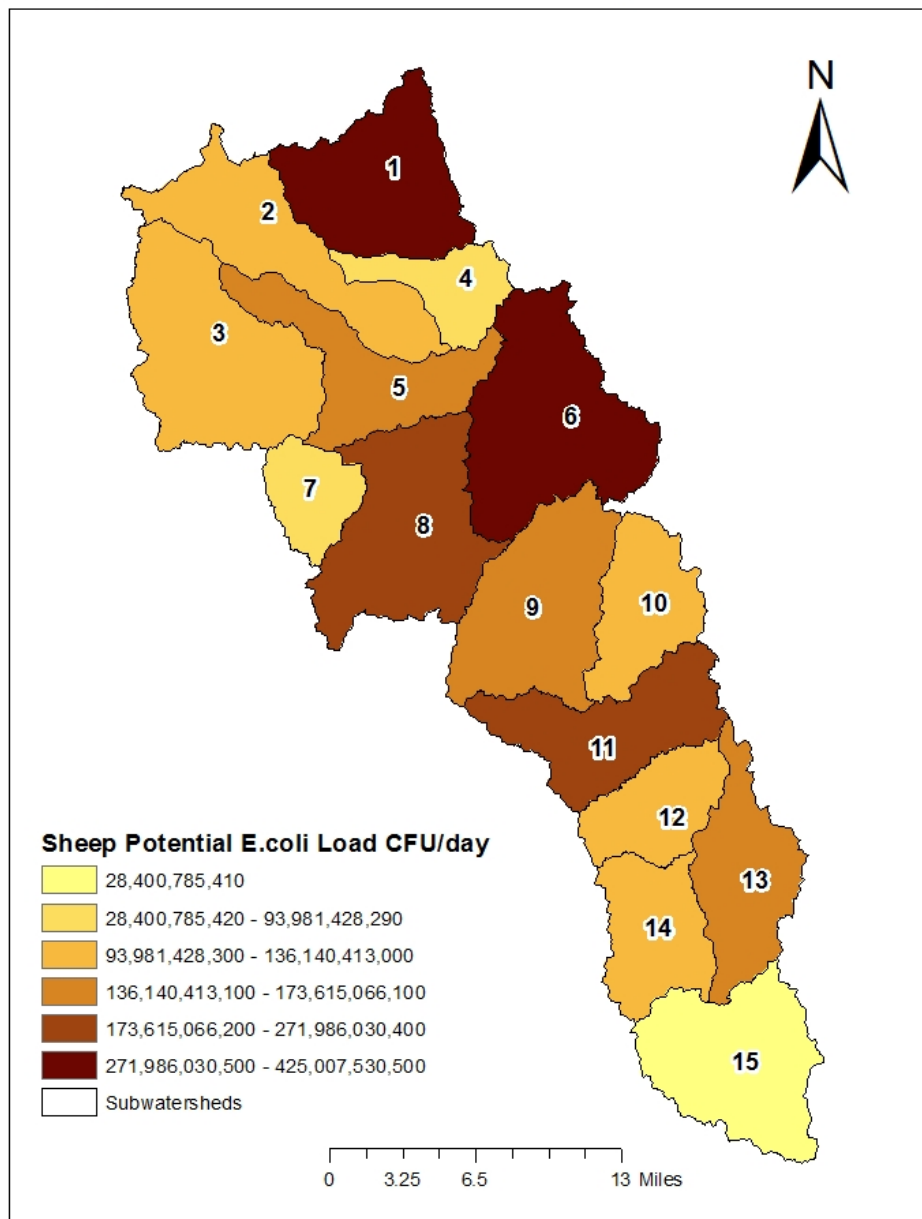
Land Use:

Rangeland (shrub/scrub, herbaceous)
Managed Pasture/Hay

E. coli Load

4.2×10^8 CFU/animal/day

Sheep Potential E.coli Load CFU/day



E. coli Loads: Sheep

Estimated Population: 1,478

Land Use:

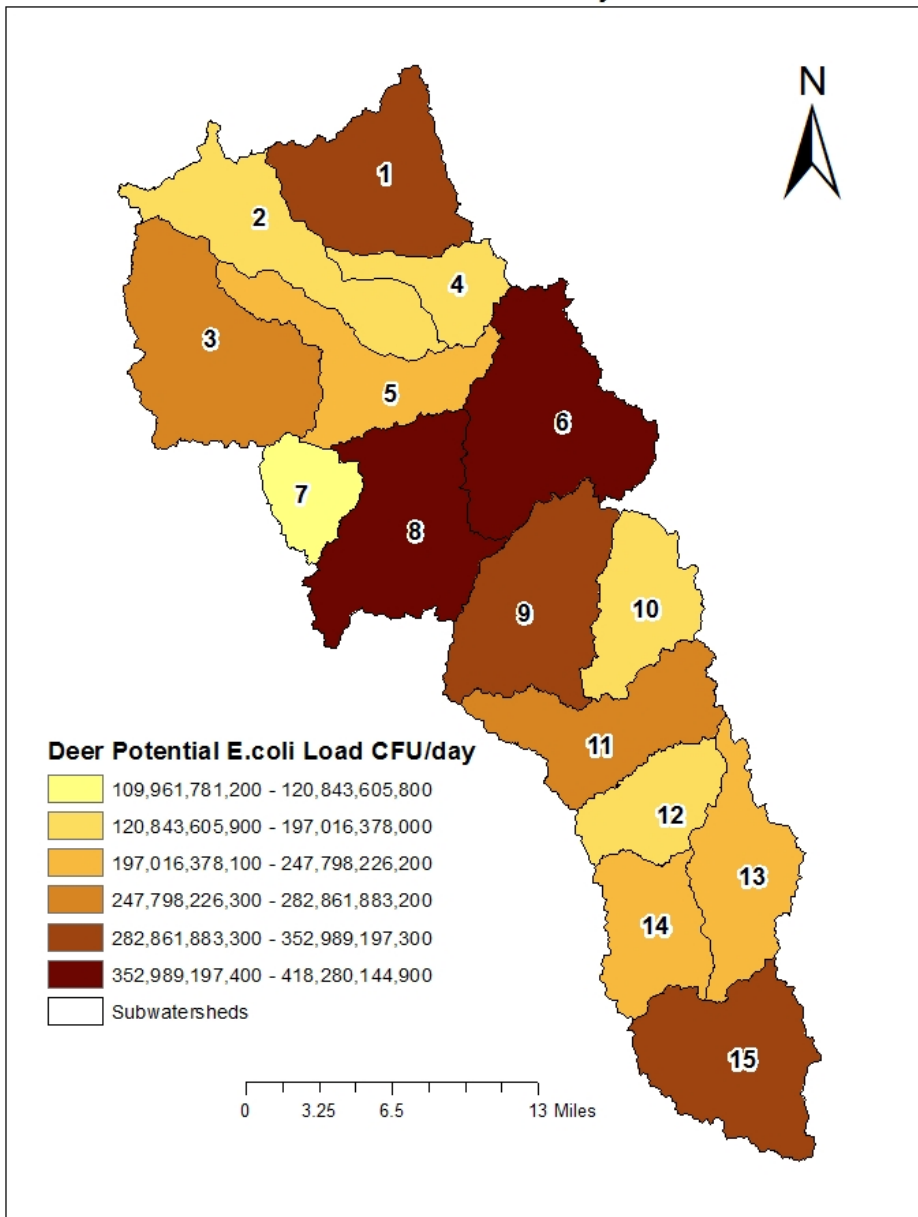
Rangeland (shrub/scrub, herbaceous)

Managed Pasture/Hay

E. coli Load

1.2×10^{10} CFU/animal/day

Deer Potential E.coli Load CFU/day



E. coli Loads: Deer

Estimated Population: 16,748

Land Use:

Rangeland (shrub/scrub, herbaceous)

Managed Pasture/Hay

Cropland

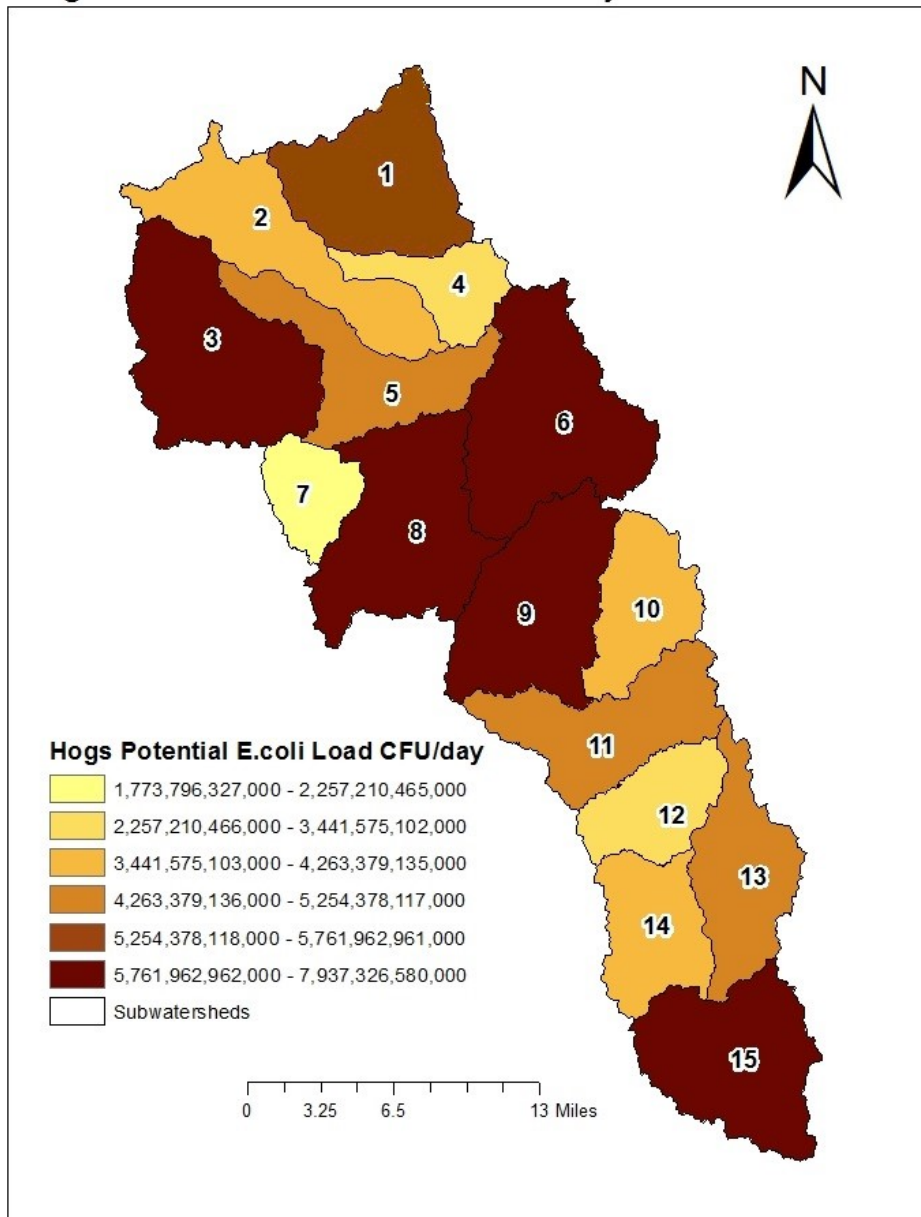
Forests (deciduous, evergreen, mixed)

Wetland Areas

E. coli Load

3.5×10^8 CFU/animal/day

Hogs Potential E.coli Load CFU/day



E. coli Loads: Feral Hogs

Estimated Population: 10,576

Land Use:

Rangeland (shrub/scrub, herbaceous)

Managed Pasture/Hay

Cropland

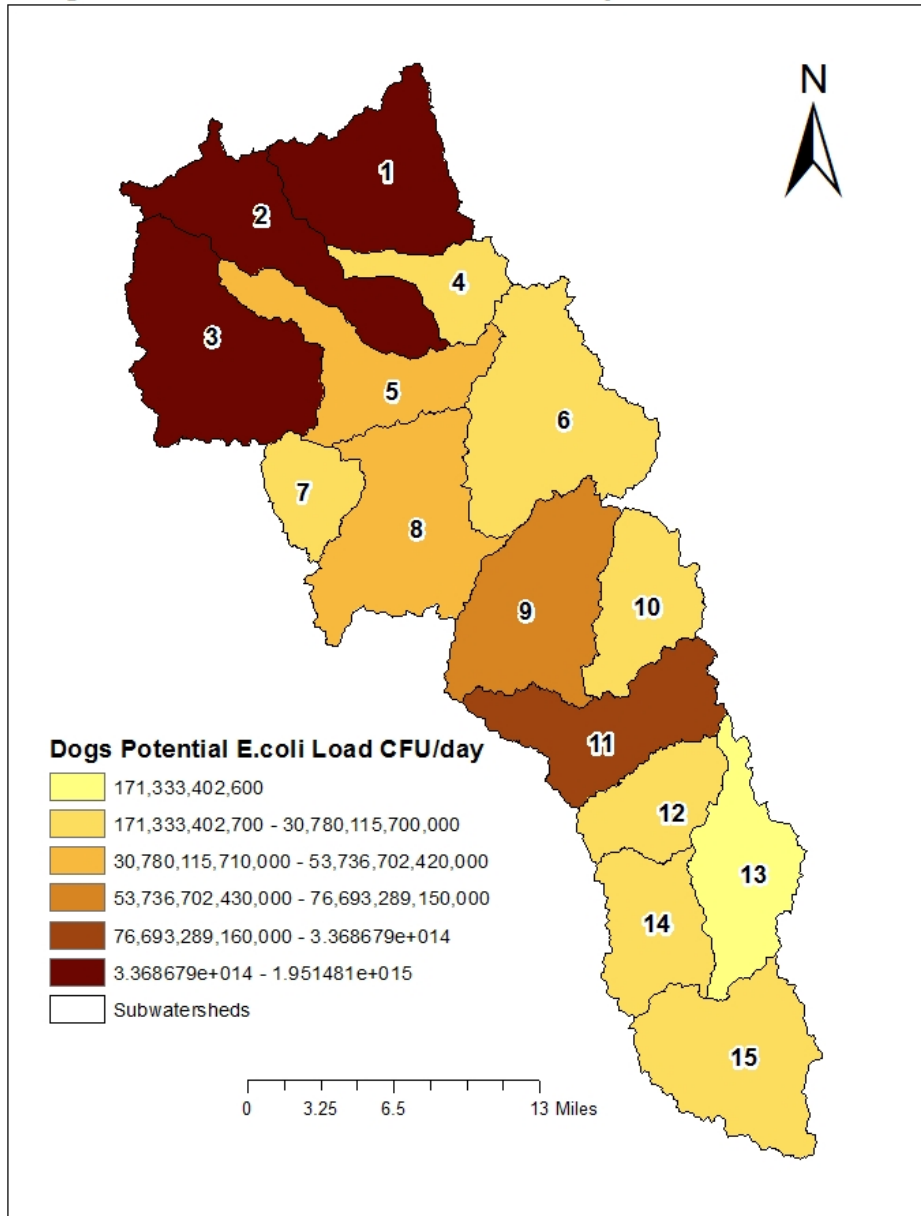
Forests (deciduous, evergreen, mixed)

Wetland Areas

E. coli Load

1.1×10^{10} CFU/animal/day

Dogs Potential E.coli Load CFU/day



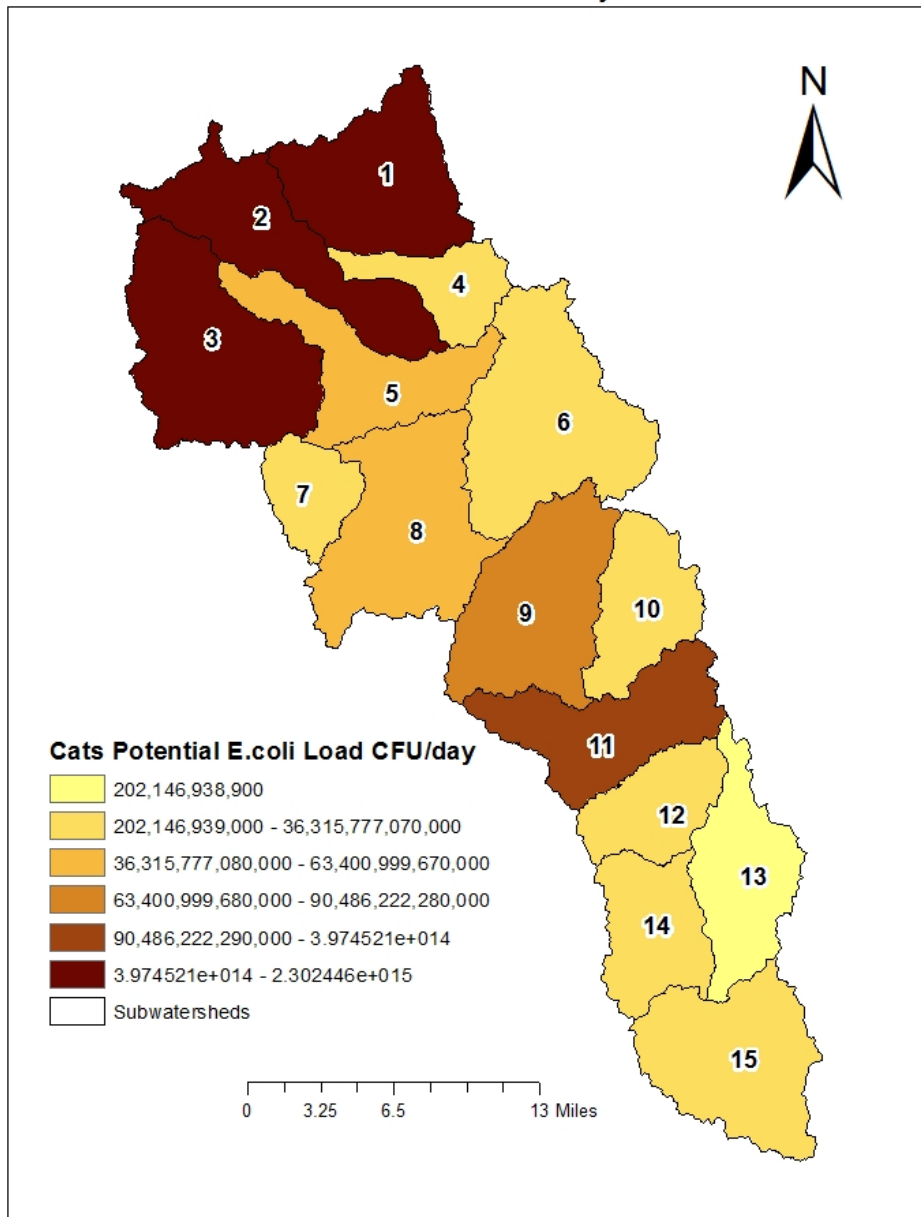
E. coli Loads: Dogs

Estimated Population: 45,480

Assumed 0.58 dogs per household

E. coli Load
 5.0×10^9 CFU/animal/day

Cats Potential E.coli Load CFU/day



E. coli Loads: Cats

Estimated Population: 49,590

Assumed 0.638 dogs per household

E. coli Load
 5.0×10^9 CFU/animal/day

OSSF Potential E. coli Load CFU/day

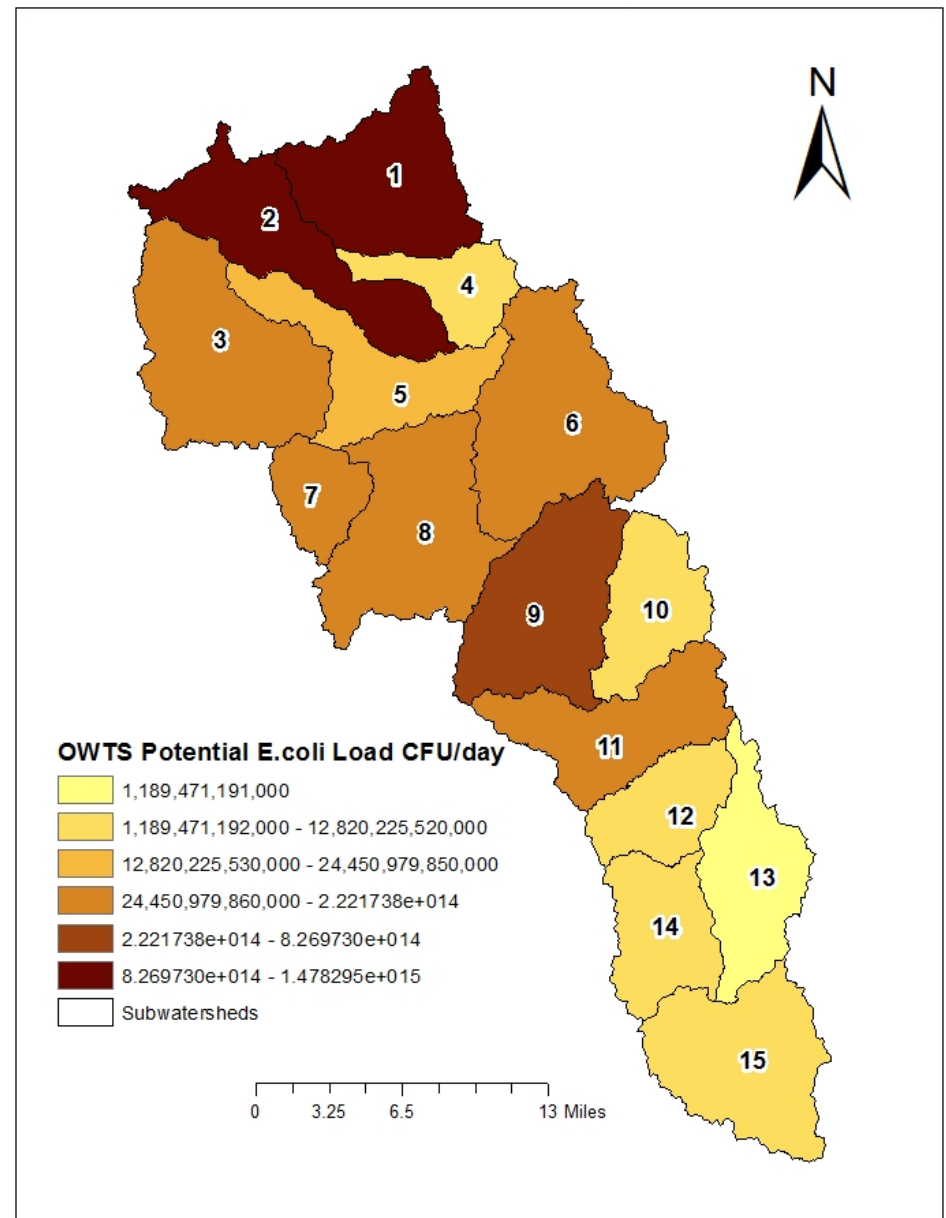
E. coli Loads: OSSFs

Estimated Population: 17,340

Based on estimated house count in rural
areas

E. coli Load

2.65×10^{10} CFU/person/day



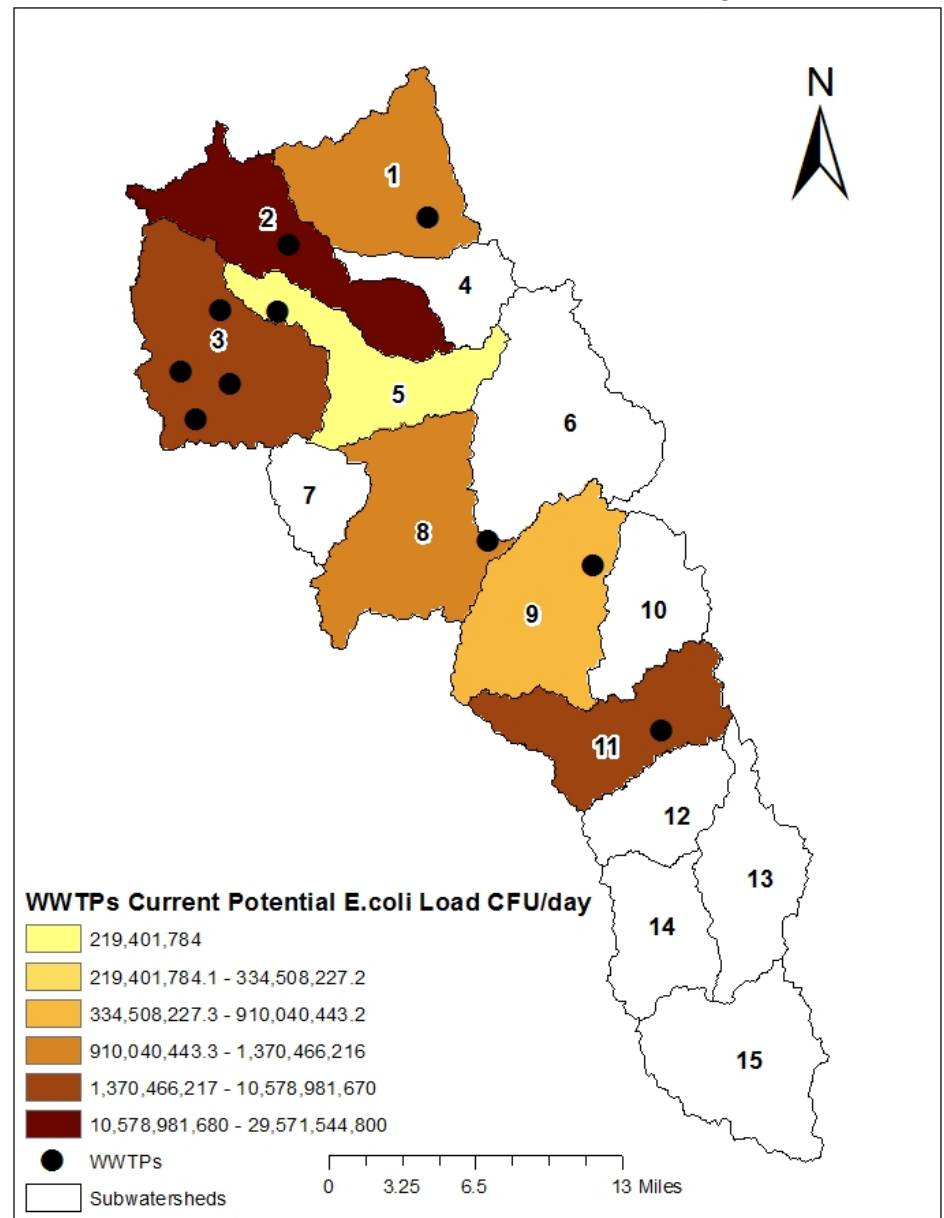
***E. coli* Loads: WWTPs Current**

Estimated Population: 10 permitted and
active WWTPs

Used recent reported discharge volume

E. coli Load
126 cfu/100 mL

WWTPs Potential *E.coli* Loads CFU/day



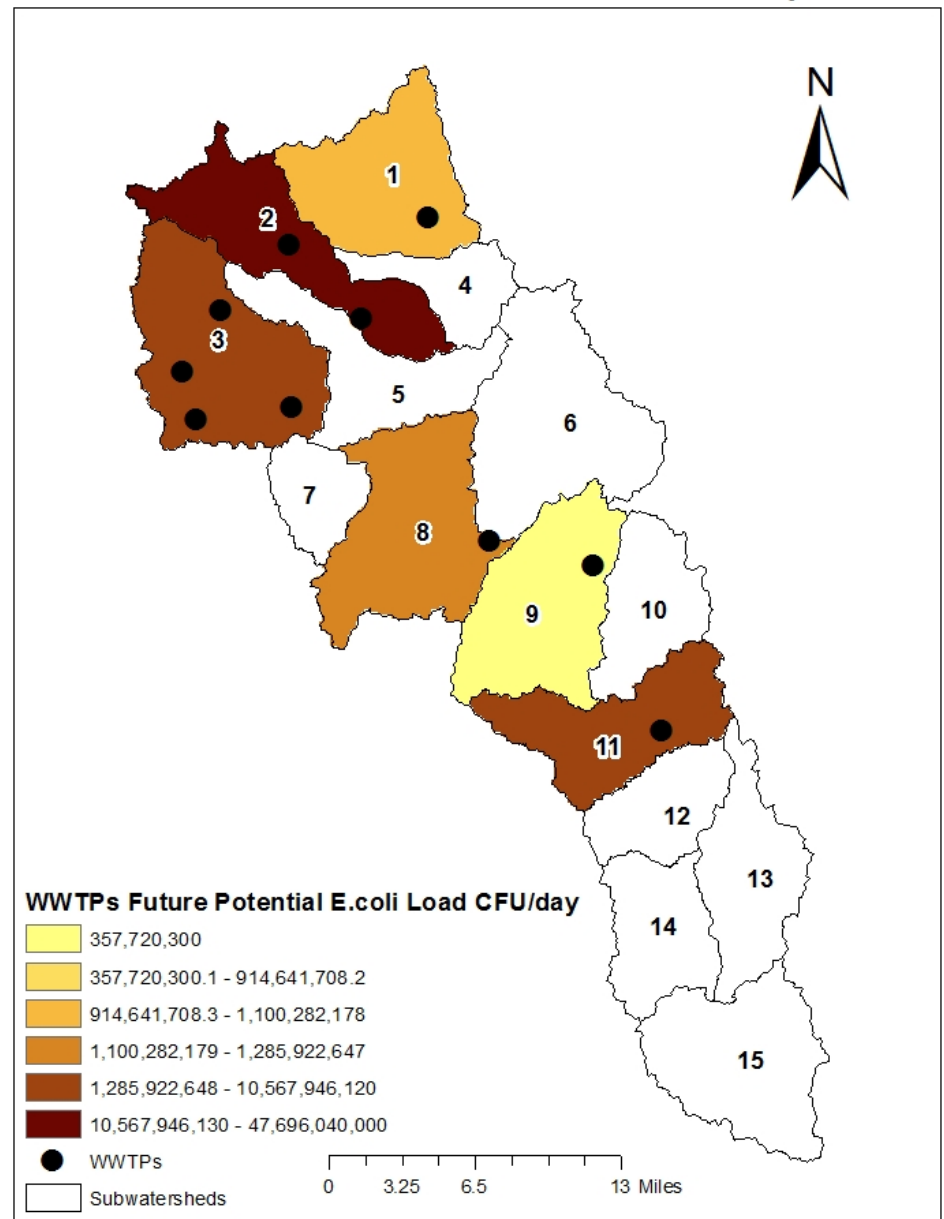
WWTPs Future Potential E.coli Loads CFU/day

E. coli Loads: WWTPs Future

Estimated Population: 10 permitted and
active or planned future WWTPs

Used recently reported discharge volume
and designed discharge volume

E. coli Load
120 cfu/100 mL



Total Potential E.coli Load CFU/day

Combination of all modeled sources:

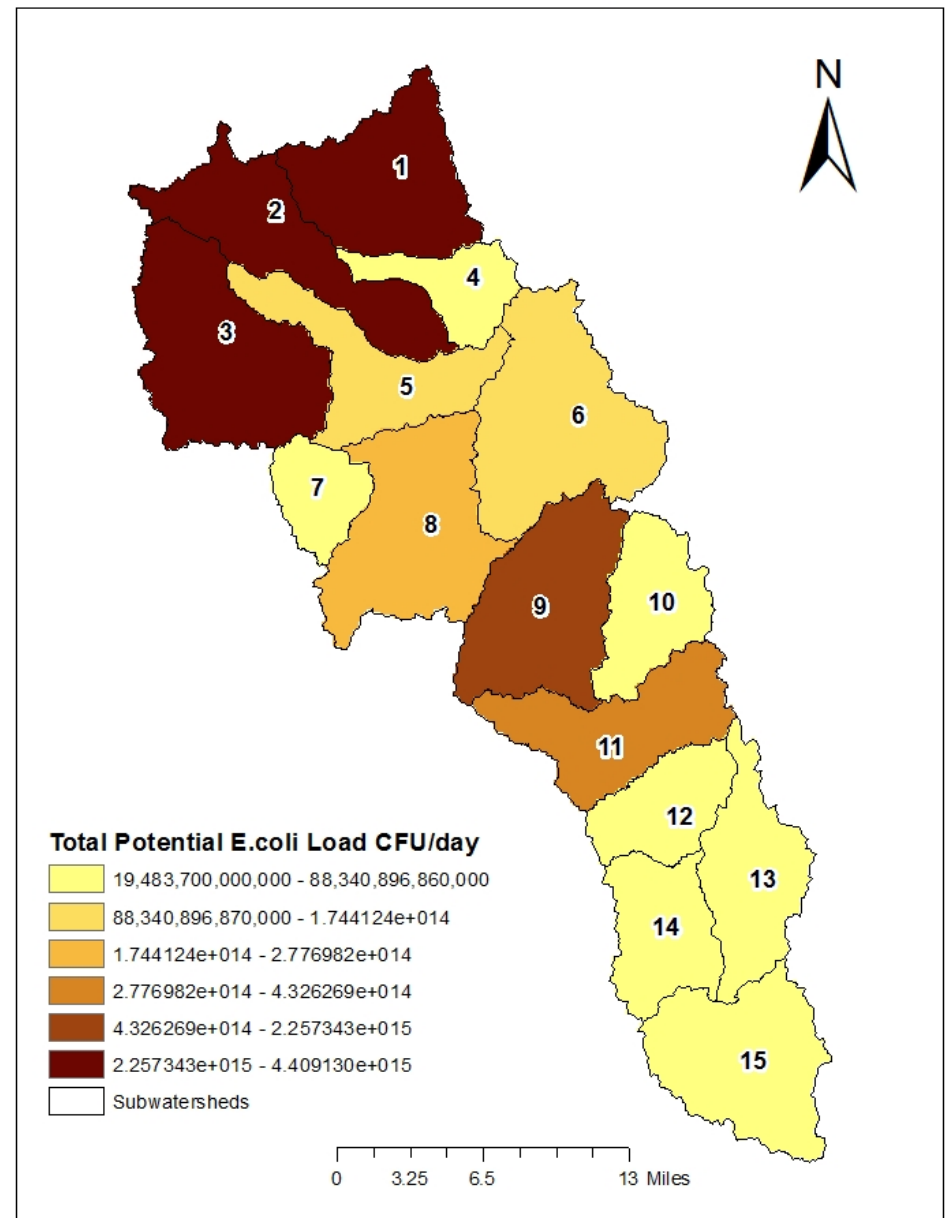
Livestock

Pets

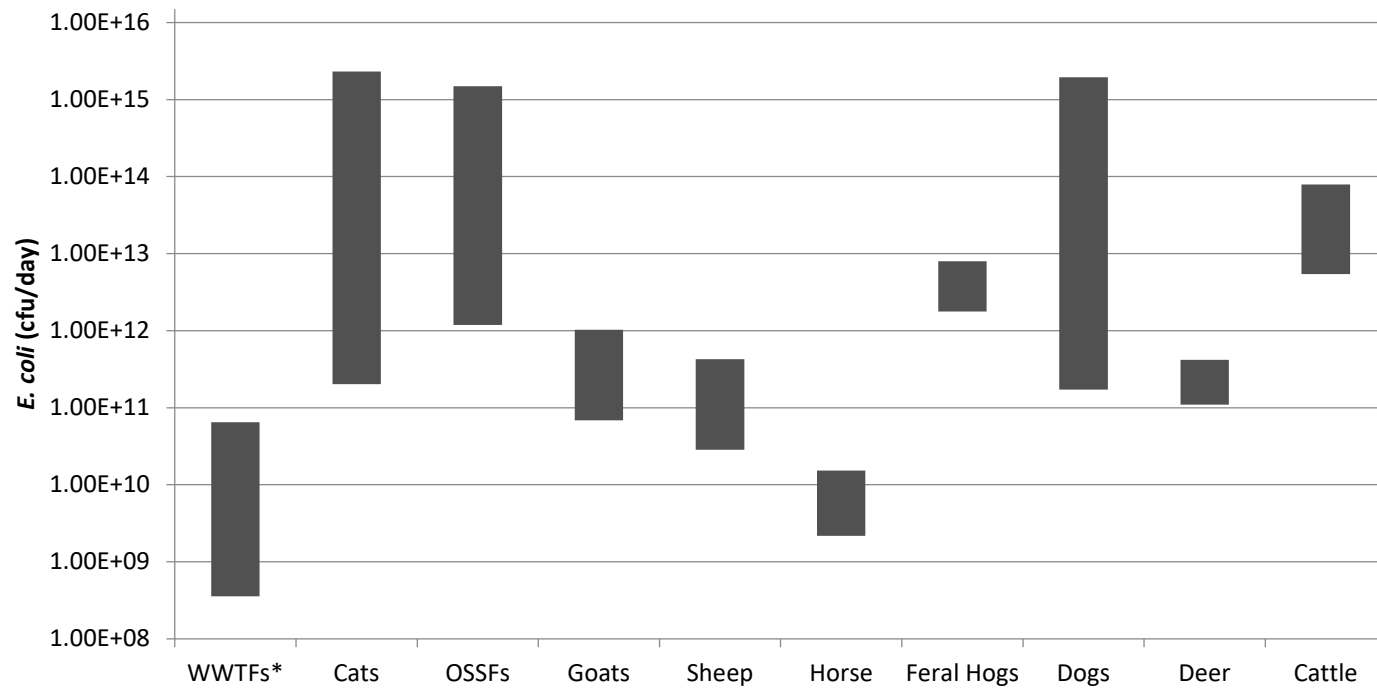
Humans

Shows relative potential loading areas
across the entire watershed

Total Potential E.coli Load CFU/day



Relative Potential Source Contributions



What Do These Results Tell Us?

- Results demonstrate a ‘worst-case’ *E. coli* loading scenario
- Shows relative ‘potential’ for *E. coli* loading from smaller subbasins within the larger watershed
- Shows relative ‘potential’ *E. coli* contributions from each modeled source
- Information can help prioritize where management practices are implemented



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