

## **Appendix F. Maps and system diagrams**

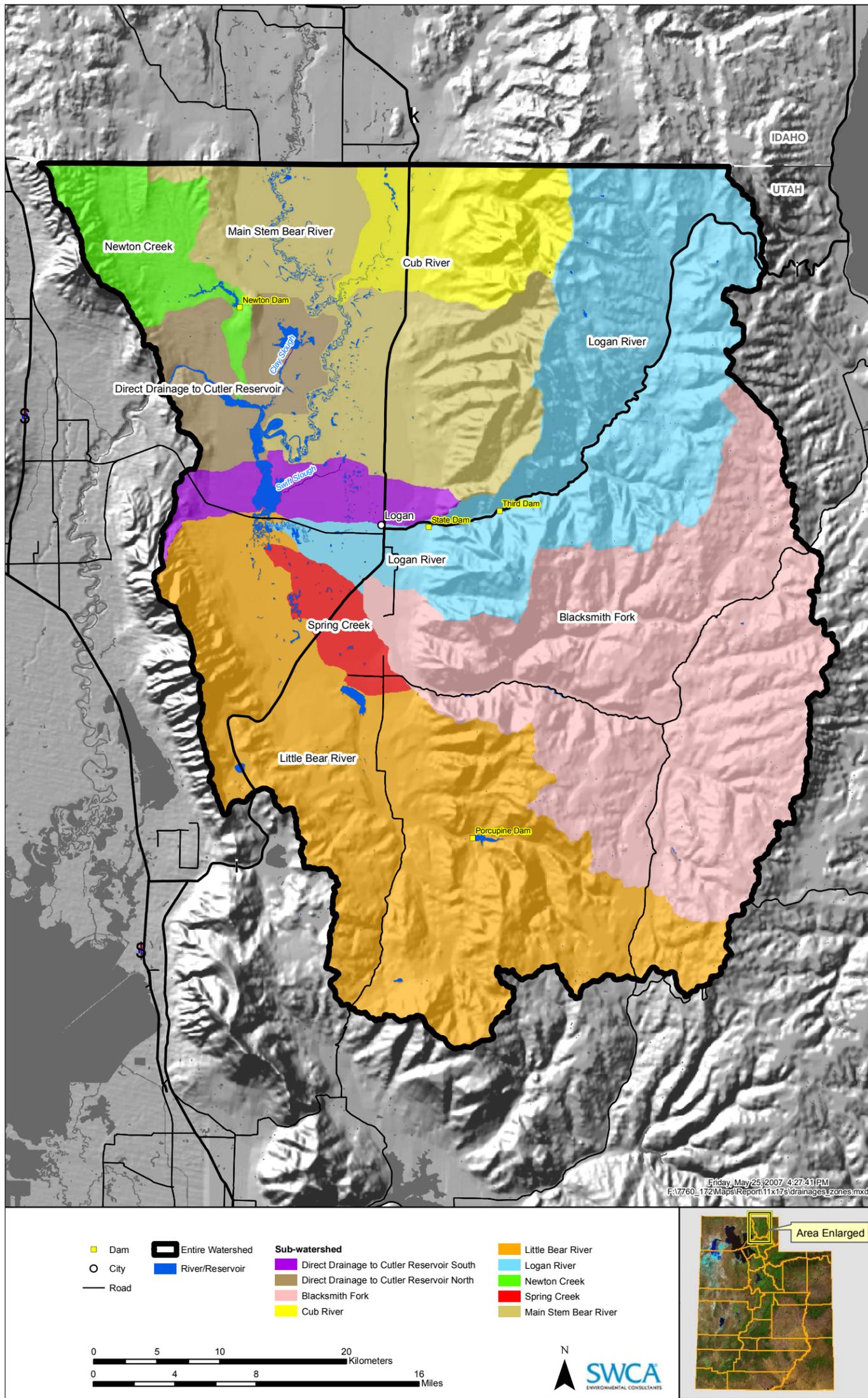


Figure F-1. Map of Cutler Reservoir watershed and subwatersheds within the TMDL study area.

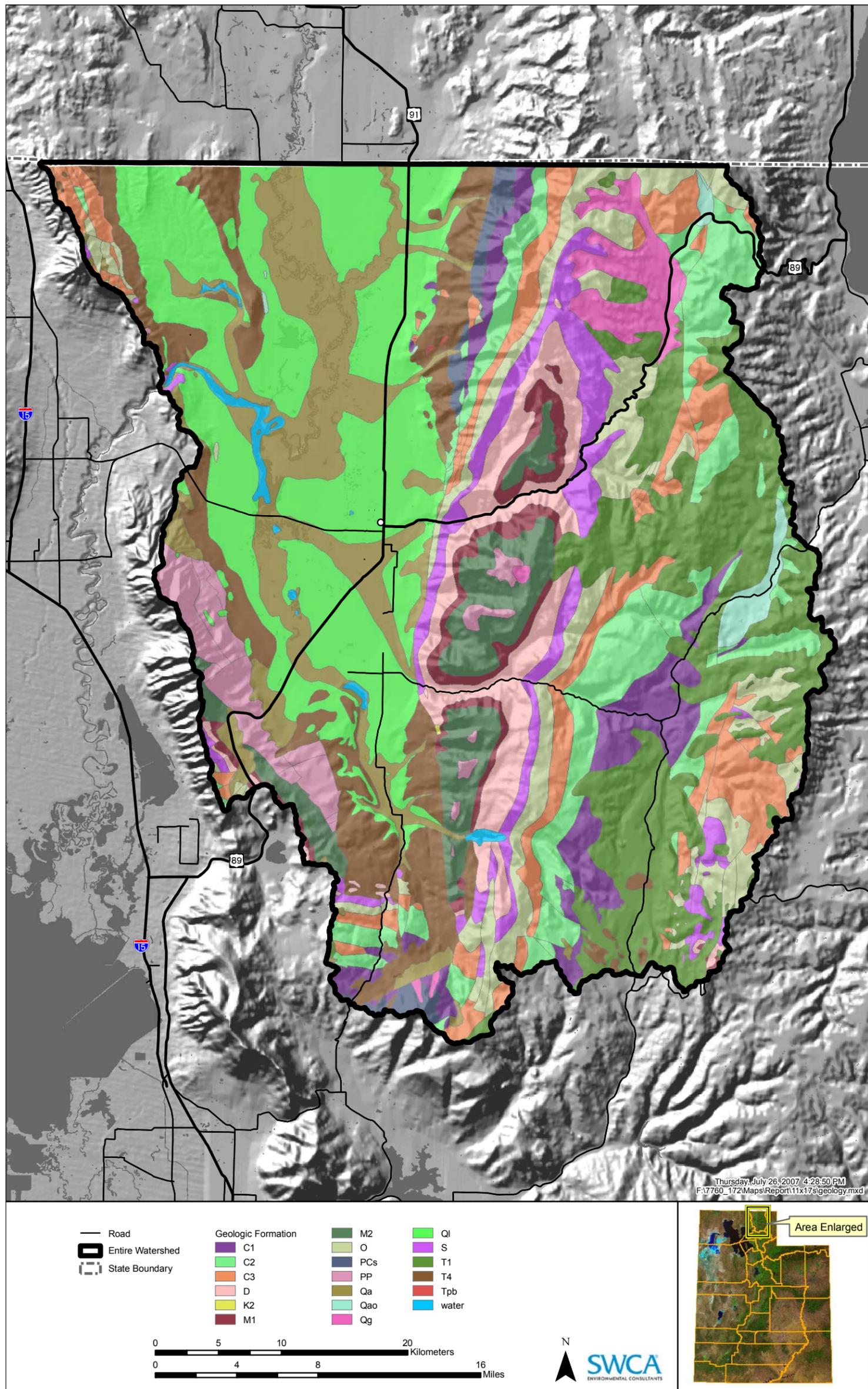


Figure F-2. Geologic map of Cutler Reservoir watershed.

**Geologic Formation Key for Figure F-2**

<b>Code</b>	<b>Formation</b>	<b>Code</b>	<b>Formation</b>
C1	Geertzen Canyon quartzite	PP	Wells formation
C2	Bloomington, Blacksmith, Ute, and Langston formations	Qa	Alluvium and colluvium
C3	St. Charles formation, Worm Creek quartzite, Nounan dolomite	Qao	Older alluvial deposits
D	Leatham formation, Beirdneau sandstone, Hyrum dolomite, Water Canyon formation	Qg	Glacial deposits
K2	Frontier formation	Q1	Lake Bonneville deposits
M1	Lodgepole limestone	S	Laketown dolomite
M2	Great Blue, Humbug, and Deseret formations	T1	Wasatch and Evanston formations undivided
O	Fish Haven dolomite, Swan Creek quartzite, Garden City limestone	T4	Tuffaceous sediments, mudstone, sandstone, Salt Lake formation, valley fill
PCs	Browns Hole, Mutual, Inkom, Papoose Creek, Kelley Canyon, and Maple Canyon formations, Caddy Canyon quartzite, Formation of Perry Canyon, and diamictite member.	Tpb	Balsatic rocks

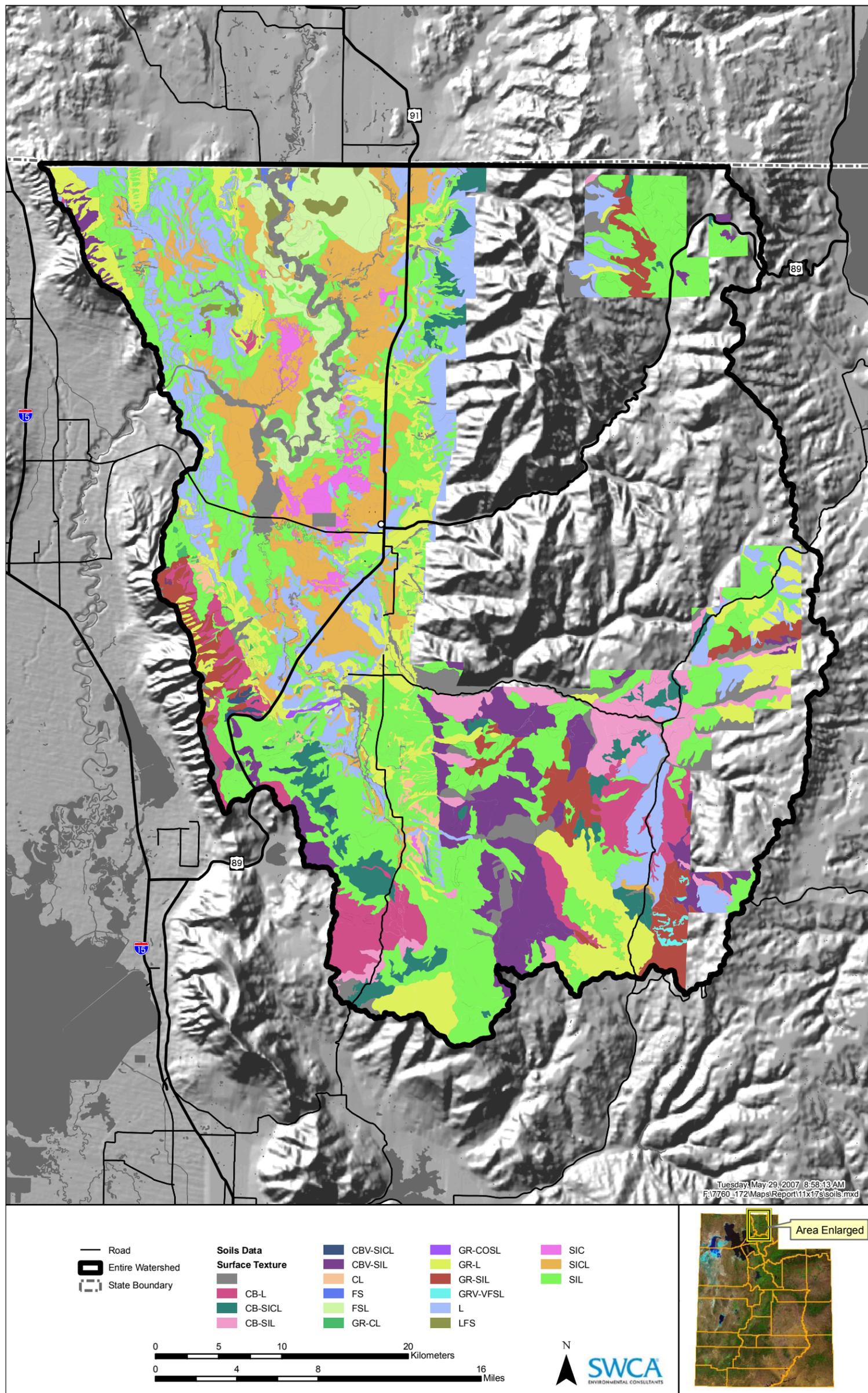


Figure F-3. Soils map of Cutler Reservoir watershed.

**Soil Texture Key for Figure F-3**

<b>Code</b>	<b>Soil Type</b>	<b>Code</b>	<b>Soil Type</b>
CB-L	Cobbly loam	GR-COSL	Gravelly coarse sandy loam
CB-SICL	Cobbly silty clay loam	GR-L	Gravelly loam
CB-SIL	Cobbly silt loam	GR-SIL	Gravelly silt loam
CBV-SICL	Very cobbly silty clay loam	GRV-VFSL	Gravelly very fine sandy loam
CBV-SIL	Very cobbly silt loam	L	Loam
CL	Clay loam	LFS	Loamy fine sand
FS	Fine sand	SIC	Silty clay
FSL	Fine sandy loam	SICL	Silty clay loam
GR-CL	Gravelly clay loam	SIL	Silt loam

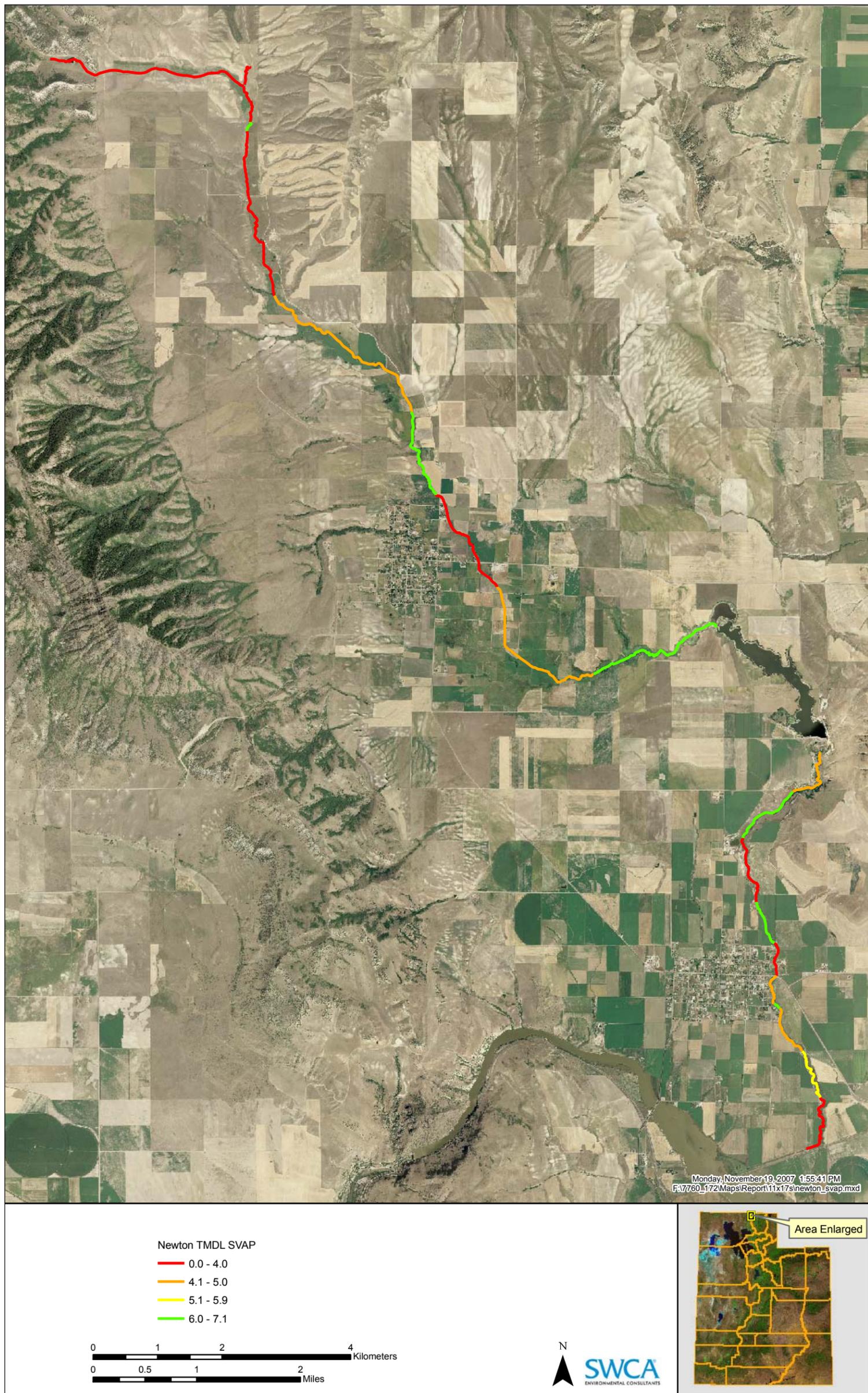


Figure F-4. Map of Newton Creek SVAP conducted in 2002 by Cirrus Ecological Solutions (UDWQ 2004)

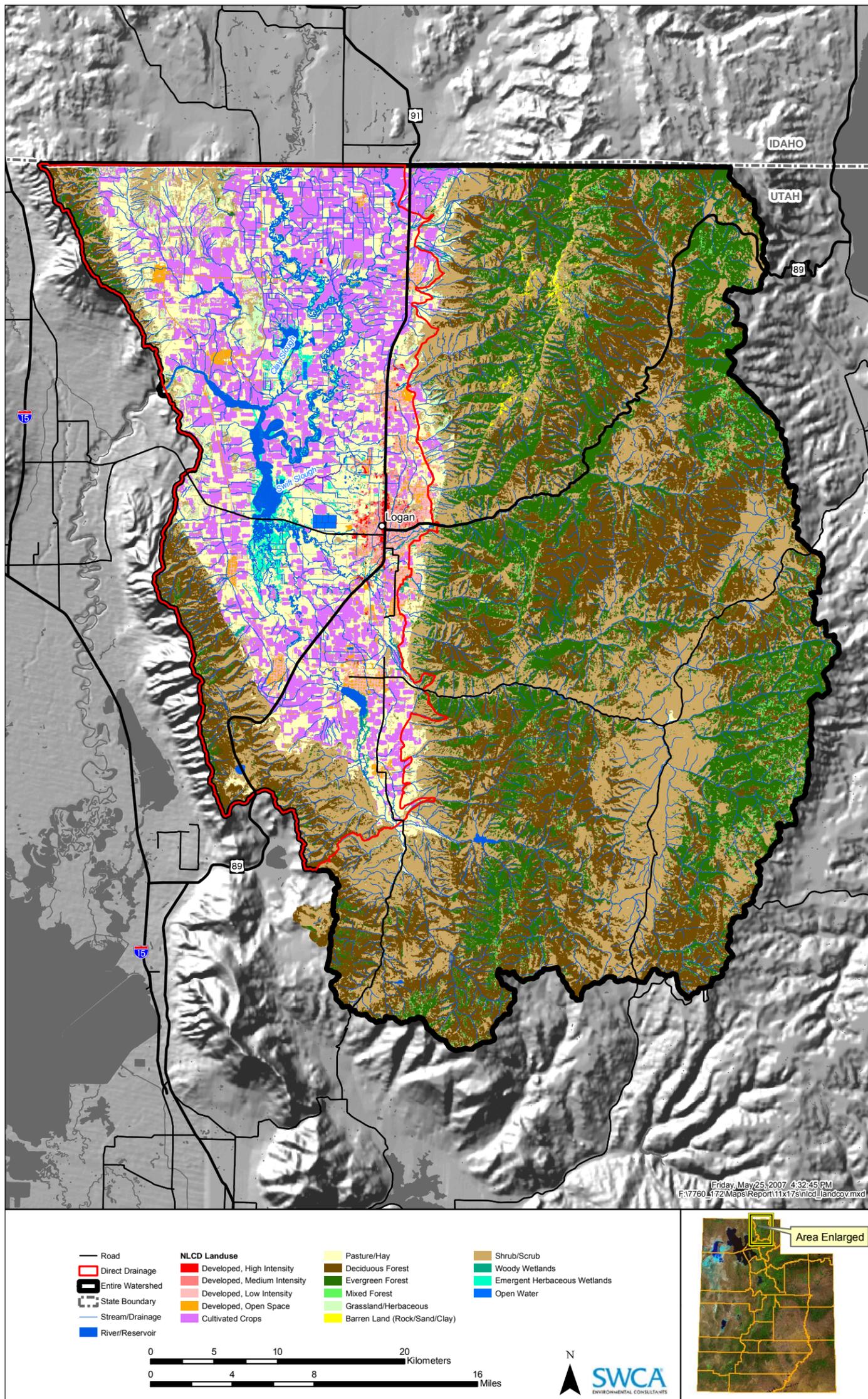


Figure F-5. Land use map of Cutler Reservoir watershed.

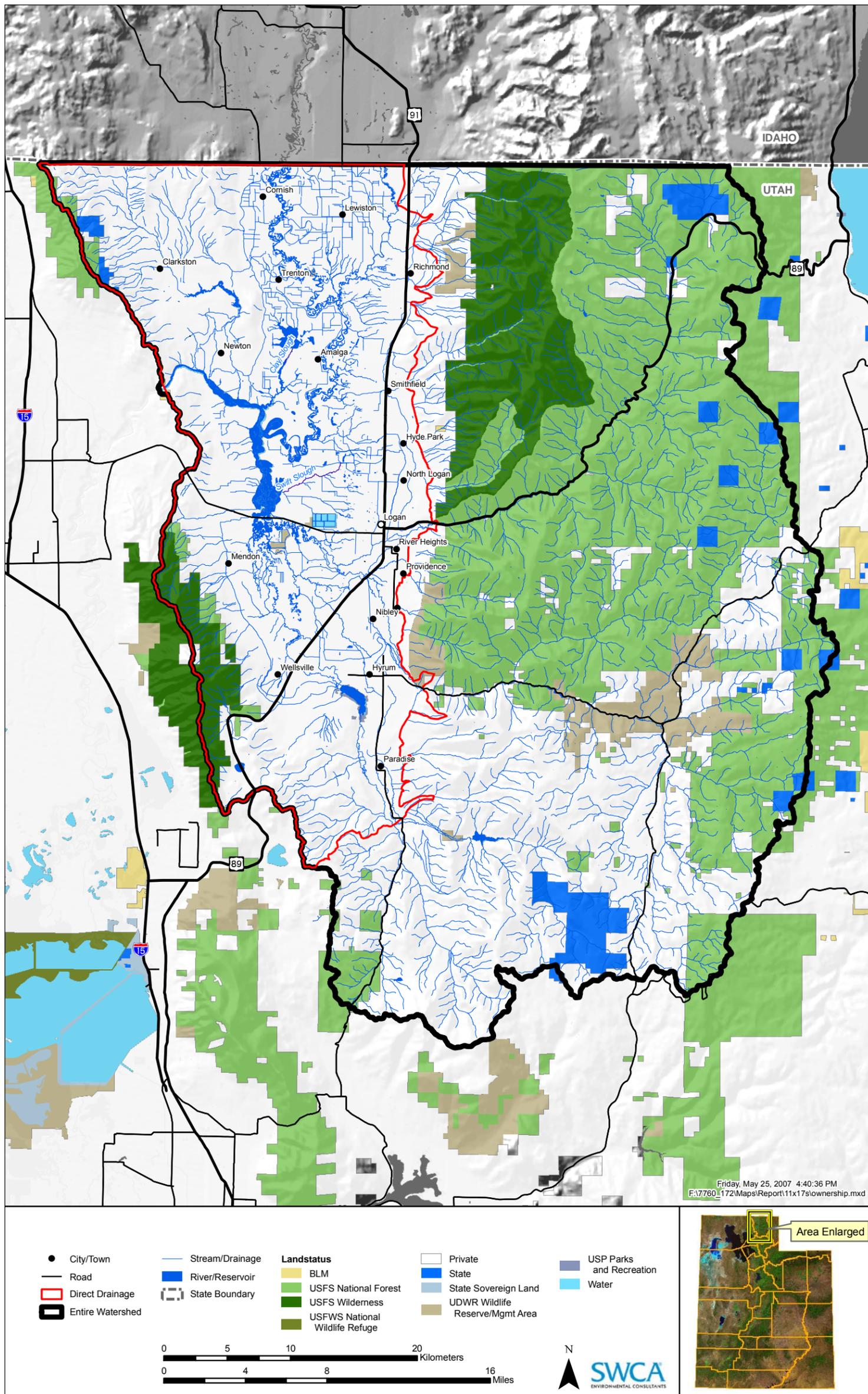


Figure F-6. Ownership map of Cutler Reservoir watershed.

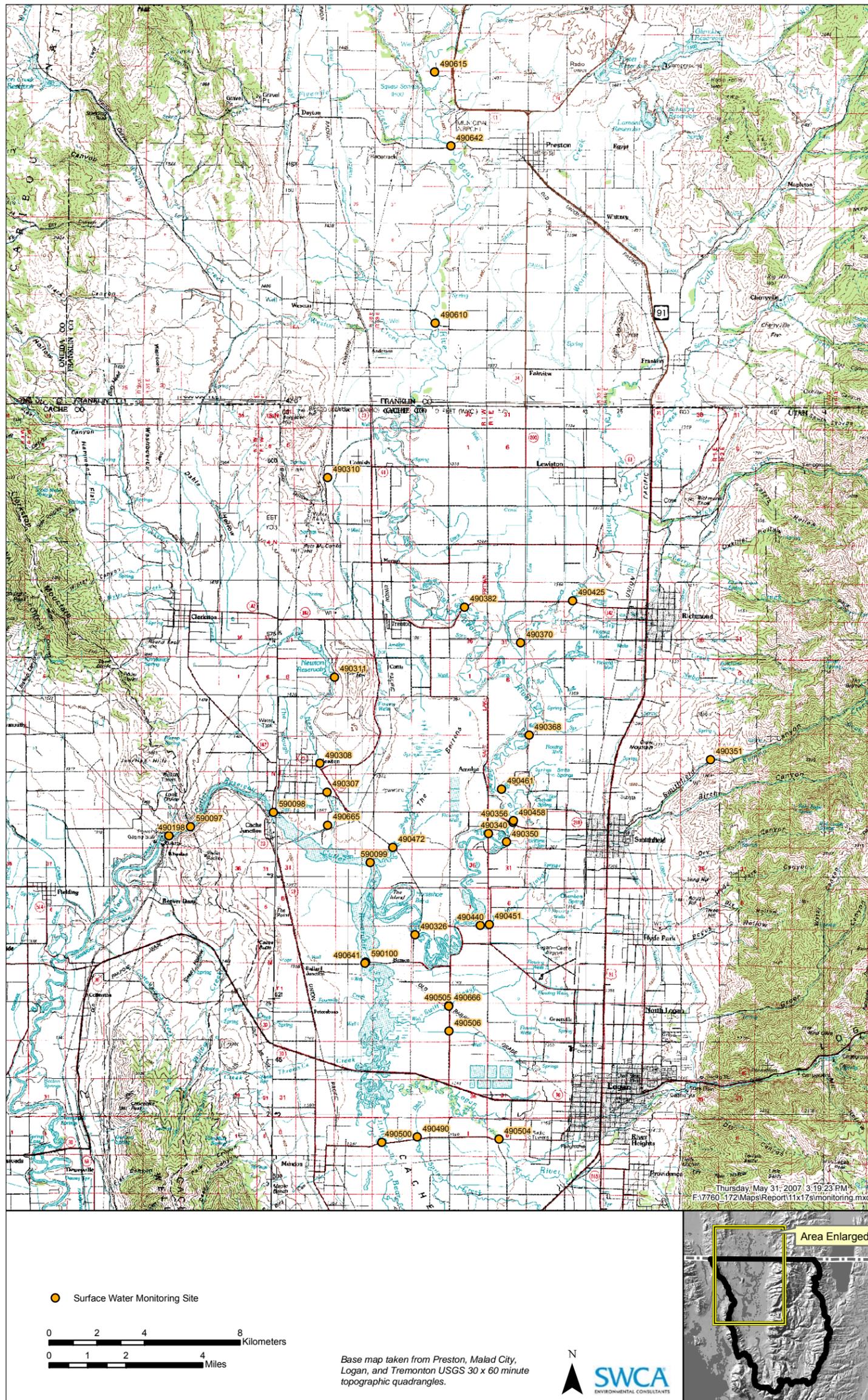


Figure F-7. Surface water monitoring points in the Cutler Reservoir watershed.

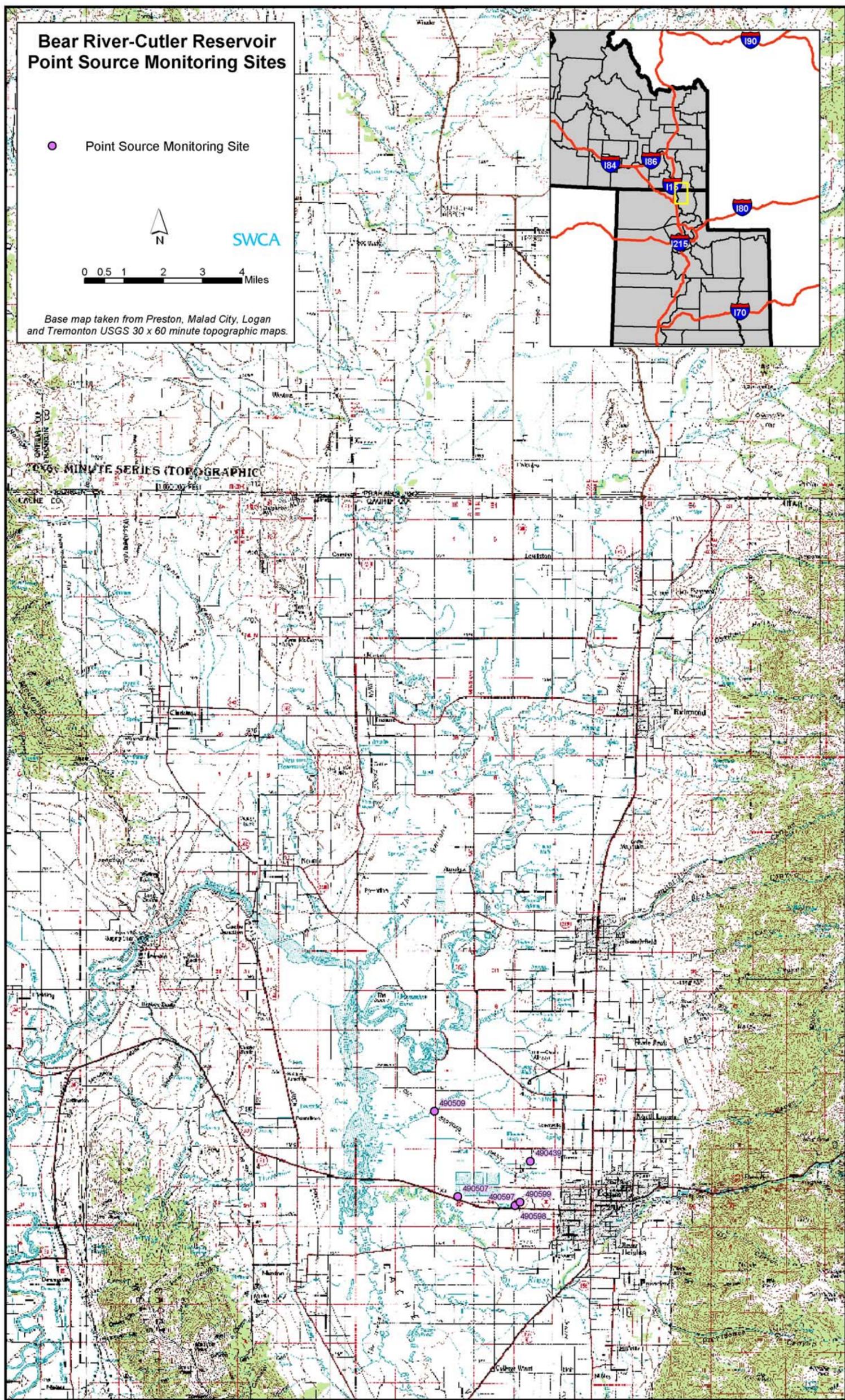


Figure F-8. Point source discharges in Cutler Reservoir watershed.

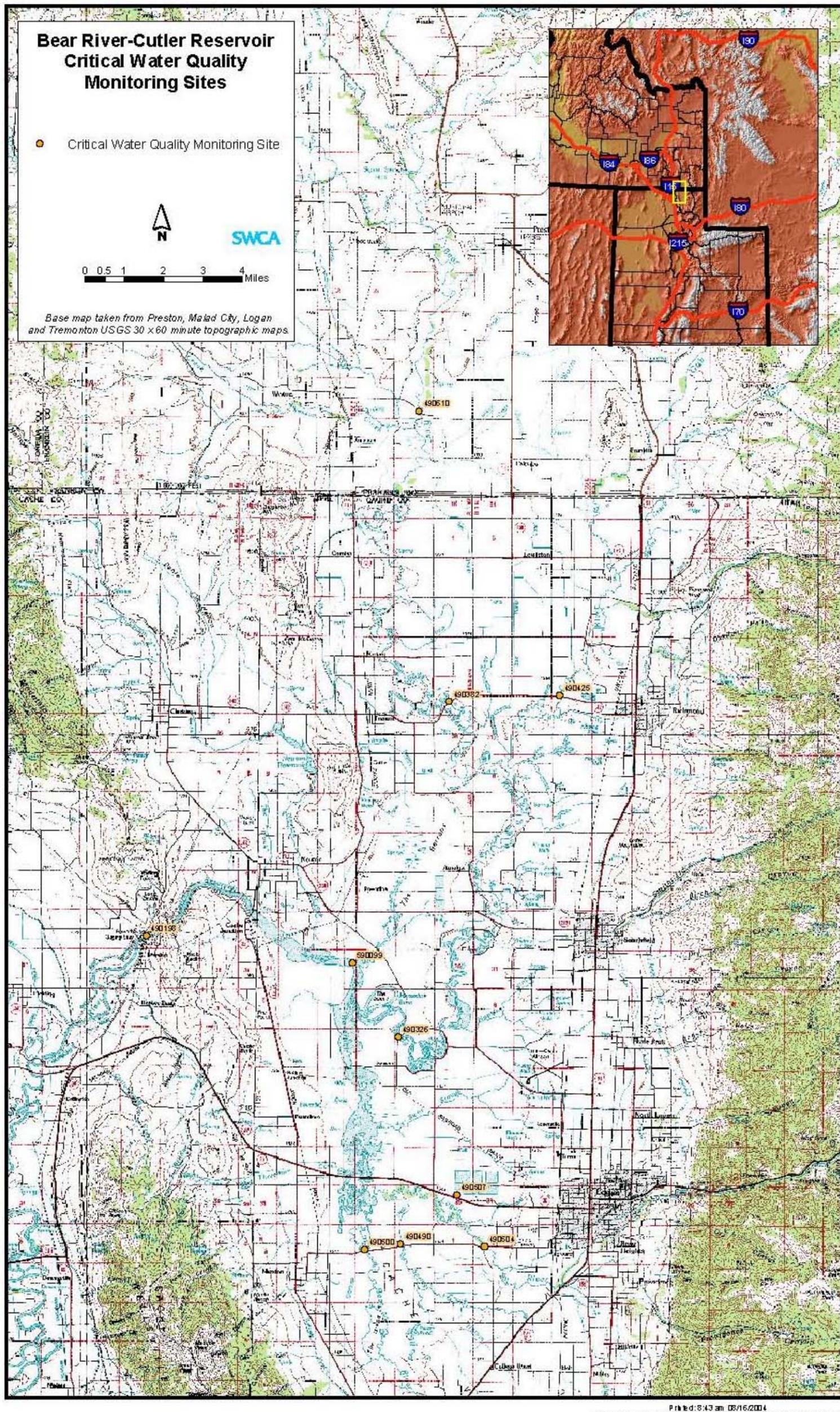


Figure F-9. Critical monitoring in the Cutler Reservoir watershed.

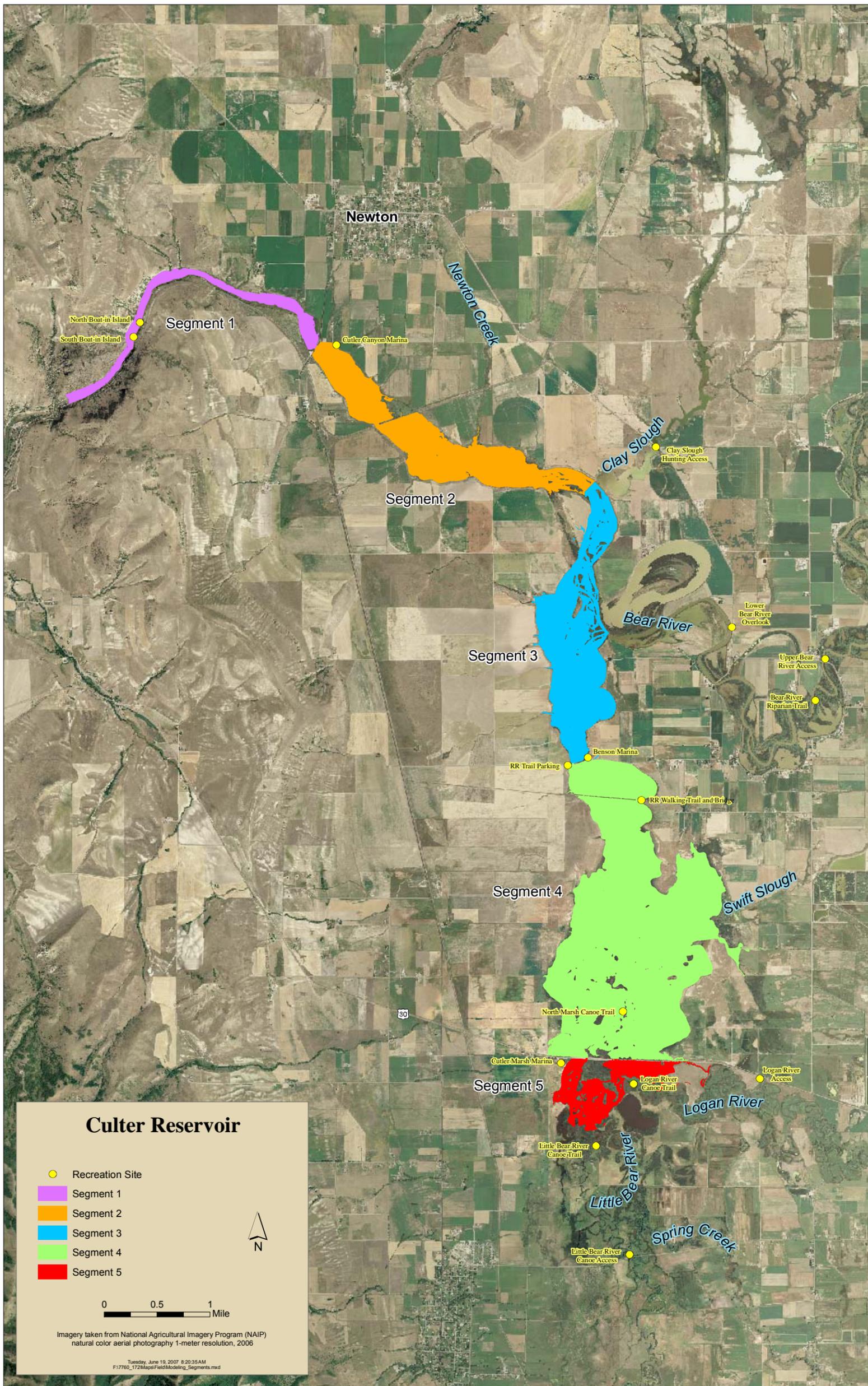


Figure F-10. Cutler Reservoir segments and recreation sites.

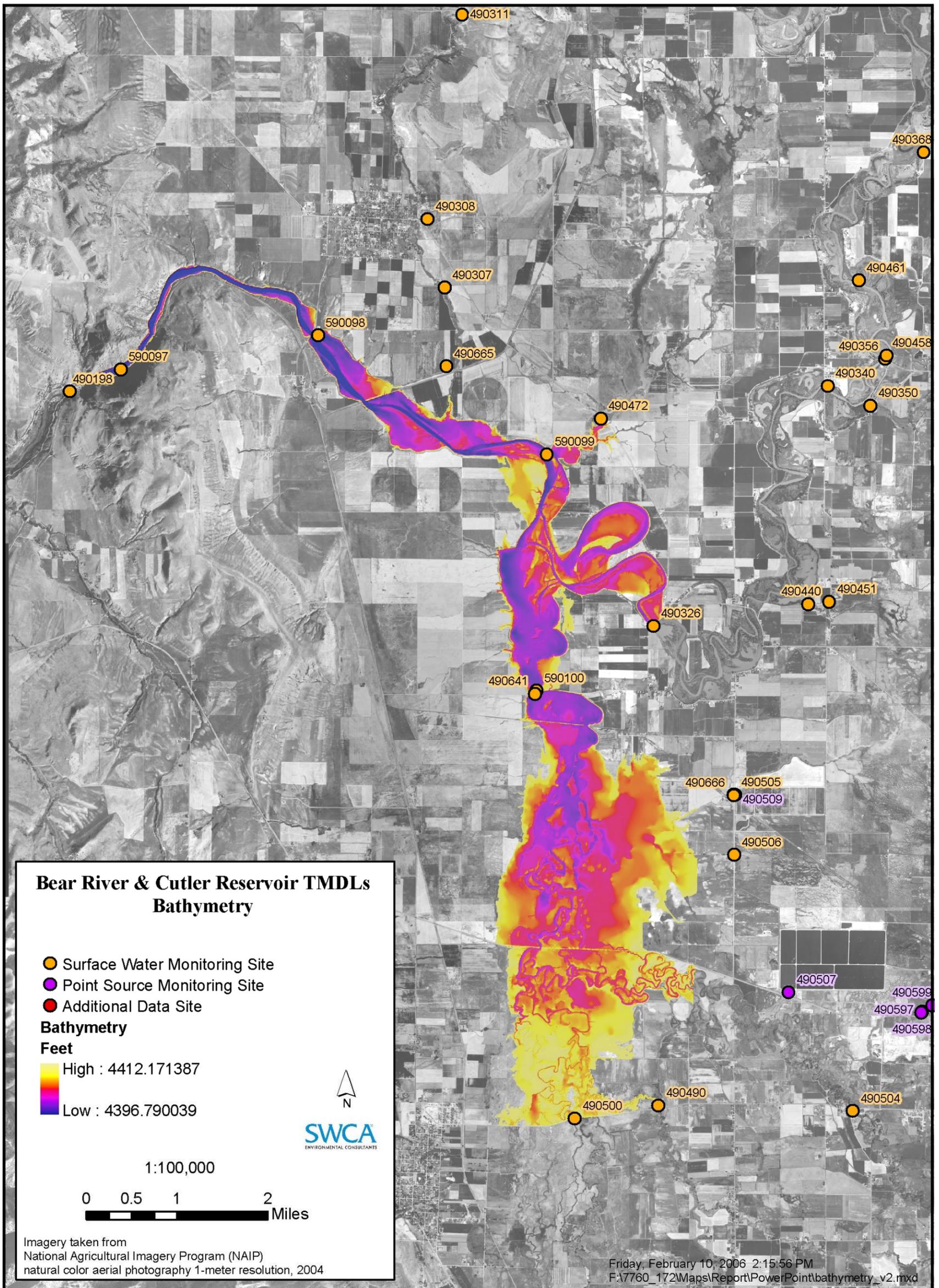


Figure F-11. Cutler Reservoir bathymetry map.

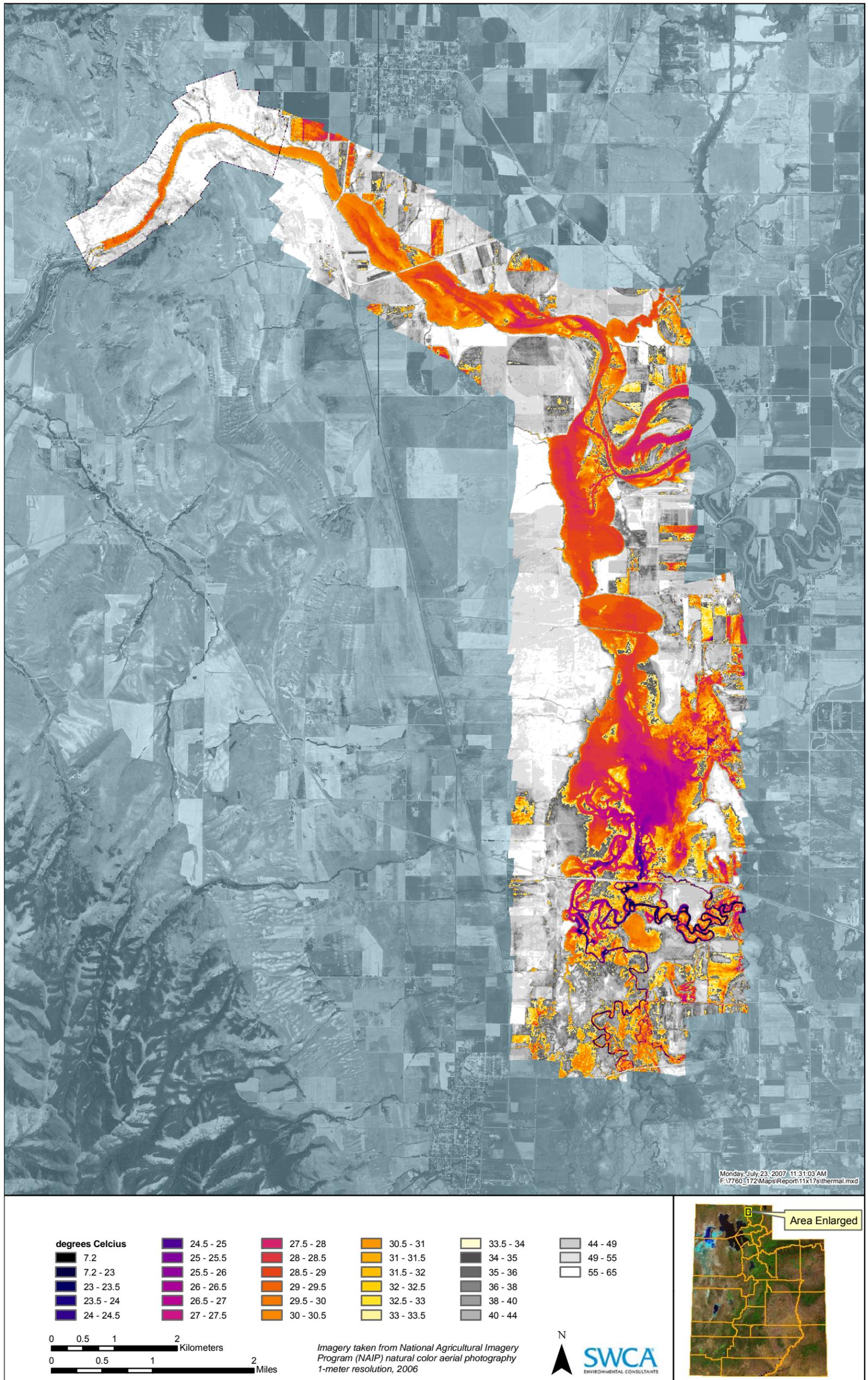


Figure F-12. Cutler Reservoir thermal imagery.

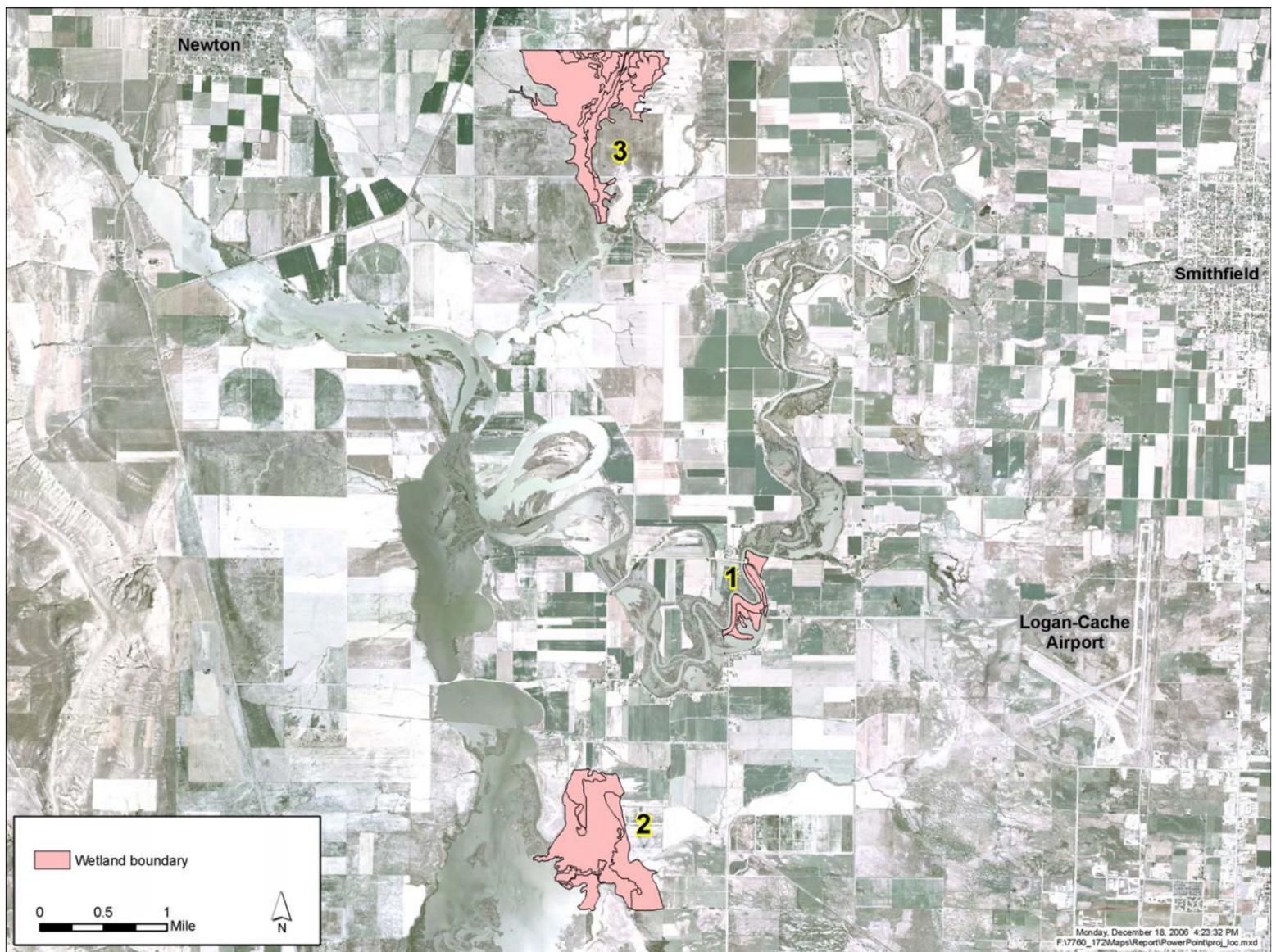
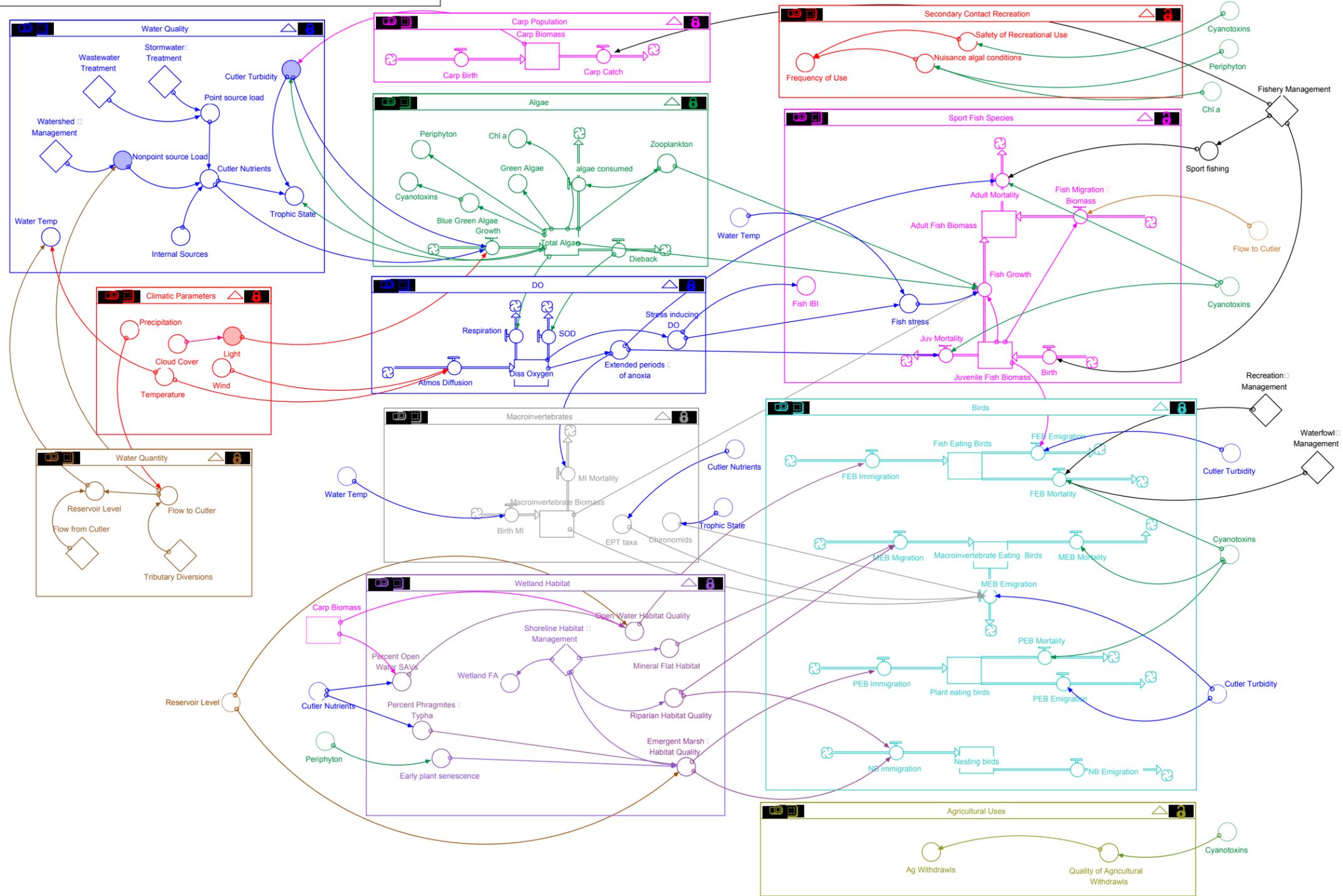


Figure F-13. Map of sites used in the wetland functional assessment.

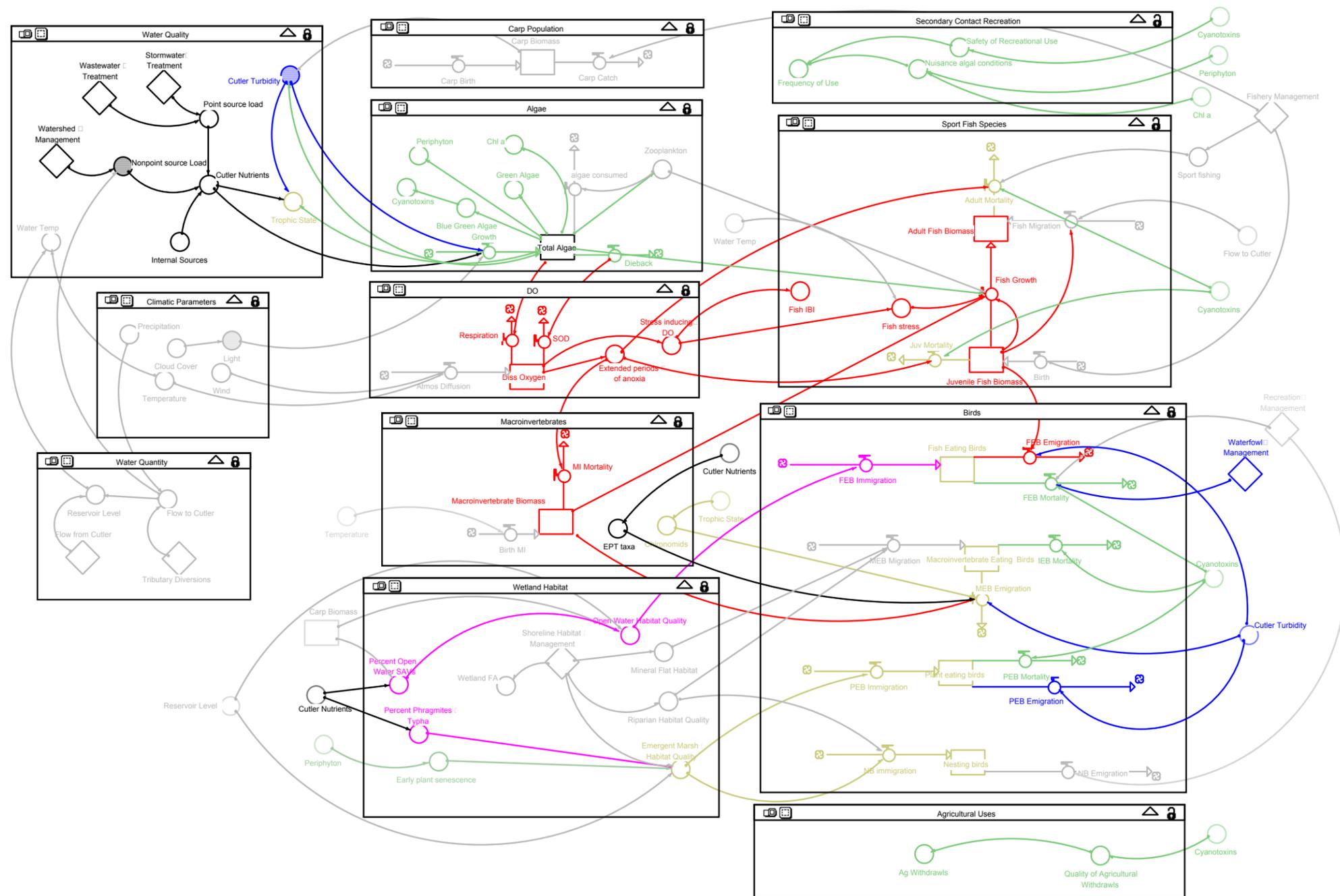
**DRAFT CONCEPTUAL MODEL OF CUTLER RESERVOIR SYSTEM**



**Figure F-14. Diagram of the Cutler Reservoir hydrologic and ecological system.**

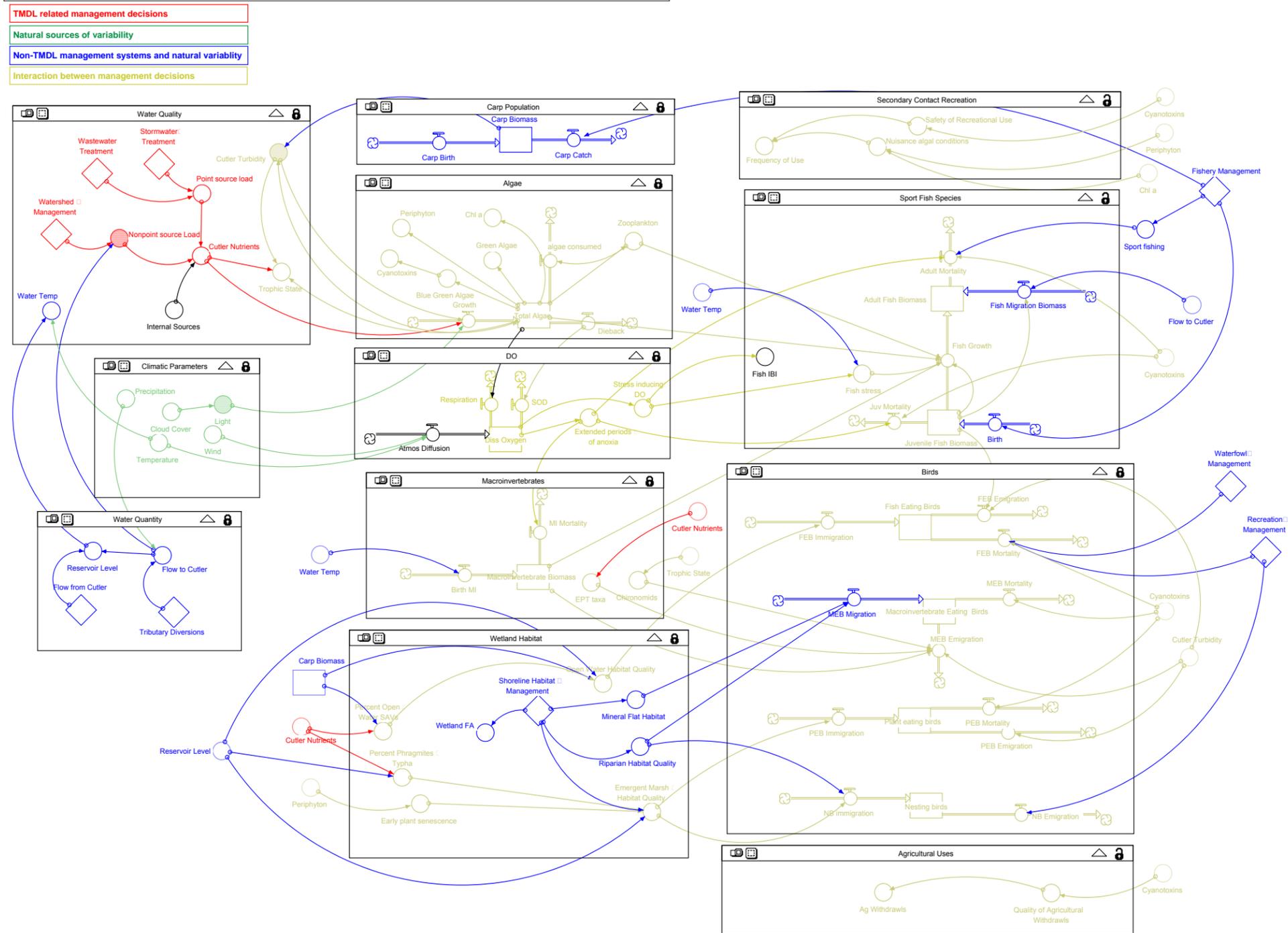
**KEY LINKAGES BETWEEN NUTRIENTS AND BENEFICIAL USES**

Dissolved oxygen related linkages	Macrophyte related linkages
Other algal related linkages	Interacting linkages
Turbidity related linkages	



**Figure F-15. Diagram of the key linkages between nutrient loading and beneficial use impairment in Cutler Reservoir.**

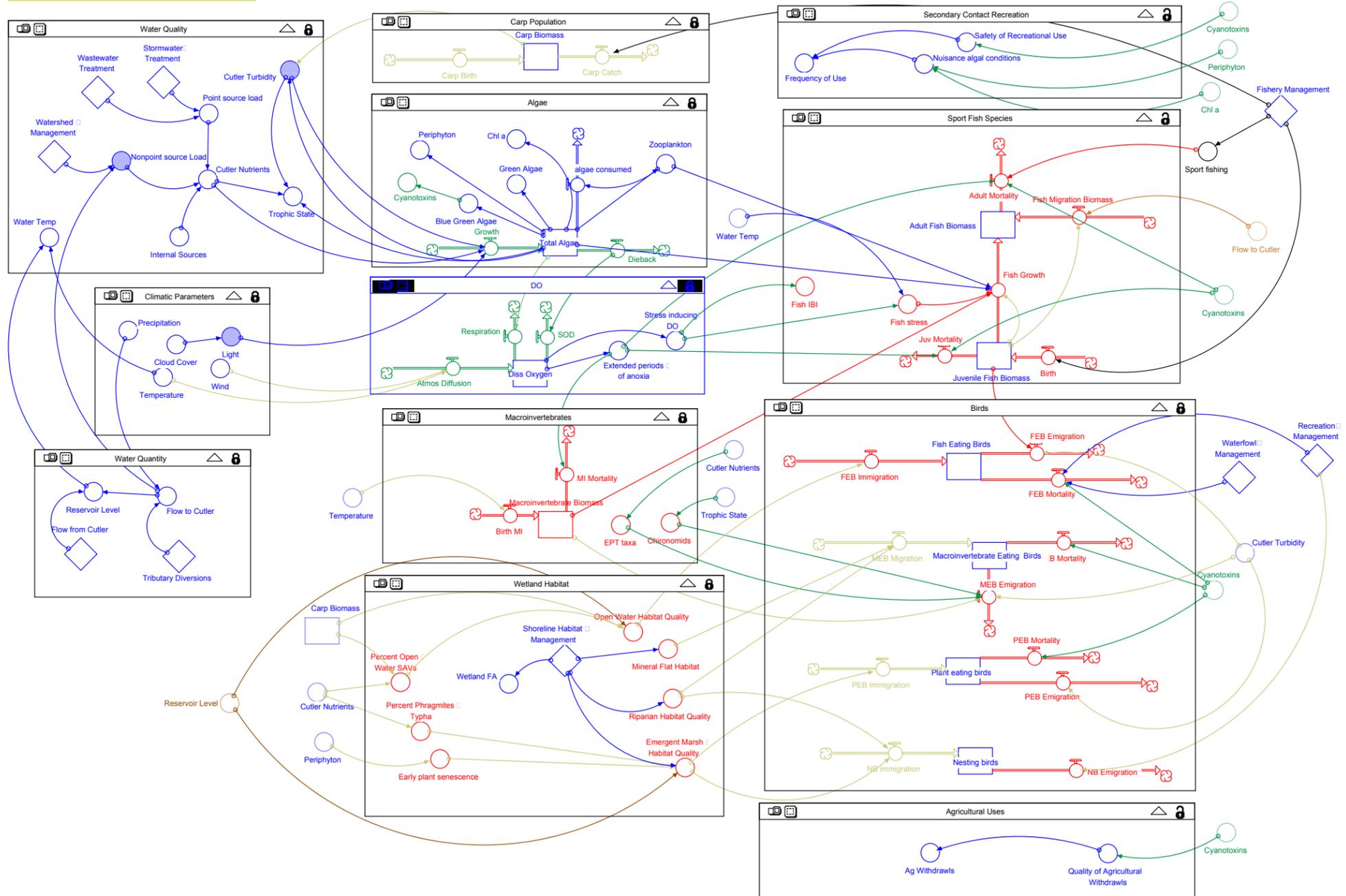
**KEY INTERACTIONS BETWEEN MANAGEMENT ENTITIES: Influence of decisions on Cutler System**



**Figure F-16. Diagram of the relationship between management entities and decisions for the Cutler Reservoir hydrologic and ecological system.**

**DATA AVAILABILITY AND UNCERTAINTY FOR CUTLER RESERVOIR SYSTEM**

- Good data available for Cutler Reservoir system
- Model for Cutler or applicable literature available
- Poor data available for Cutler
- Theoretical linkage supported by general literature



**Figure F-17. Diagram of data availability and uncertainty for the Cutler Reservoir hydrologic and ecological system.**

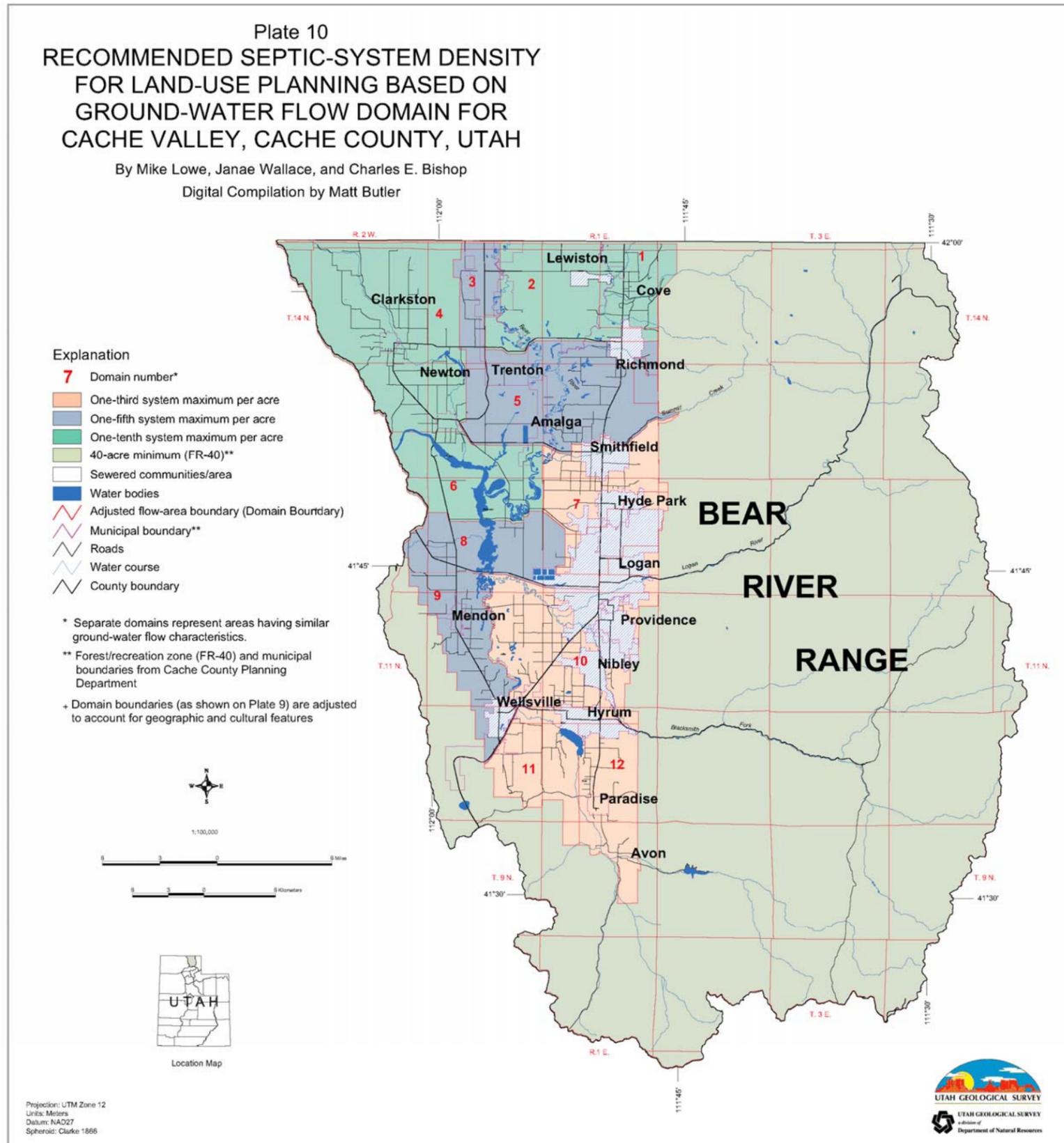


Figure F-18. Recommended septic density map for Cache County, Utah (Lowe et al. 2003).

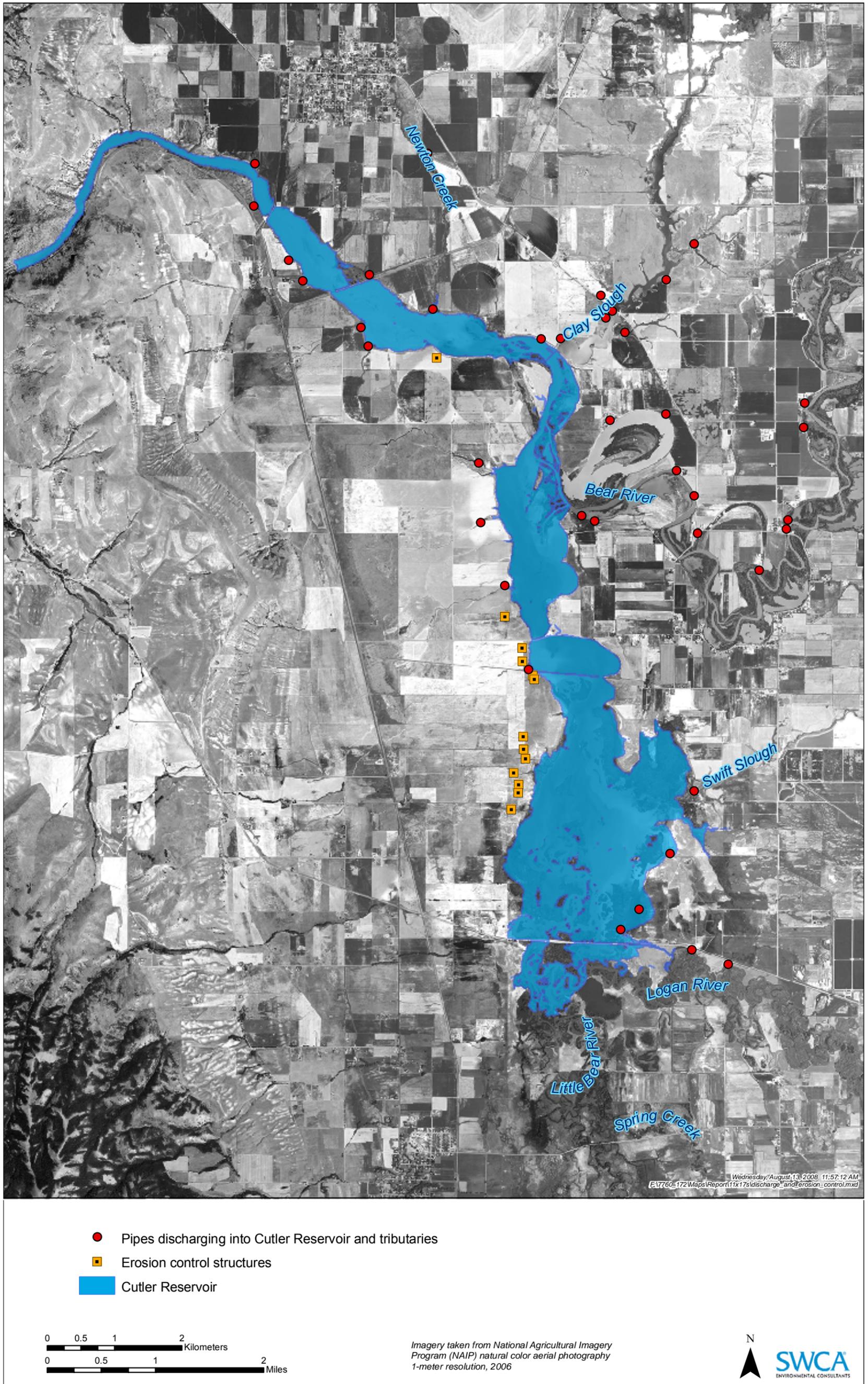


Figure F-19. Locations of discharge pipes identified around Cutler Reservoir.

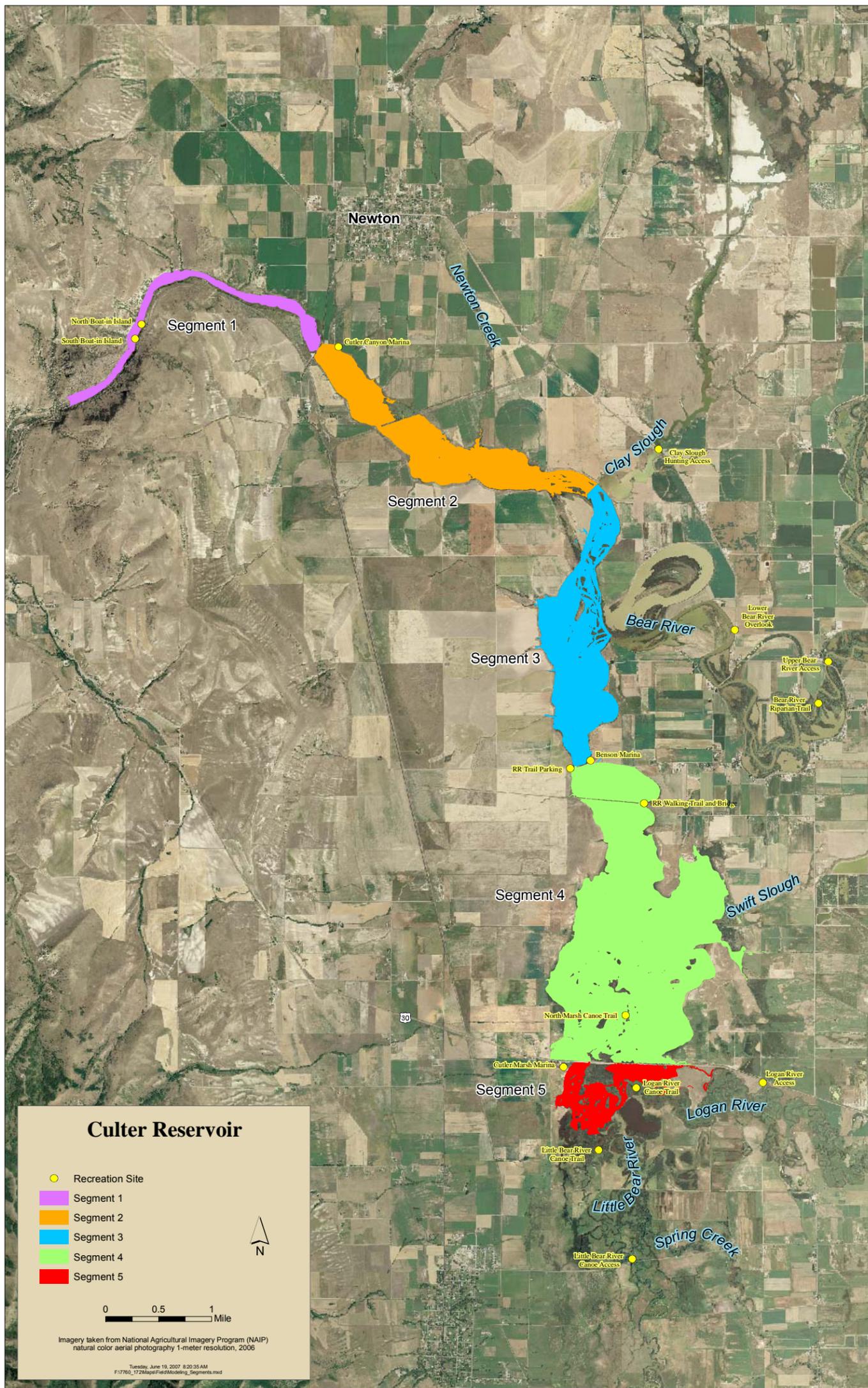


Figure F-20. Segments of the Cutler Reservoir BATHTUB model.

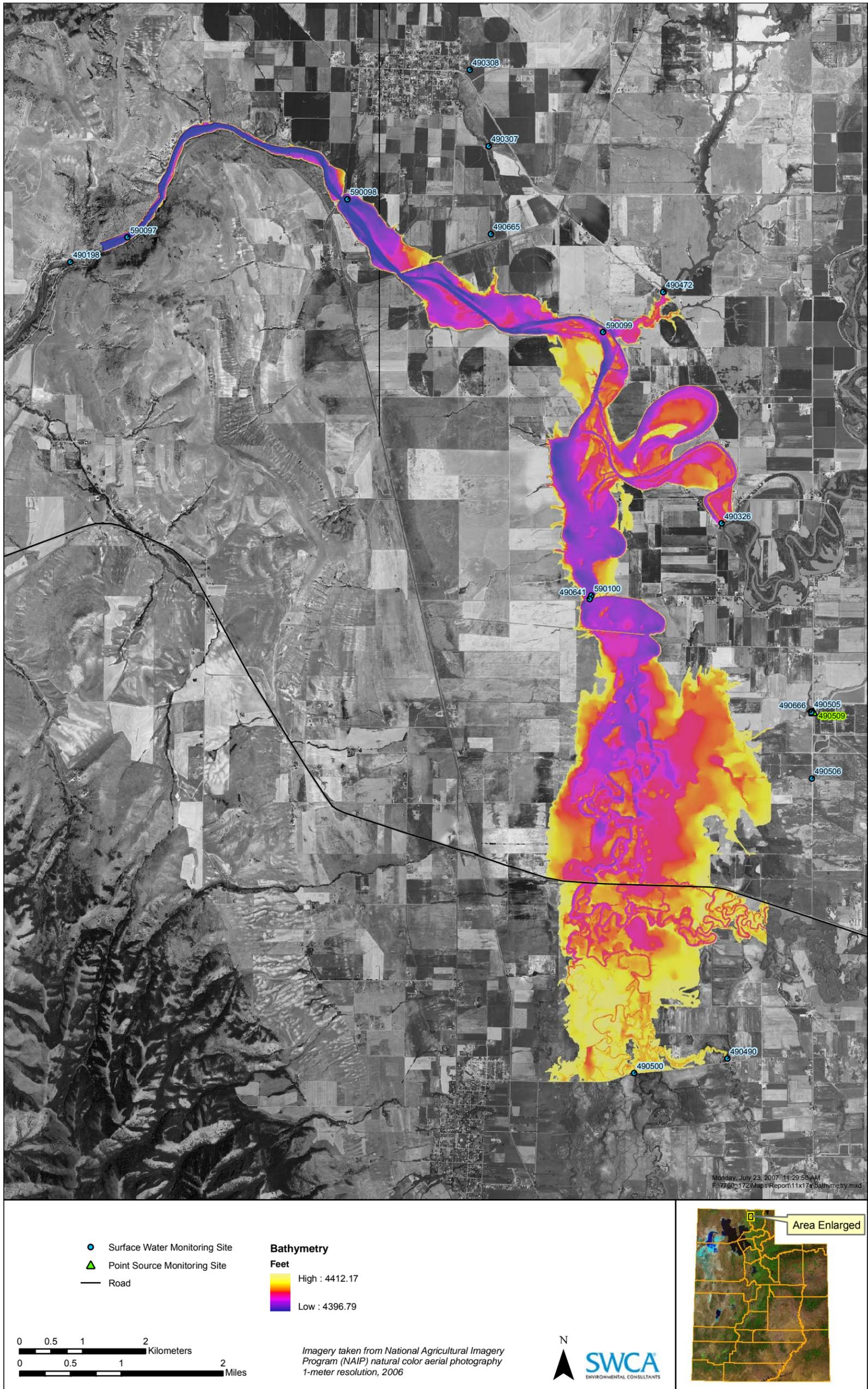


Figure F-21. Bathymetry of Cutler Reservoir.

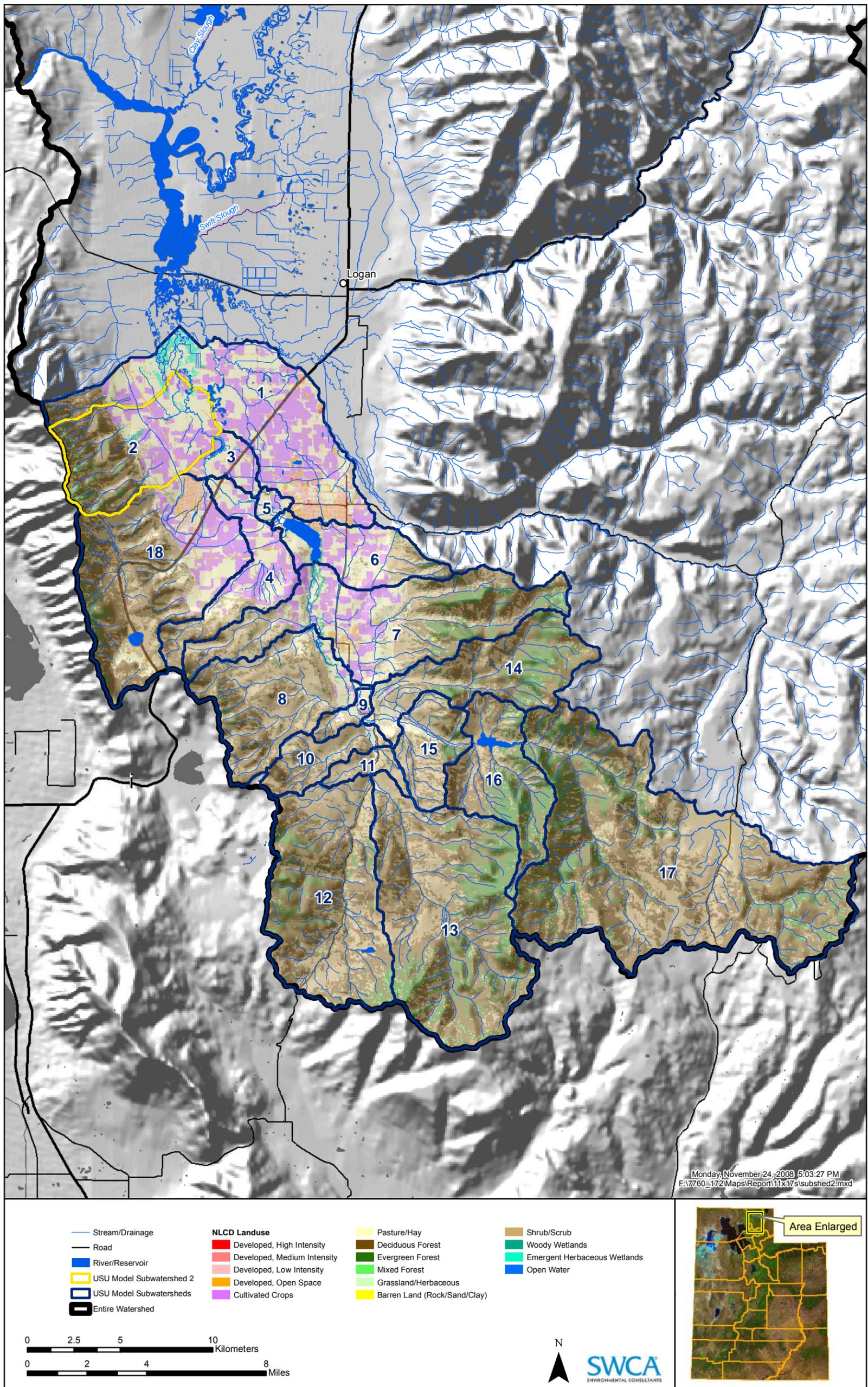


Figure F-22. Map of subwatersheds from the USU Little Bear River watershed model. Landuse coefficients for total phosphorus runoff derived from subwatershed 2 were assumed to be representative of loads from other parts of the drainage basin.

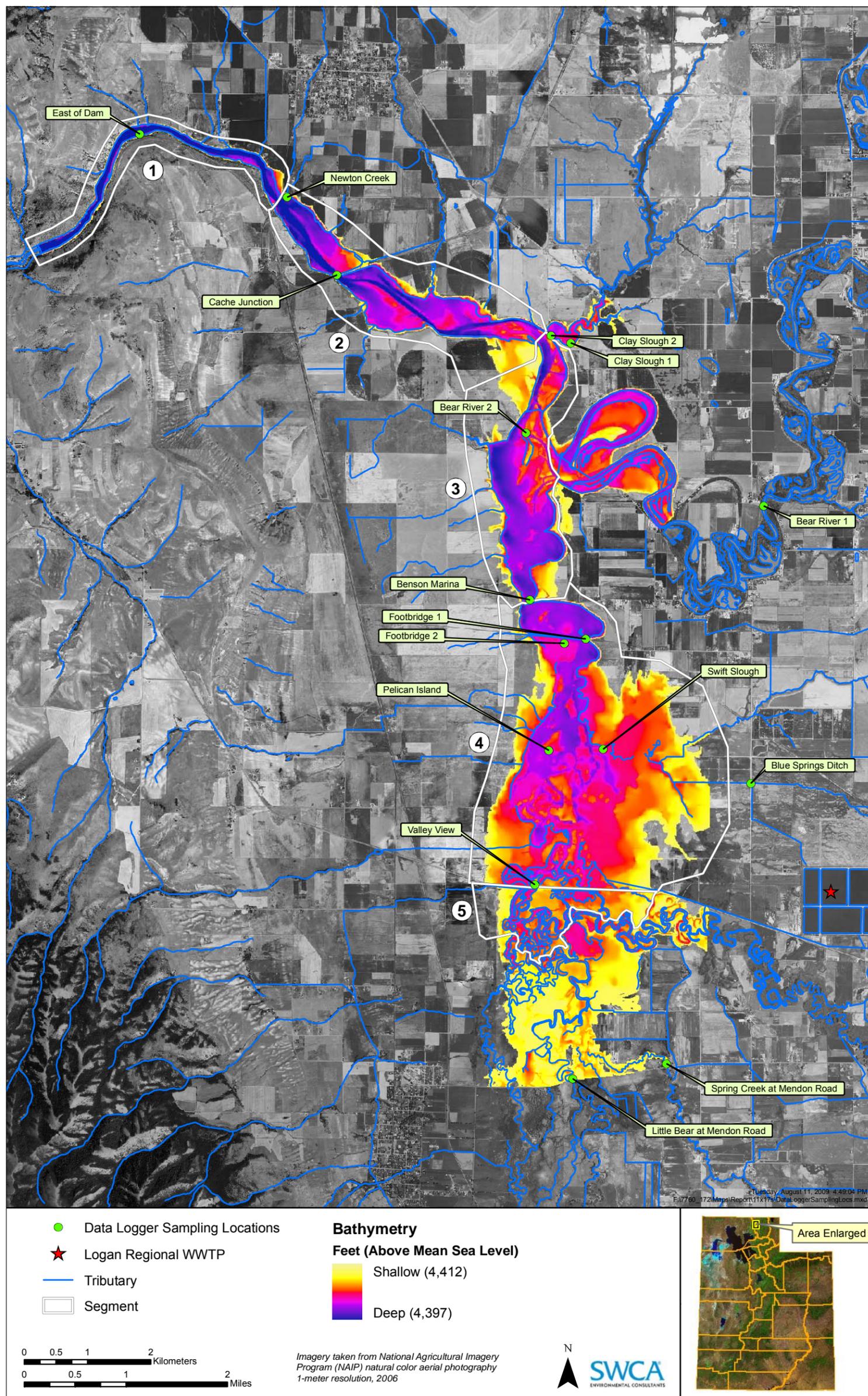


Figure F-23. Map of data logger sampling points for collection of continuous temperature, pH, dissolved oxygen, and conductivity data between 2003 and 2007.