Demonstration of Brush Removal Criteria for Water Supply Enhancement

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Criteria

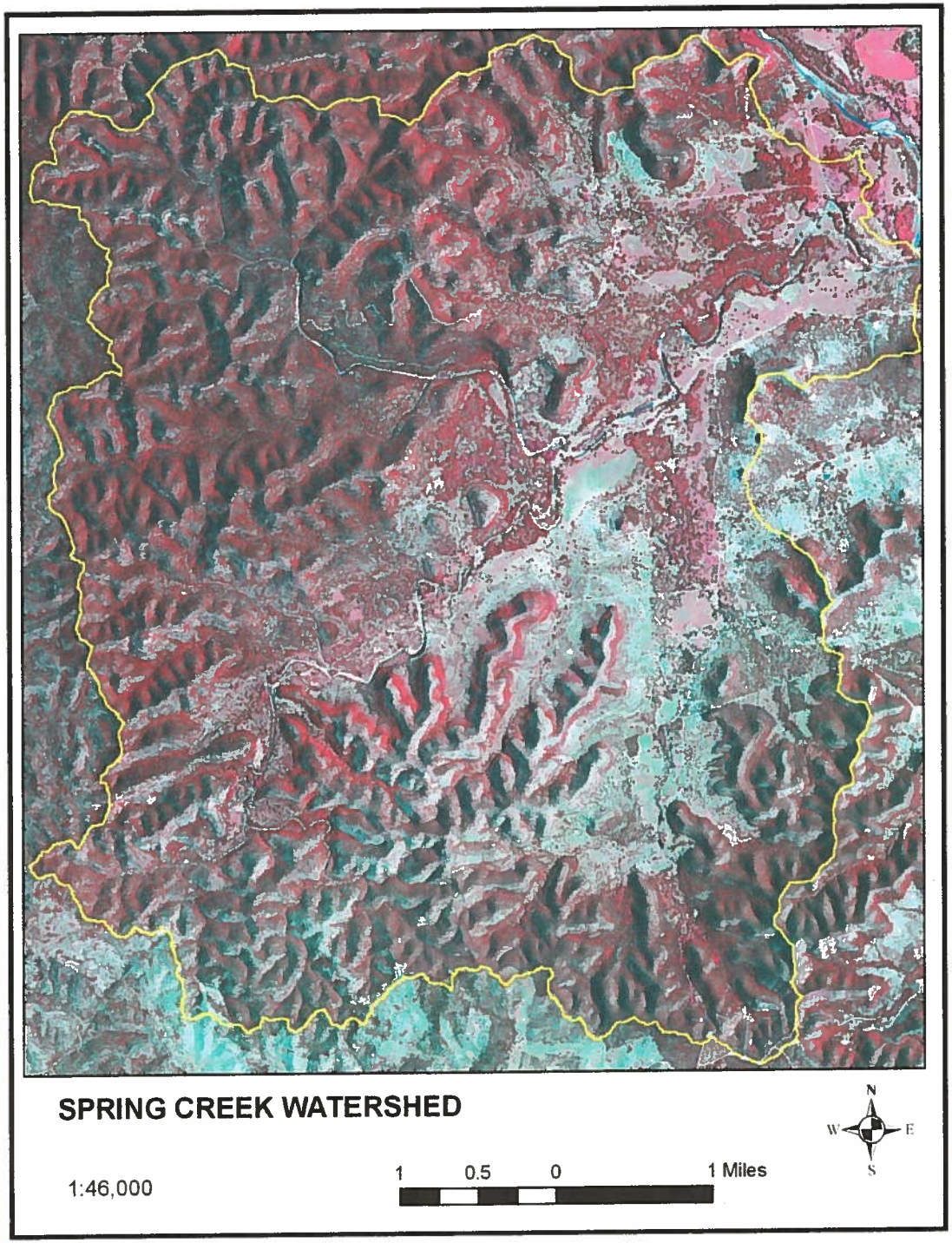
- Soils – low permeability in the watershed catchment area and leading toward the streambed
- Slope – sufficiently steep to carry runoff to streambed
- Area – large enough to generate measurable flow contribution
- Land use – vegetation and land management strategies by land owner

Criteria

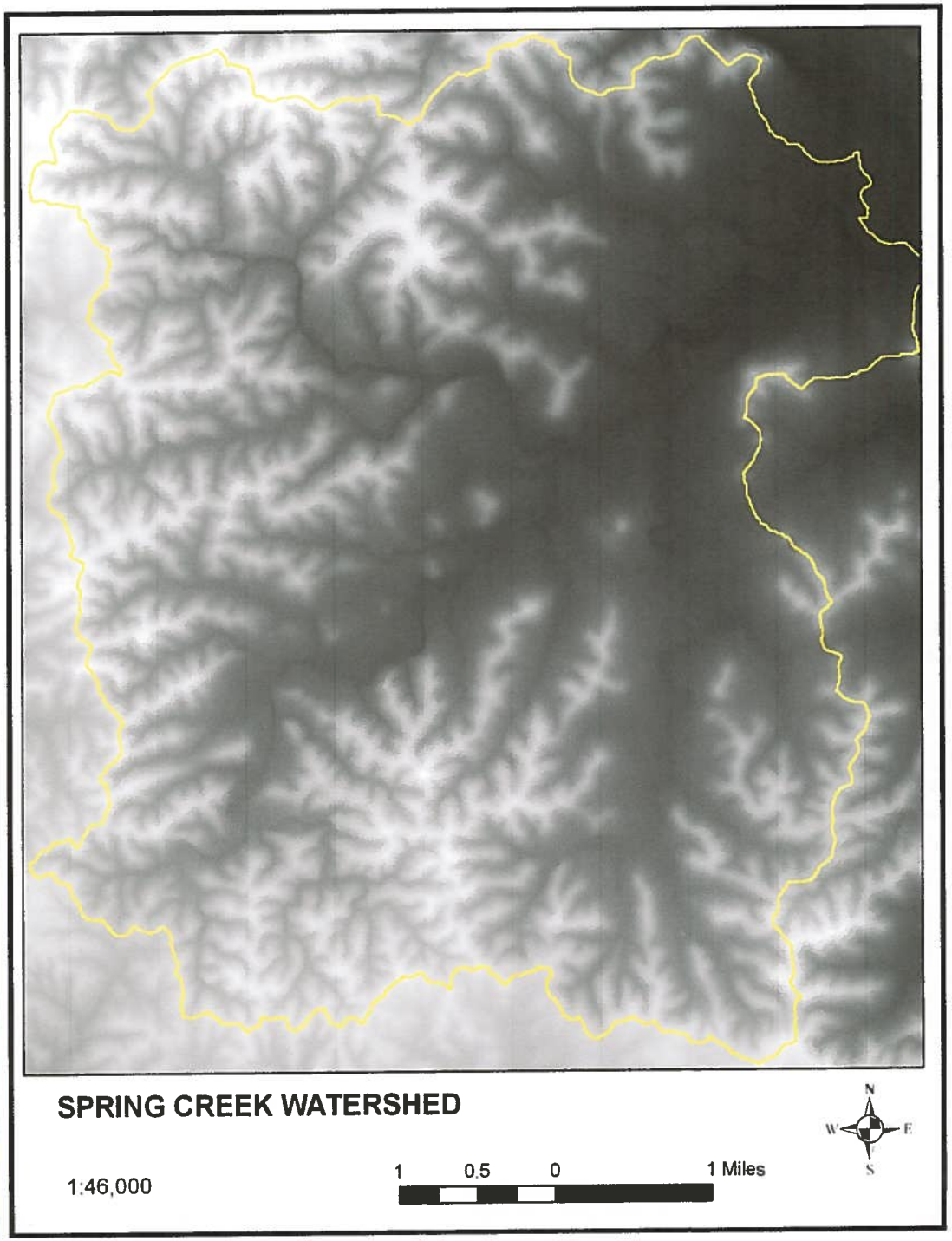
- Brush cover distribution – fraction of the area with treatable brush cover and proximity to stream channel
- Streamflow observation – proximity to a stream gauging station, whether installed for the brush control project or existing for other agency's purposes
- Groundwater conditions – depth to groundwater table, groundwater flow direction, and aquifer permeability

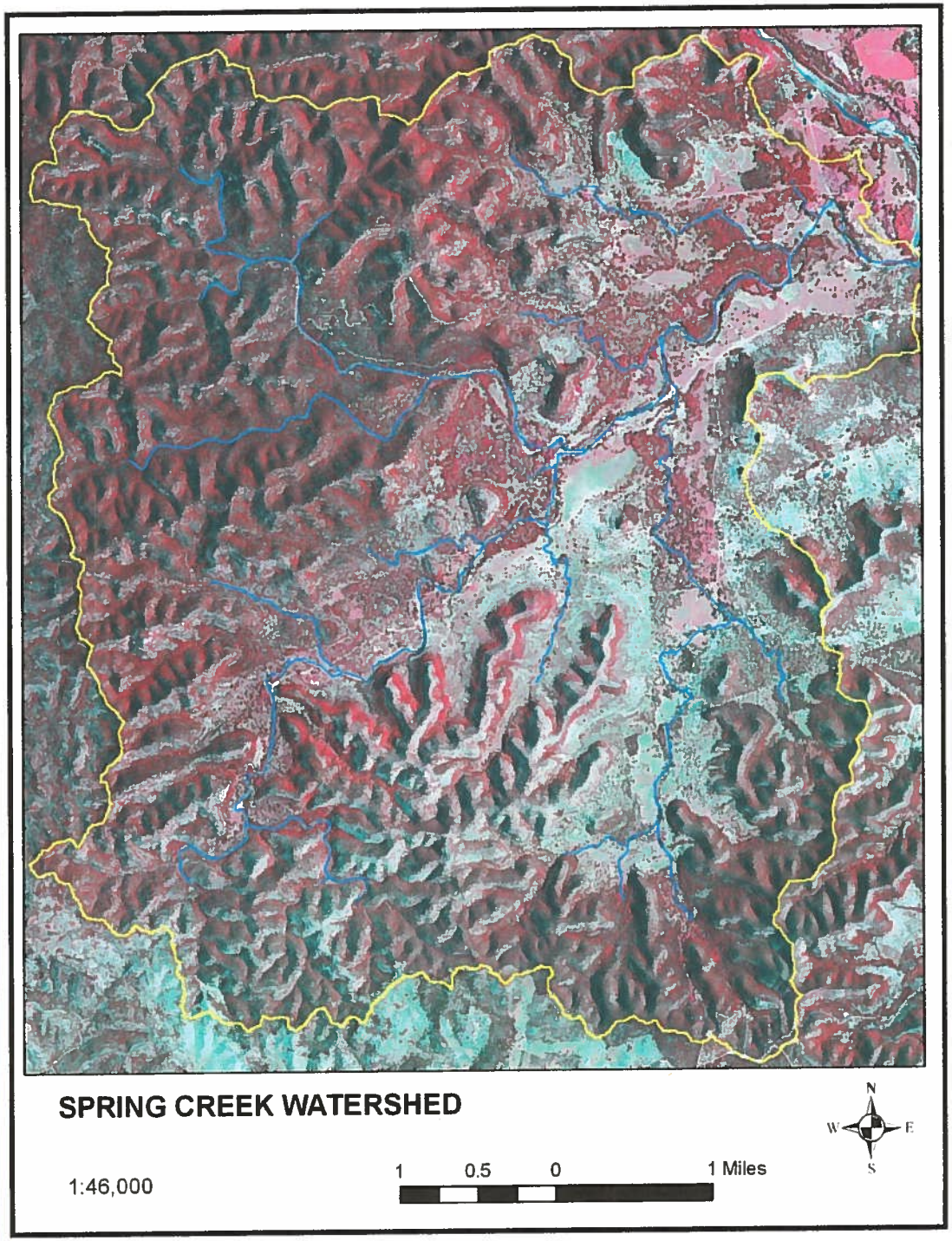
Example Analyses for Spring Creek Watershed near Barksdale, Texas

Watershed boundary on satellite image



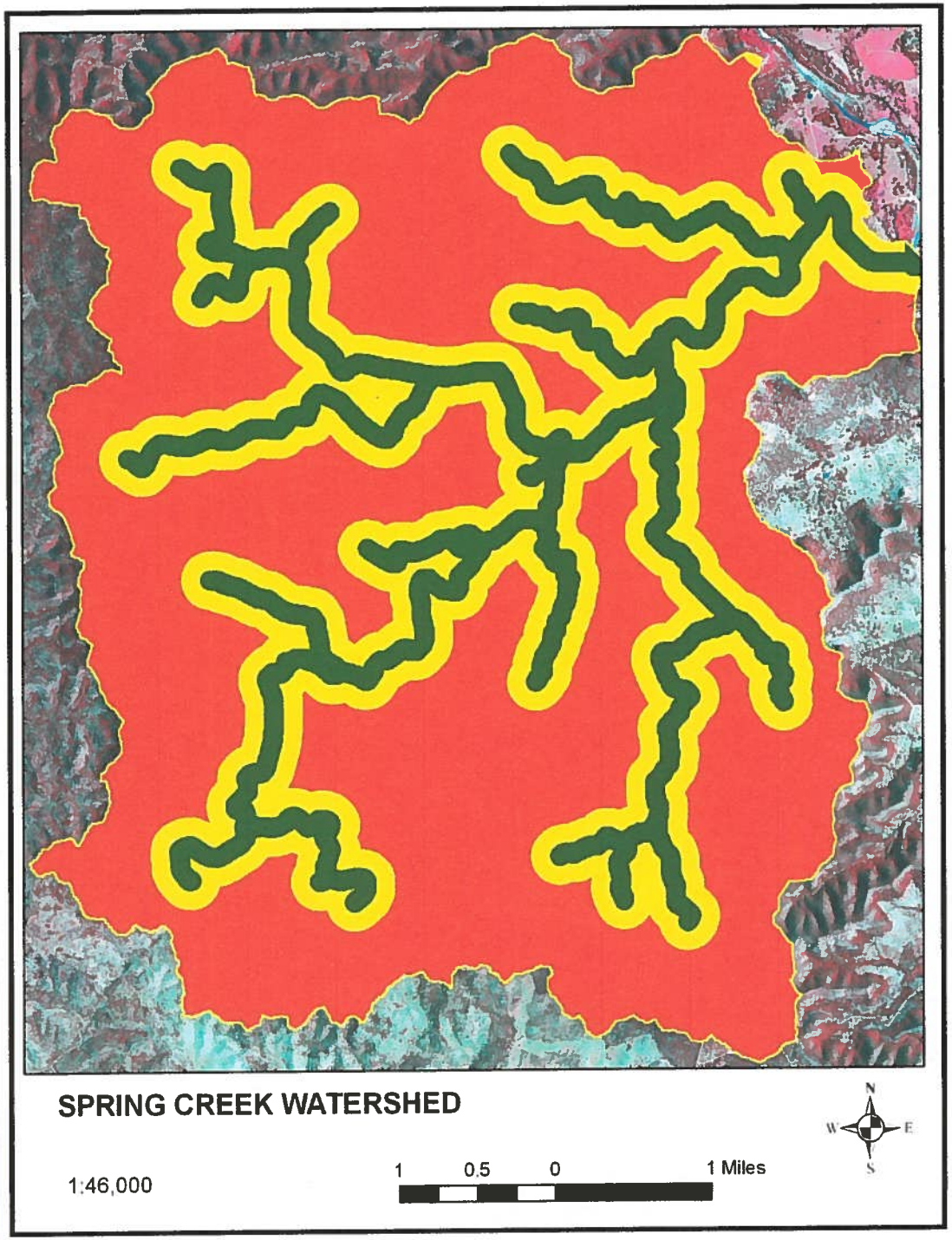
Drainage channel network from digital elevation model




SPRING CREEK WATERSHED
1:46,000
1 0.5 0 1 Miles
N
W E
S

Priority zones
1 – green
2 – yellow
3 – red

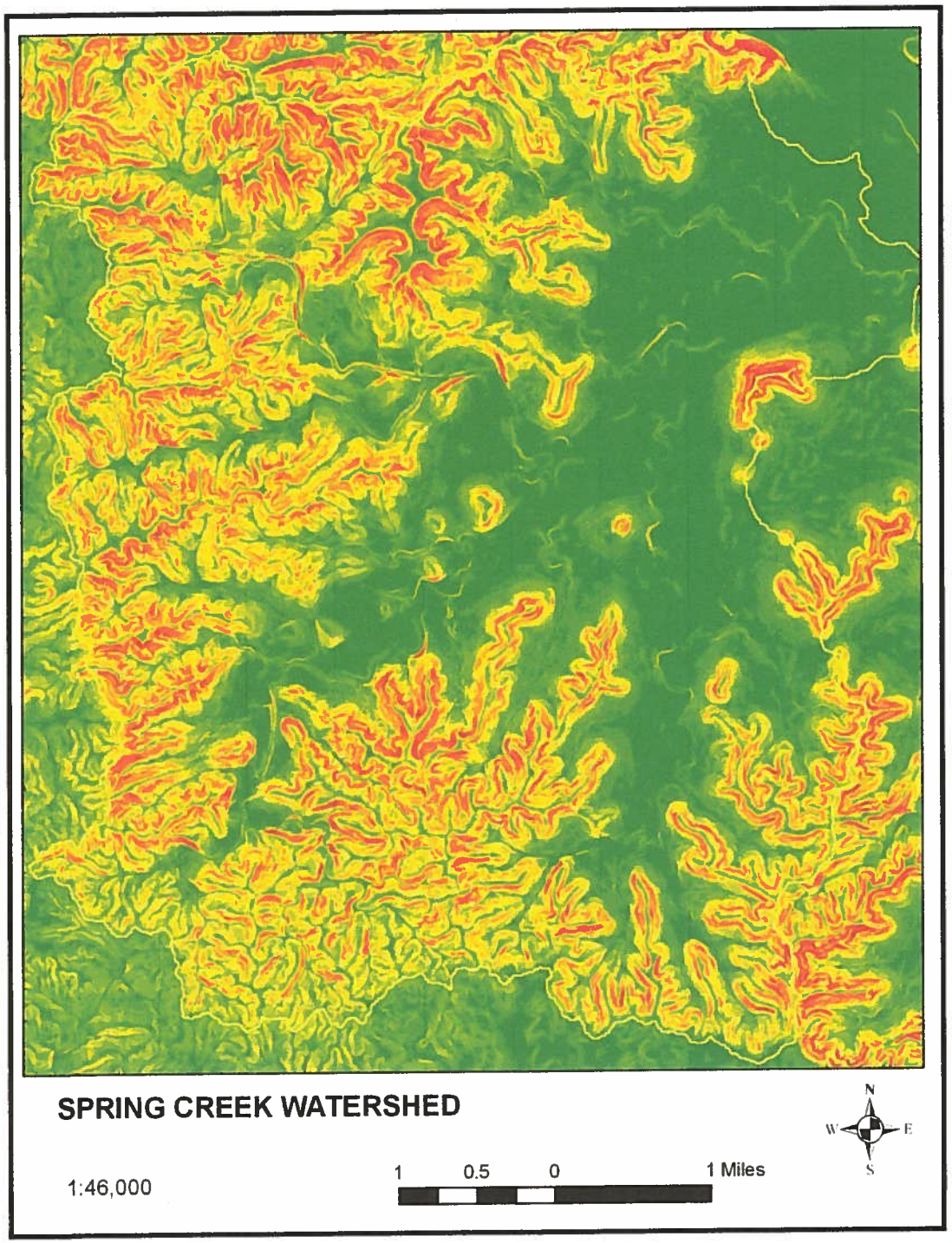
Riparian distance
<100 m
100-300 m
>300 m



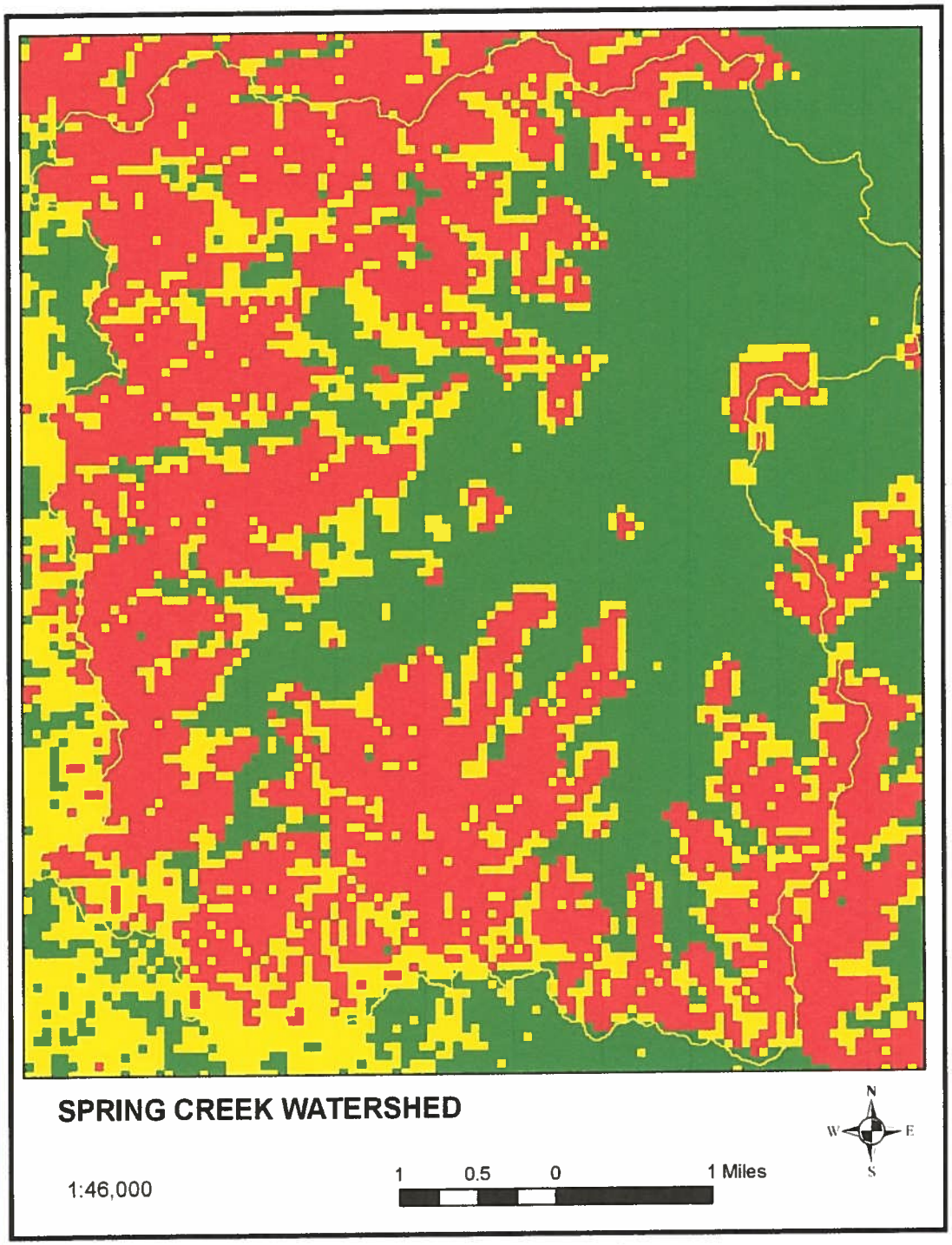
Relative distance
to outlet
1/3
2/3
3/3

Slopes
0-15%
15-30%
>30%

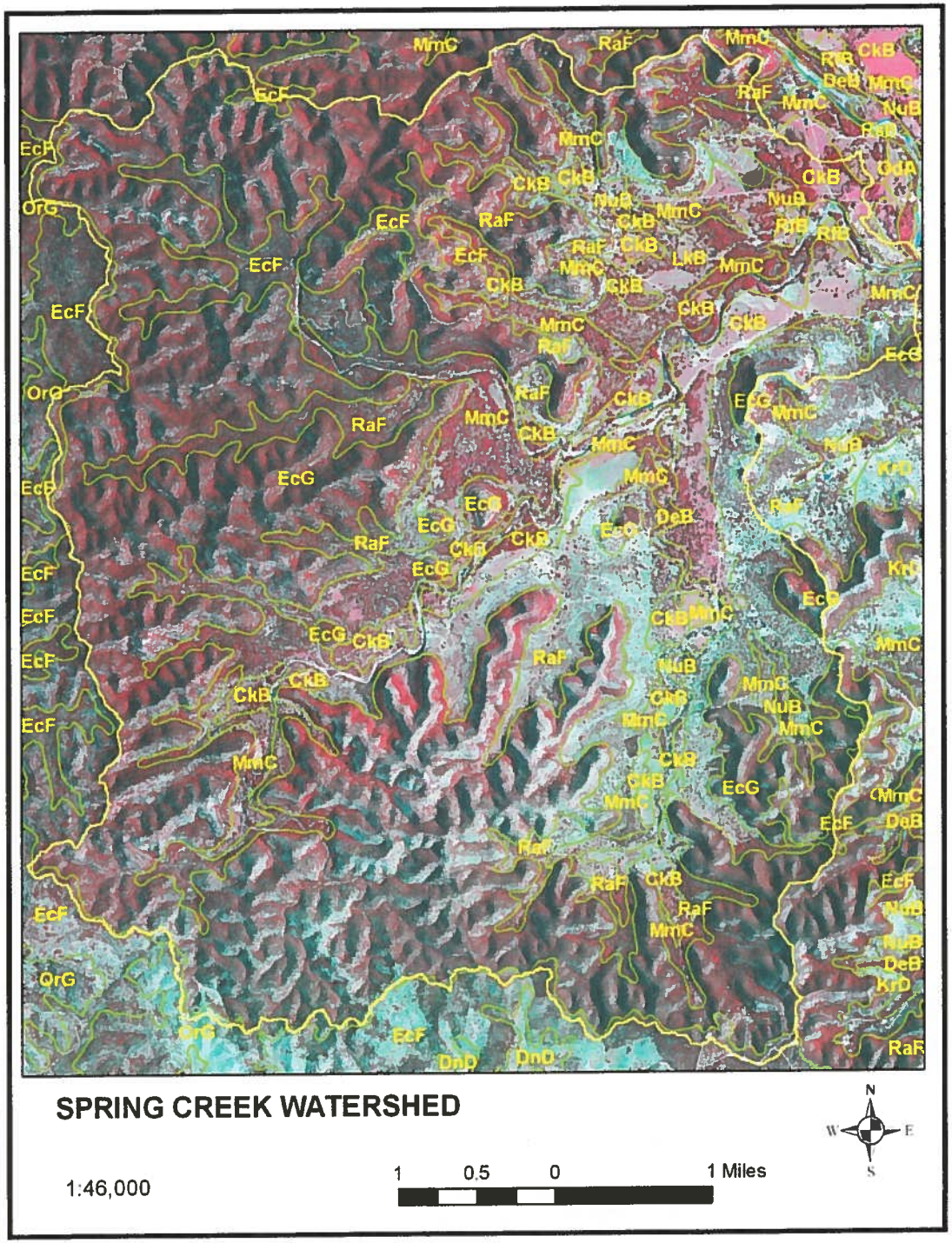
Fine resolution



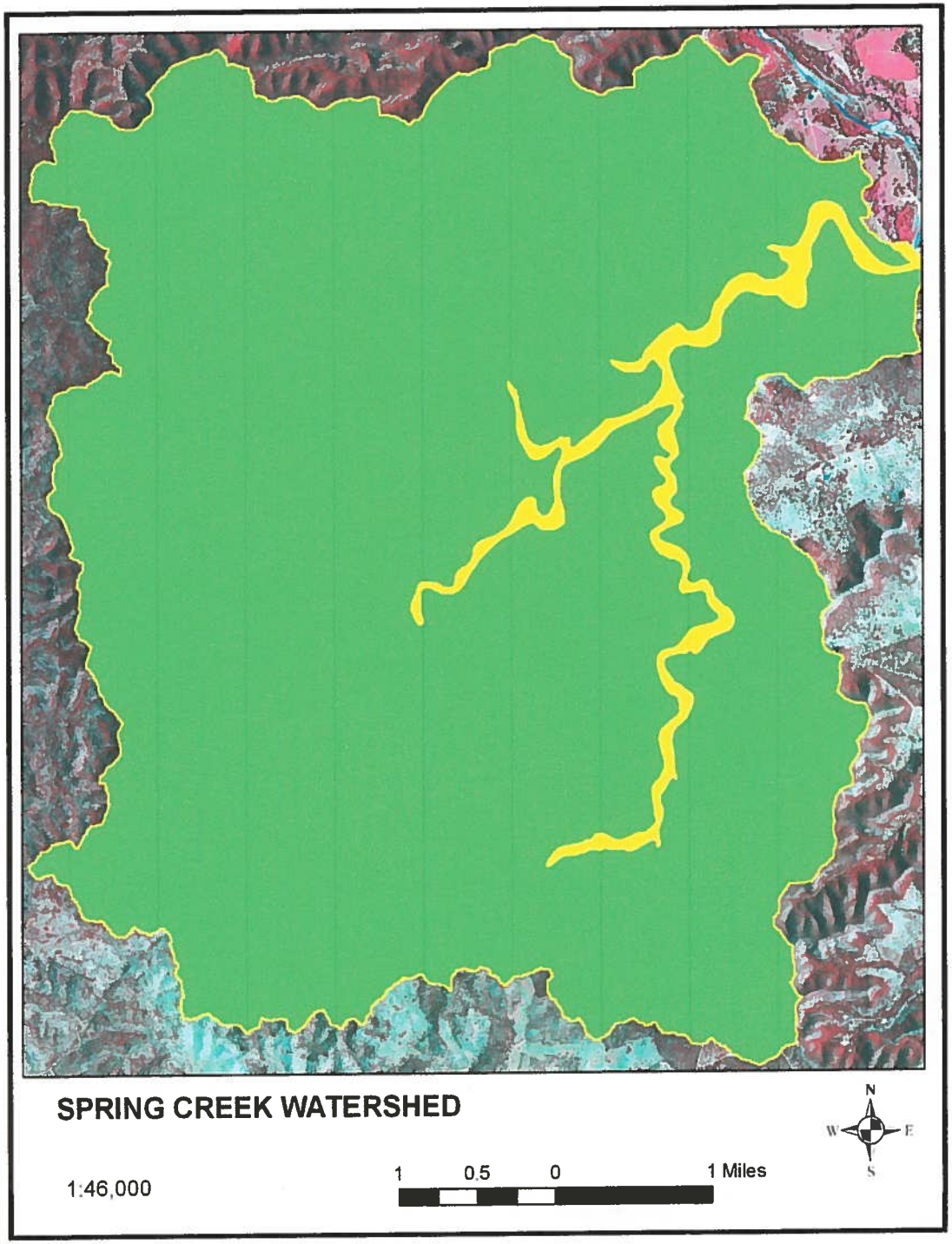
Coarser resolution for spatial processing



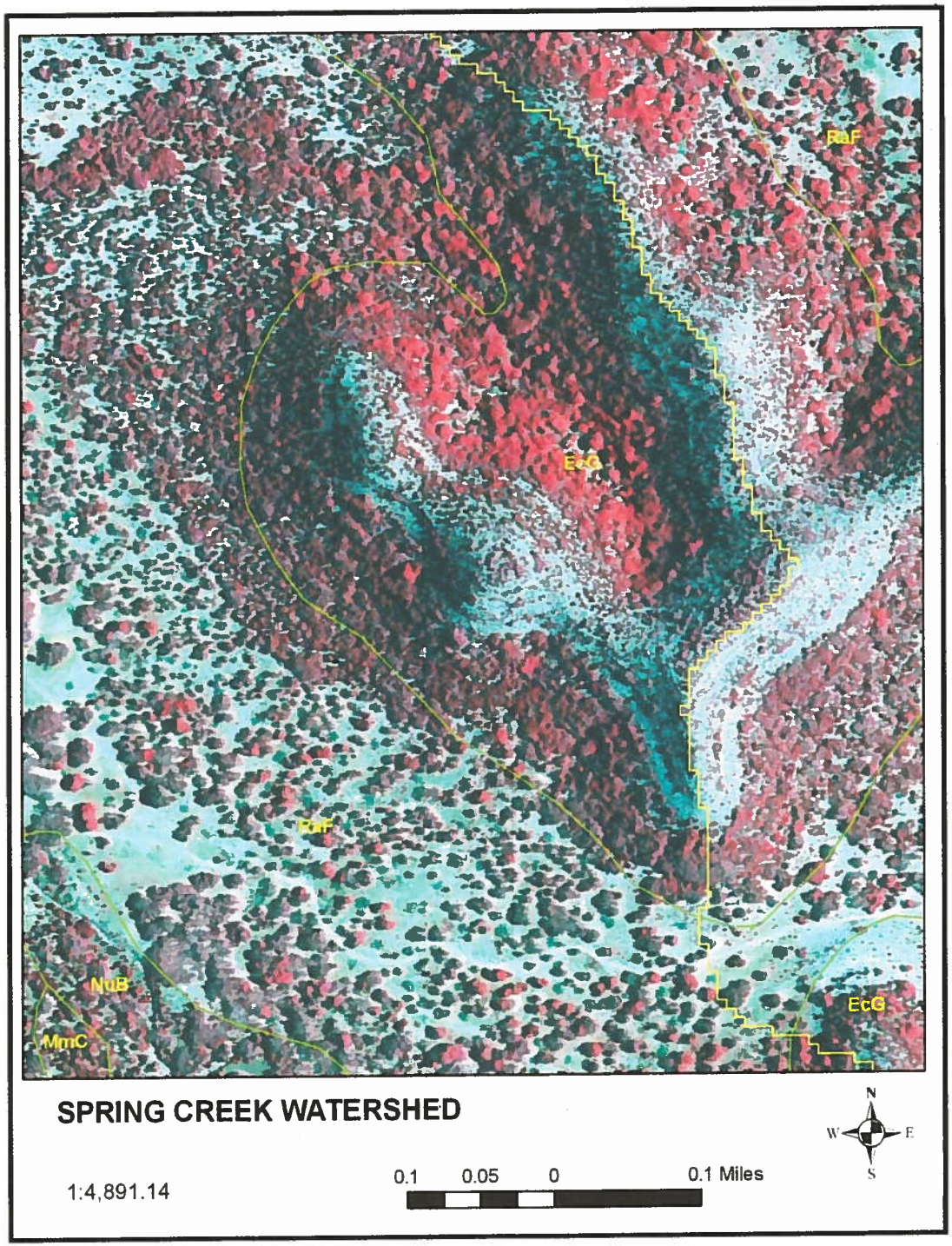
Soil classes



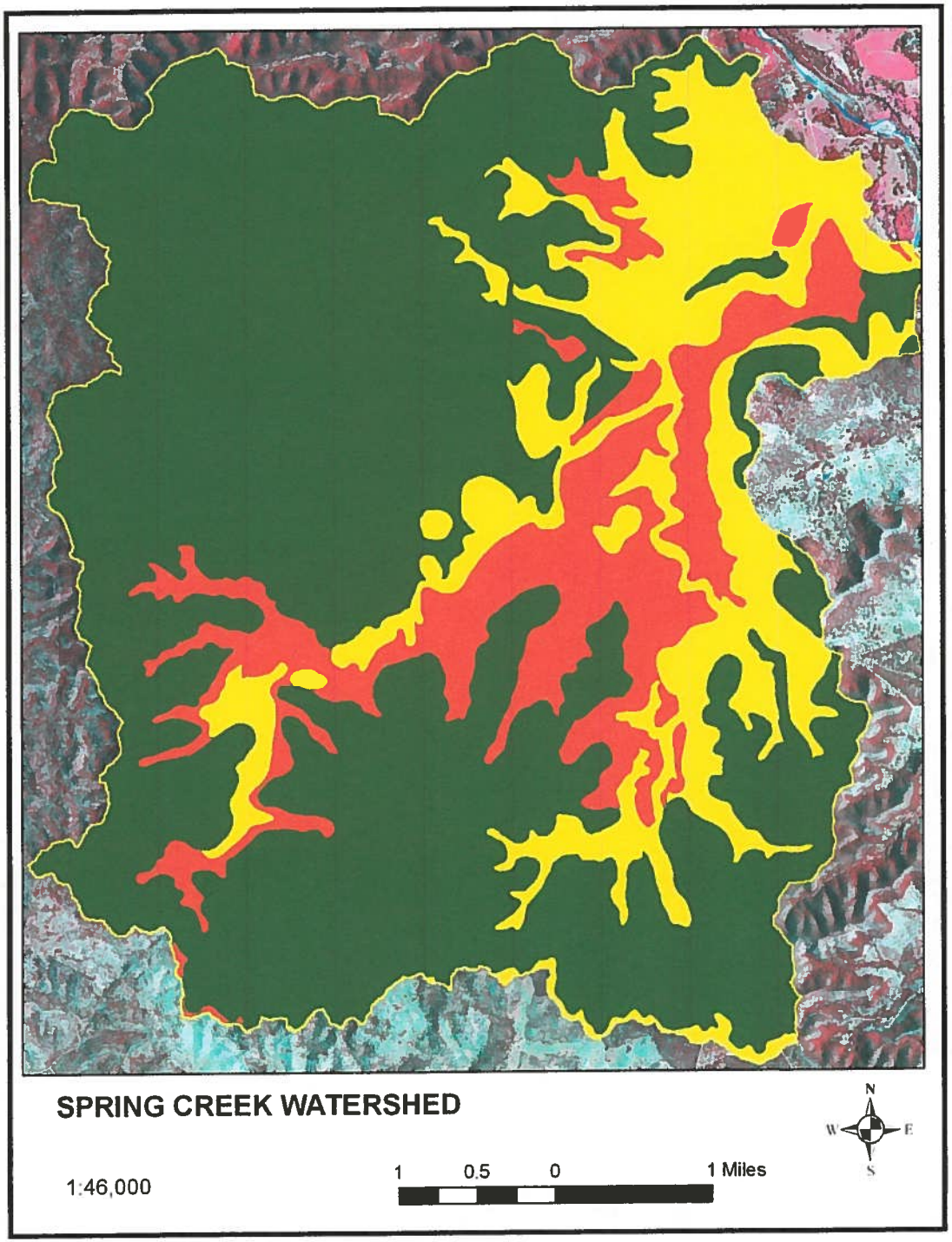
Soil classes relative to runoff potential
Heavy
Medium
Coarse (none)

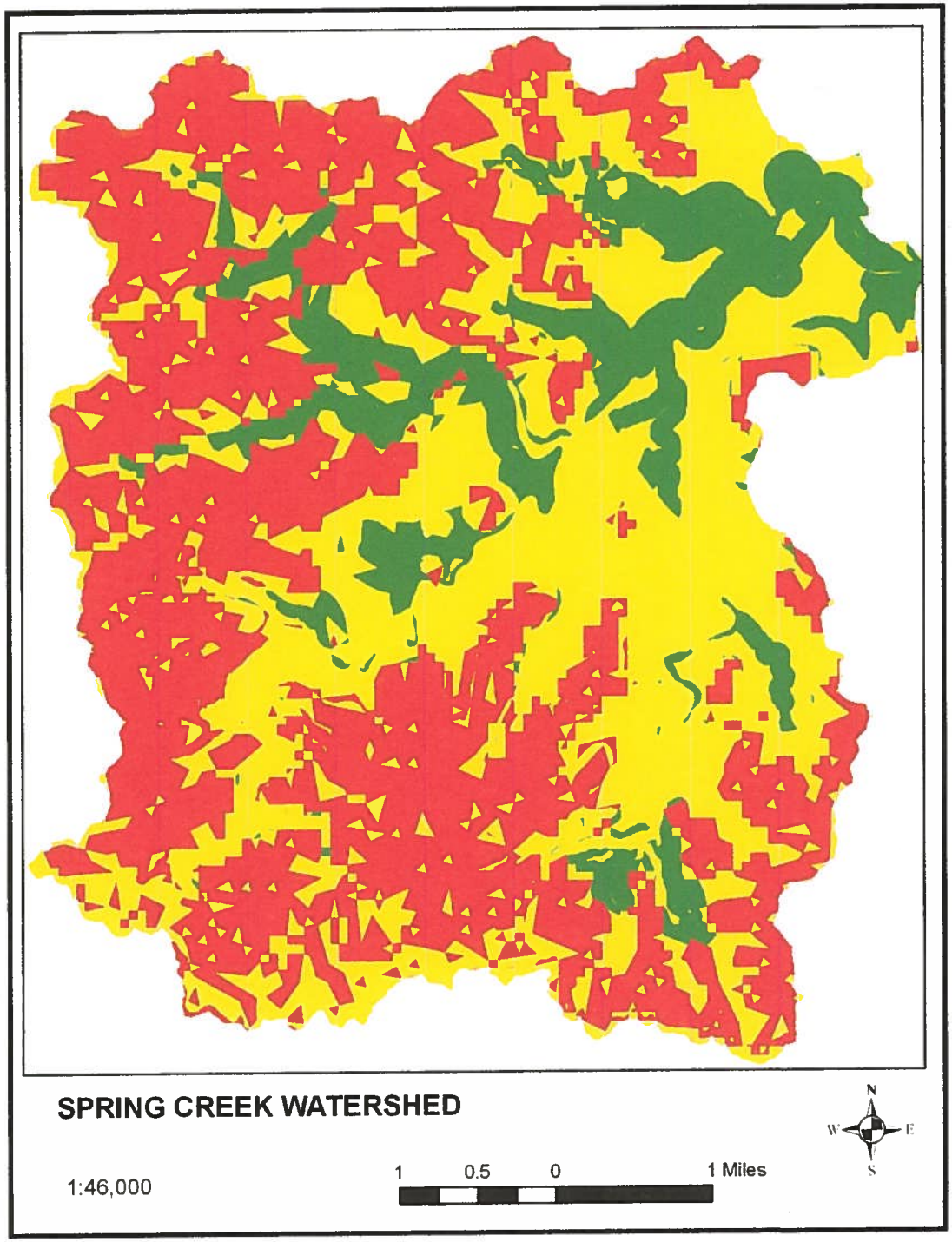


Vegetation density
Heavy >60%
Medium 30-60%
Low <30%
Bare



Vegetation density



Brush removal
Priority
1 – green
2,424 ac
2 – yellow
7,353 ac
3 – red
8,084 ac

Total 17,861 ac