Source: Subwatersheds (SVWQC 2013); Basemap, County, City, Highway, River (ESRI 2013). Datum is NAD83.

LEGEND

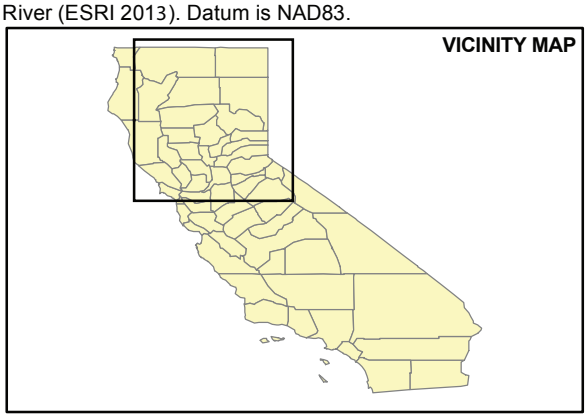
- Cities
- Rivers

Road Type

- Interstates
- Highways
- SVWQC Boundary
- SVWQC Subwatersheds

0 5 10 20 30 40
Miles

N



UNK C:\USERS\MCORONA1\DESKTOP\TM1 MXDS\
FIGURE 1_SACRAMENTO VALLEY STUDY AREA_SUBWATERSHEDS.MXD
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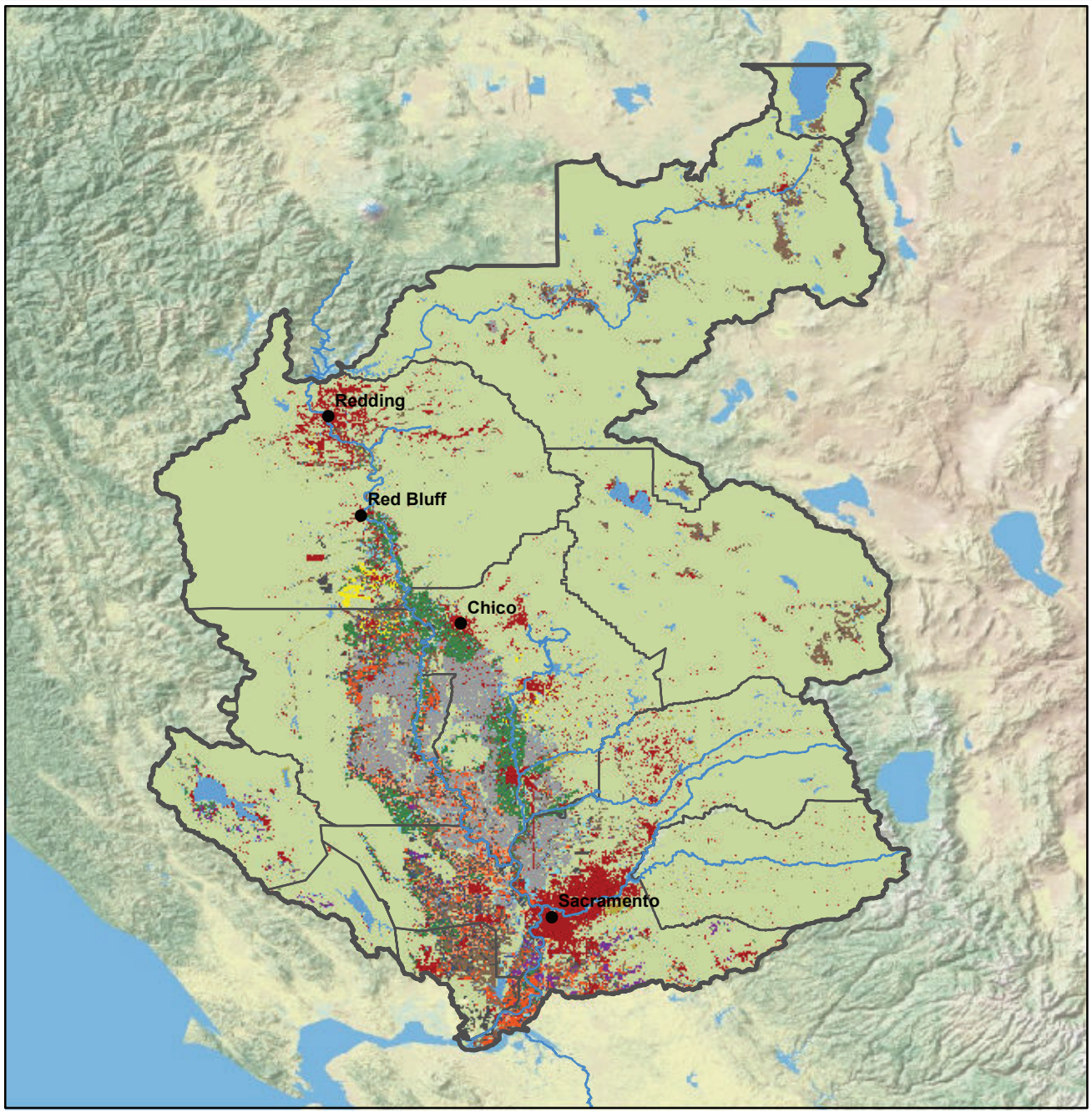
FIGURE 2-1
Sacramento River Watershed Study Area
Groundwater Quality Assessment Report



Source: Land Use by County (DWR 2013); Subwatersheds (SVWQC 2013); Basemap, City, County, River (ESRI 2013). Datum is NAD83.

LEGEND

- Cities
- Rivers
- SVWQC Boundary
- SVWQC Subwatersheds

Land Use Category

- Citrus and Subtropical
- Deciduous Fruits and Nuts
- Field Crops
- Grain and Hay
- Pasture
- Vineyards
- Rice
- Tilled Lands
- Livestock, Dairy, Poultry
- Surface Water
- Barren and Wasteland
- Native Vegetation
- Urban
- Idle

0 5 10 20 30 40
Miles

N

Notes:
1. DWR land use data was obtained by county between 1994 and 2008 in the year that that county was surveyed.
2. El Dorado land use data was obtained from NRCS SSURGO 2003 surveys.

UNK \\ODIN\PROJ\NORTHERNCALIFORNIAWA\478361_GRDWTRASSMTRPT\GIS\MXD\TM1\FIGURE 2_LAND USE IN THE SVWQC AREA.MXD DMEADOWS 11/26/2013 9:51:44 AM

FIGURE 2-2
Land Use in the Sacramento River Watershed
Groundwater Quality Assessment Report

CH2MHILL

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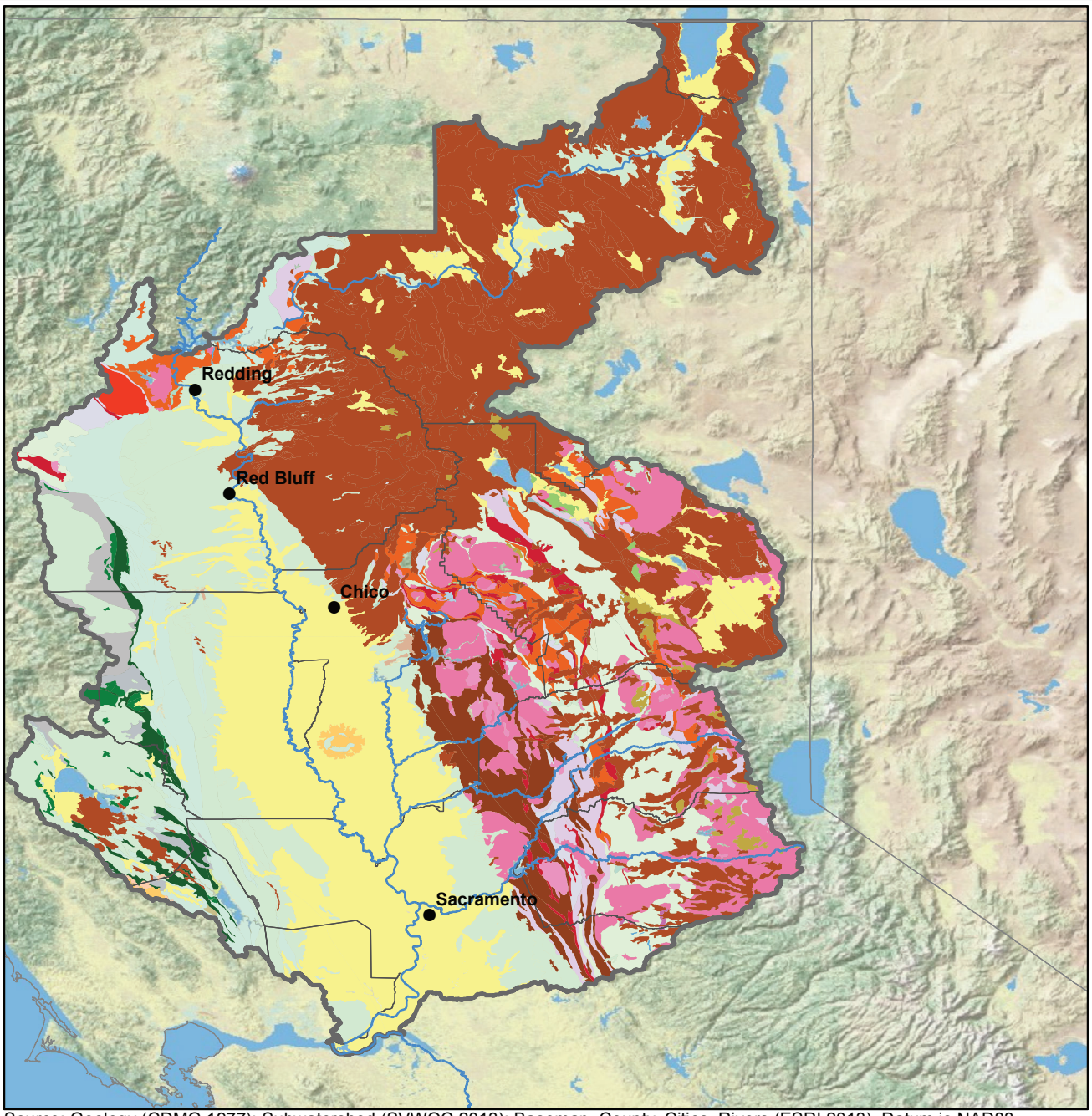

Source: Geology (CDMG 1977); Subwatershed (SVWQC 2013); Basemap, County, Cities, Rivers (ESRI 2013). Datum is NAD83.

LEGEND

- Cities
- Rivers
- SVWQC Boundary
- SVWQC Subwatersheds

Lithology

- Alluvium
- Andesite
- Argillite
- Basalt
- Blueschist
- Chert
- Conglomerate
- Dacite
- Diorite
- Gabbro
- Glacial drift
- Gneiss
- Granodiorite
- Greenstone
- Intermediate volcanic rock
- Landslide
- Limestone
- Mafic volcanic rock
- Melange
- Metasedimentary rock
- Metavolcanic rock
- Mudstone
- Peridotite
- Phyllite
- Quartzite
- Rhyolite
- Sandstone
- Schist
- Serpentinite
- Shale
- Siltstone
- Slate

0 5 10 20 30 40
Miles

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VICINITY MAP

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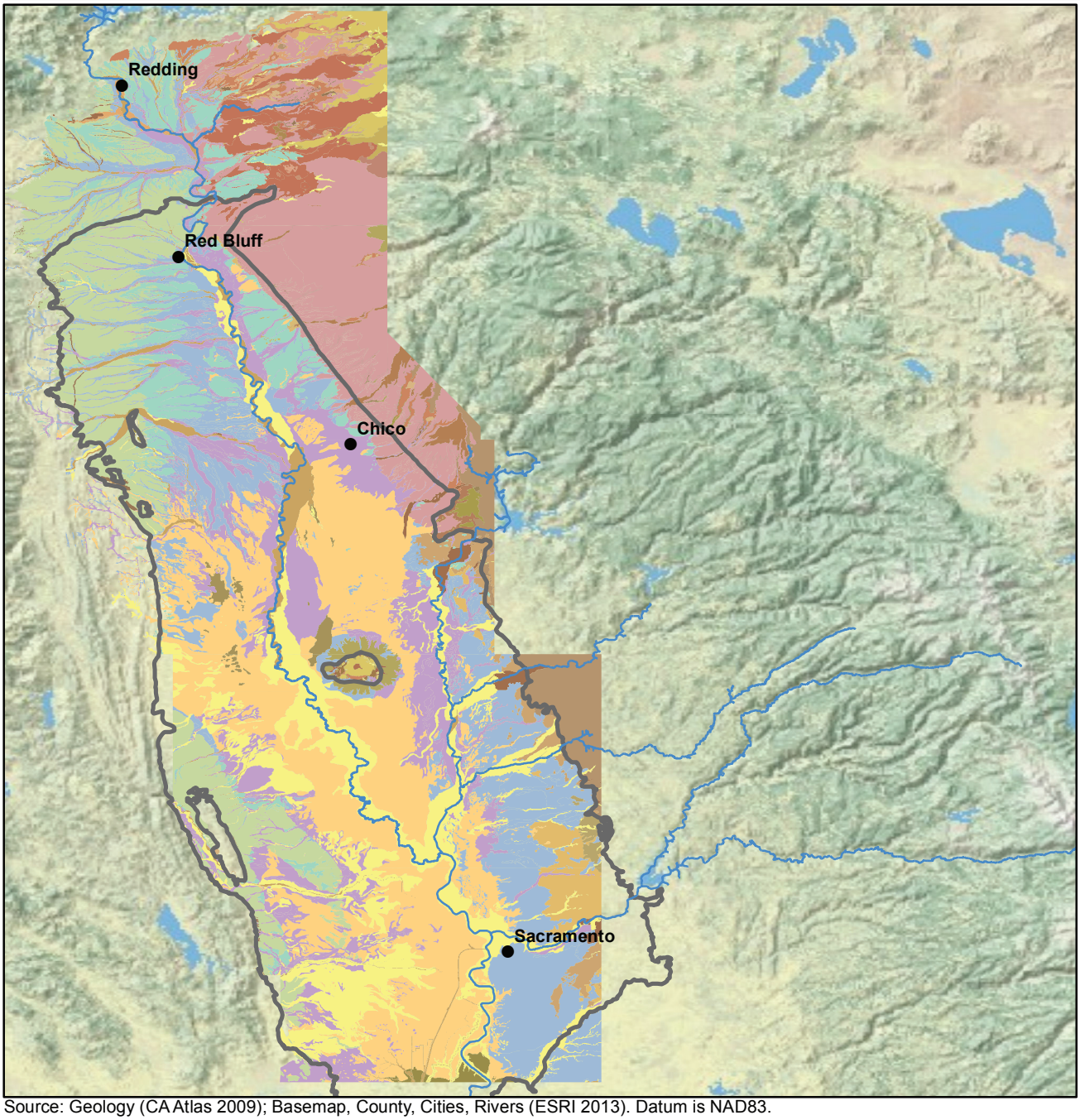
FIGURE 2-3
Generalized Lithology in the Sacramento River Watershed
Groundwater Quality Assessment Report



Source: Geology (CA Atlas 2009); Basemap, County, Cities, Rivers (ESRI 2013). Datum is NAD83.

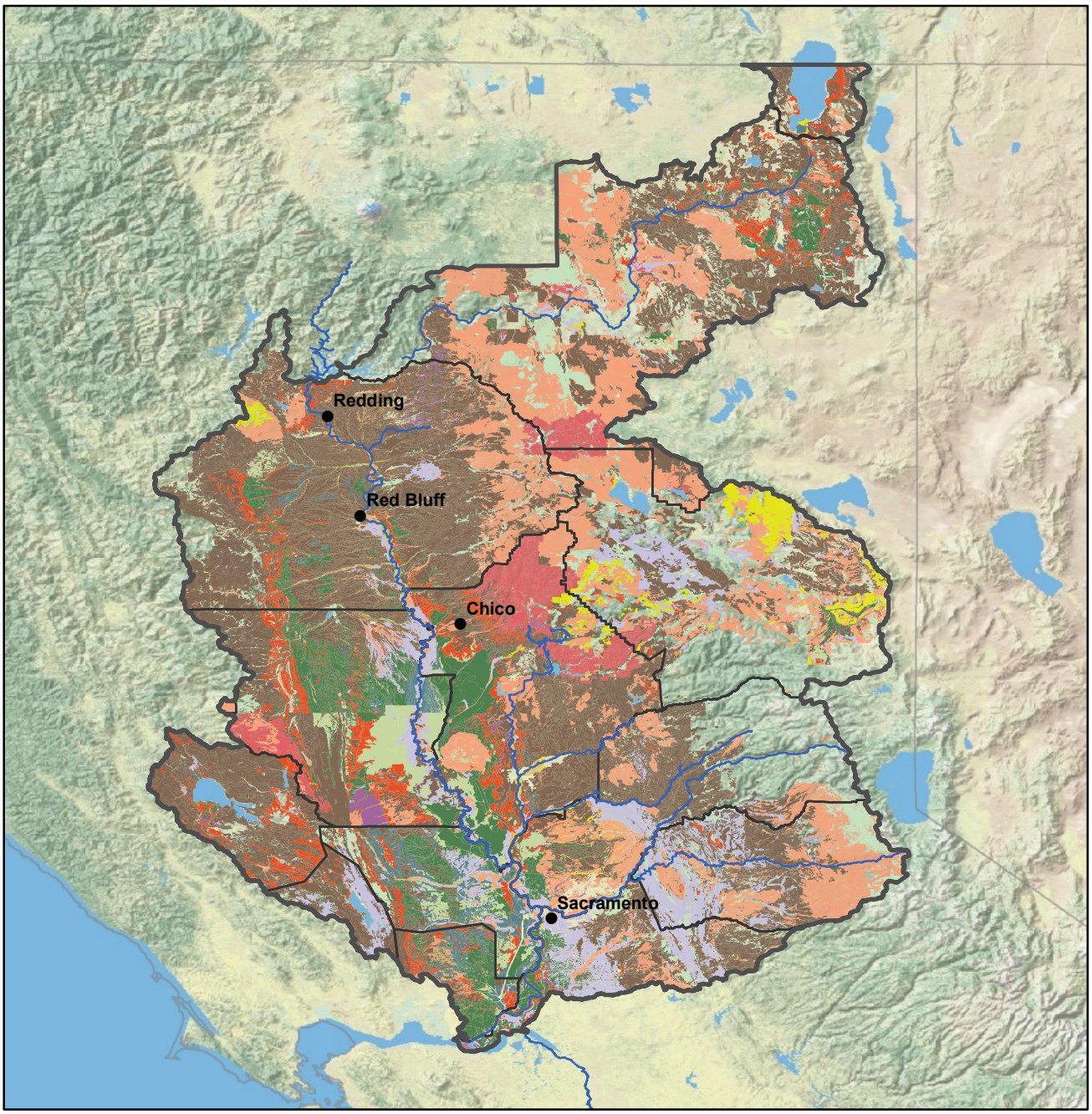
LEGEND

- Sacramento Valley Groundwater Basin
- Cities
- Rivers
- Alluvium
- Andesite
- Basalt
- Basaltic Andesite of Antelope Creek
- Basin Deposits, Undivided
- Blue Ridge Rhyolite of Coe (1977)
- Channel Deposits
- Chico Formation
- Cinder Blanket Deposits, Black Butte
- Cinder Cone Deposits
- Cinder Deposits associated with Basalt of Whitmor
- Flank Fissure
- Ione Formation
- Ishi Tuff Member
- Laguna Formation
- Landslides
- Lovejoy Basalt
- Marsh Deposits
- Mehrten Formation
- Metamorphic and Igneous Rocks
- Modesto Formation
- Montgomery Creek Formation
- Nomlaki Tuff Member
- Older Gravel Deposits
- Olivine Basalts
- Overbank Deposits
- Peat Deposits
- Red Bluff Formation
- Rhyolite Domes in Sutter Buttes Area
- Riverbank Formation
- Rockland Ash Bed
- Sedimentary Rocks in Sutter Buttes Area
- Stream Channel Deposits
- Sutter Formation of Williams and Curtis (1977)
- Tailings
- Tehama Formation
- Tuff
- Tuff Breccia
- Turlock Lake Formation
- Tuscan Formation
- Volcanic Lake Bed

0 5 10 20
Miles

N

FIGURE 2-4
Detailed Lithology in the Sacramento Basin
Groundwater Quality Assessment Report



Source: SSURGO Texture (NRCS 2013); Subwatersheds (SVWQC 2013); Basemap, City, County, River (ESRI 2013). Datum is NAD83.

LEGEND

- Cities
- Rivers
- SVWQC Boundary
- SVWQC Subwatersheds
- Bedrock
- Clay
- Clay loam
- Decomposed plant material
- Loam
- Loamy sand
- Sand
- Sandy clay loam
- Sandy loam
- Silt loam
- Silty clay
- Silty clay loam

Notes:
1. Blank areas are unclassified.

0 5 10 20 30 40
Miles

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FIGURE 4_SOIL TEXTURE IN THE SVWQC AREA.MXD MCORONA1 11/25/2013 5:06:00 PM

FIGURE 2-5
Soil Surface Texture in the Sacramento River Watershed
Groundwater Quality Assessment Report

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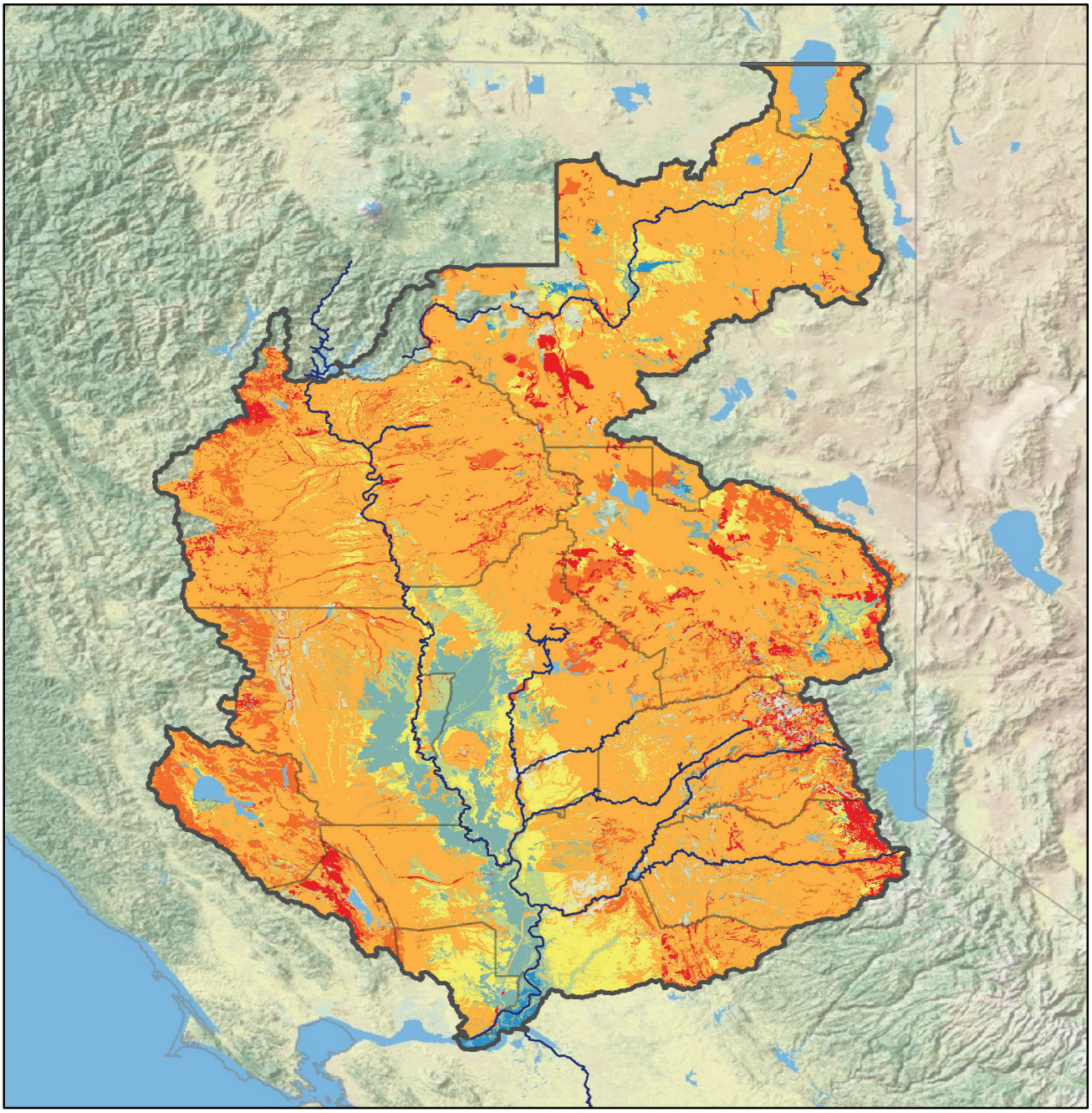

Source: SSURGO Drainage (NRCS 2013), Subwatersheds (SVWQC 2013); Basemap, City, County, River (ESRI 2013). Datum is NAD83.

LEGEND

- Cities
- Rivers
- SVWQC Boundary
- SVWQC Subwatersheds

NRCS Drainage Class

- Very poorly drained
- Poorly drained
- Somewhat poorly drained
- Moderately well drained
- Well drained
- Somewhat excessively drained
- Excessively drained

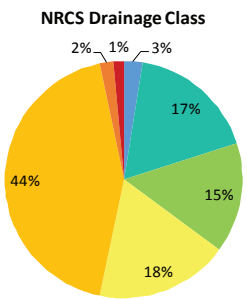

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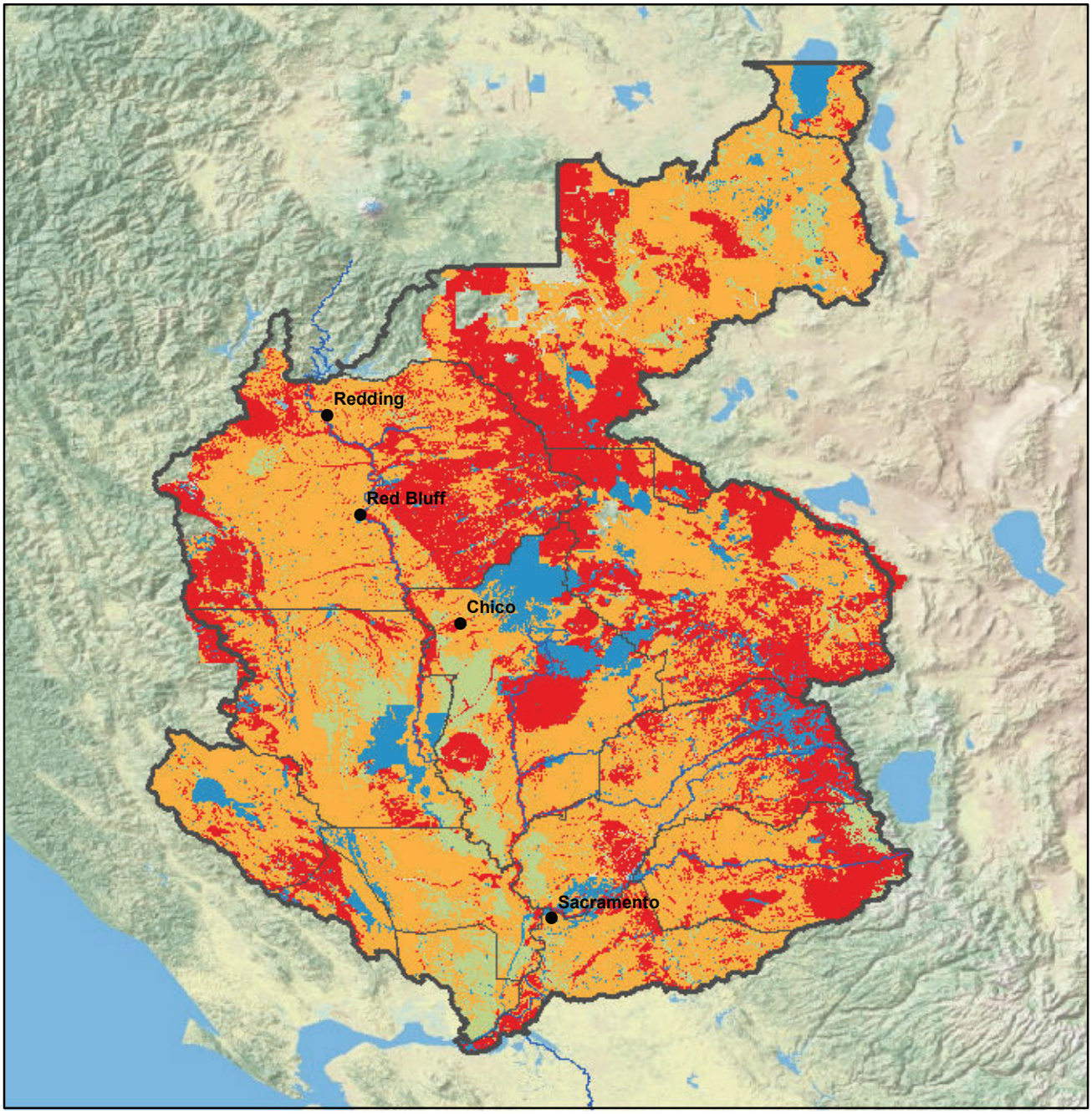
FIGURE 5_SOIL DRAINAGE CLASS IN THE SVWQC AREA_V2.MXD
MCORONA1 11/25/2013 7:21:01 PM

FIGURE 2-6
Soil Drainage Classes in the Sacramento River Watershed
Groundwater Quality Assessment Report



Source: SSURGO HC (NRCS 2013), Subwatersheds (SVWQC 2013); Basemap, City, County, River (ESRI 2013). Datum is NAD83.

LEGEND

- Cities
- Rivers
- SVWQC Boundary
- SVWQC Subwatersheds

Hydraulic Conductivity

- Low (0 to 1.0E-5 cm/s)
- Moderately Low (1.0E-5 to 1.0E-4 cm/s)
- Moderately High (1.0E-4 - 1.0E-3 cm/s)
- High (> 0.001 cm/s)

0 5 10 20 30 40
Miles

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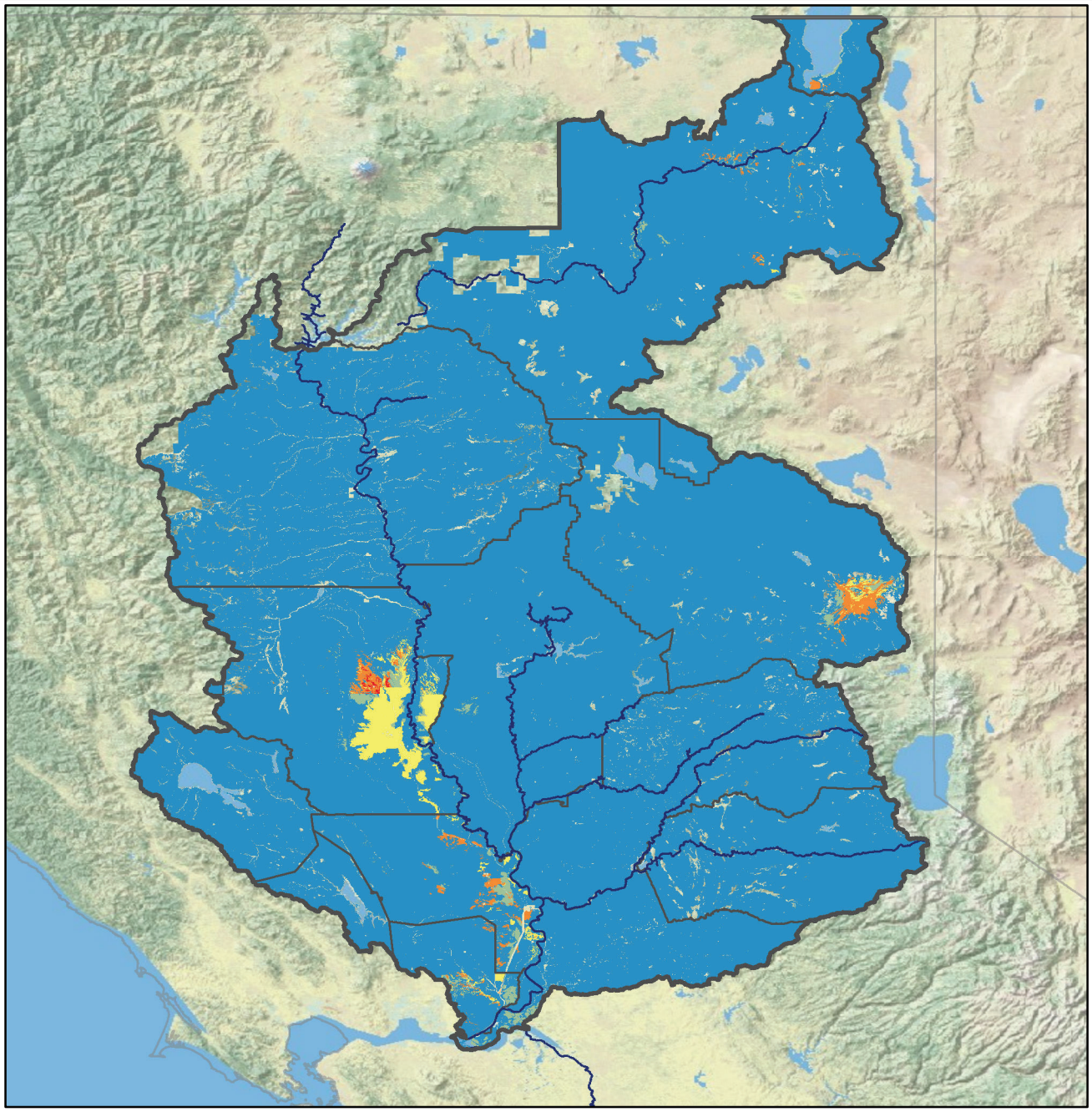
UNK \\ODIN\PROJ\NORTHERNCALIFORNIAWA\478361_GRDWTRASSMTRPT\GIS\MXD\TM1\FIGURE 6_SOIL HYDRAULIC CONDUCTIVITY IN THE SVWQC AREA.MXD
DMEADOWS 11/26/2013 9:49:06 AM

FIGURE 2-7
Soil Hydraulic Conductivity in the Sacramento River Watershed
Groundwater Quality Assessment Report



Source: SSURGO EC (NRCS 2013); Subwatersheds (SVWQC 2013); Basemap, City, County, River (ESRI 2013). Datum is NAD83.

LEGEND

- Cities
- Rivers
- SVWQC Boundary
- SVWQC Subwatersheds

Electrical Conductivity (dS/m)

- 0 to 2: Nonsaline
- 2 to 4: Very slightly saline
- 4 to 8: Slightly saline
- 8 to 16: Moderately saline
- Greater than 16: Strongly saline

0 5 10 20 30 40
Miles

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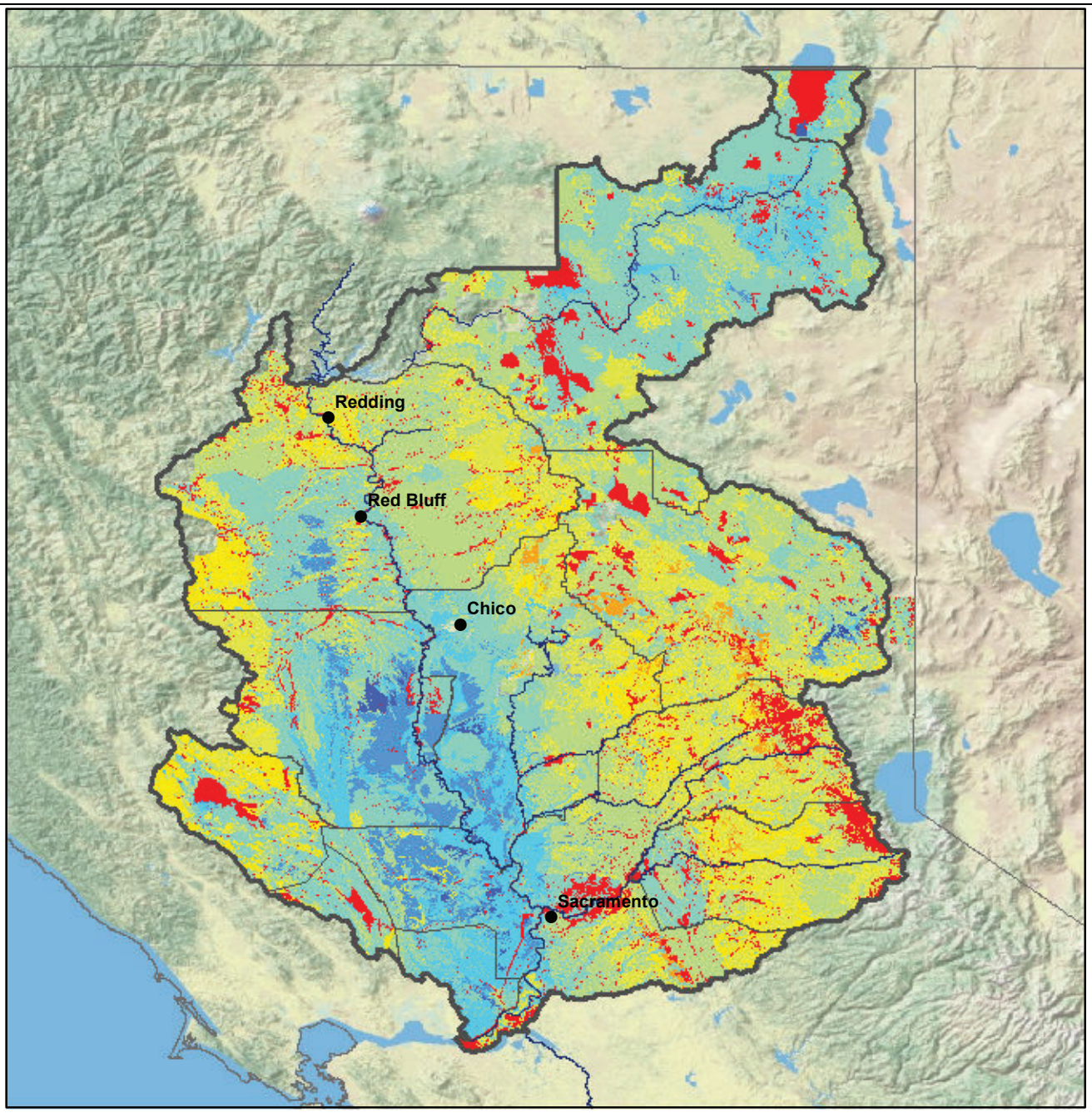
FIGURE 7_SOIL SALINITY IN THE SVWQC AREA.MXD MCORONA1 11/25/2013 7:28:54 PM

FIGURE 2-8
Soil Salinity in the Sacramento River Watershed
Groundwater Quality Assessment Report



Source: SSURGO pH (NRCS 2013), Subwatersheds (SVWQC 2013); Basemap, City, County, River (ESRI 2013). Datum is NAD83.

LEGEND

- Cities
- Rivers
- SVWQC Boundary
- SVWQC Subwatersheds

pH

- Ultra acidic (pH < 3.5)
- Extremely acidic (pH 3.5 - 4.4)
- Very strongly acidic (pH 4.4 - 5.0)
- Strongly acidic (pH 5.1 - 5.5)
- Moderately acidic (pH 5.6 - 6.0)
- Slightly acidic (pH 6.1 - 6.5)
- Neutral (pH 6.6 - 7.3)
- Slightly alkaline (pH 7.4 - 7.8)
- Moderately alkaline (pH 7.9 - 8.4)
- Strongly alkaline (pH 8.5 - 9.0)
- Very strongly alkaline (pH > 9.0)

0 5 10 20 30 40
Miles

N

UNK \\ODIN\PROJ\NORTHERNCALIFORNIAWA\478361_GRDWTRASSMTRPT\GIS\MXD\TM1\FIGURE 8_SOIL ACIDITY IN THE SVWQC AREA.MXD DMEADOWS 11/26/2013 9:56:23 AM

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FIGURE 2-9
Soil pH in the Sacramento River Watershed
Groundwater Quality Assessment Report

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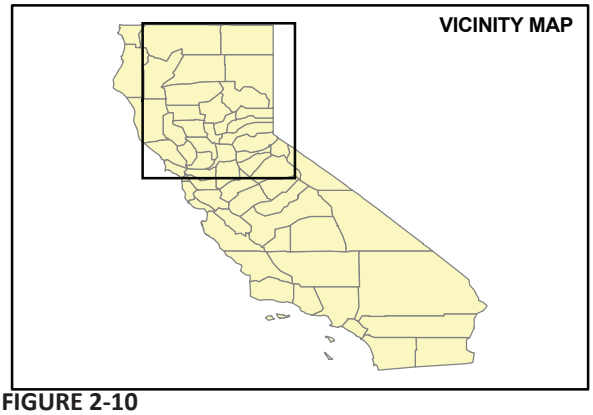
Source: Basins (DWR 2012); HVAs (SWRCB, 2000); GWPA (DPR 2004); Subwatersheds (SVWQC 2013); Basemap, County, City, River (ESRI 2013). Datum is NAD83.

LEGEND

- Cities
- Rivers
- DPR Groundwater Protection Area
- SWRCB Hydrogeologically Vulnerable Areas
- DWR Groundwater Basins
- SVWQC Boundary
- SVWQC Subwatersheds



0 5 10 20 30 40
Miles

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FIGURE 2-10
SWRCB Hydrogeologically Vulnerable and DPR Groundwater Protection Areas
Groundwater Quality Assessment Report

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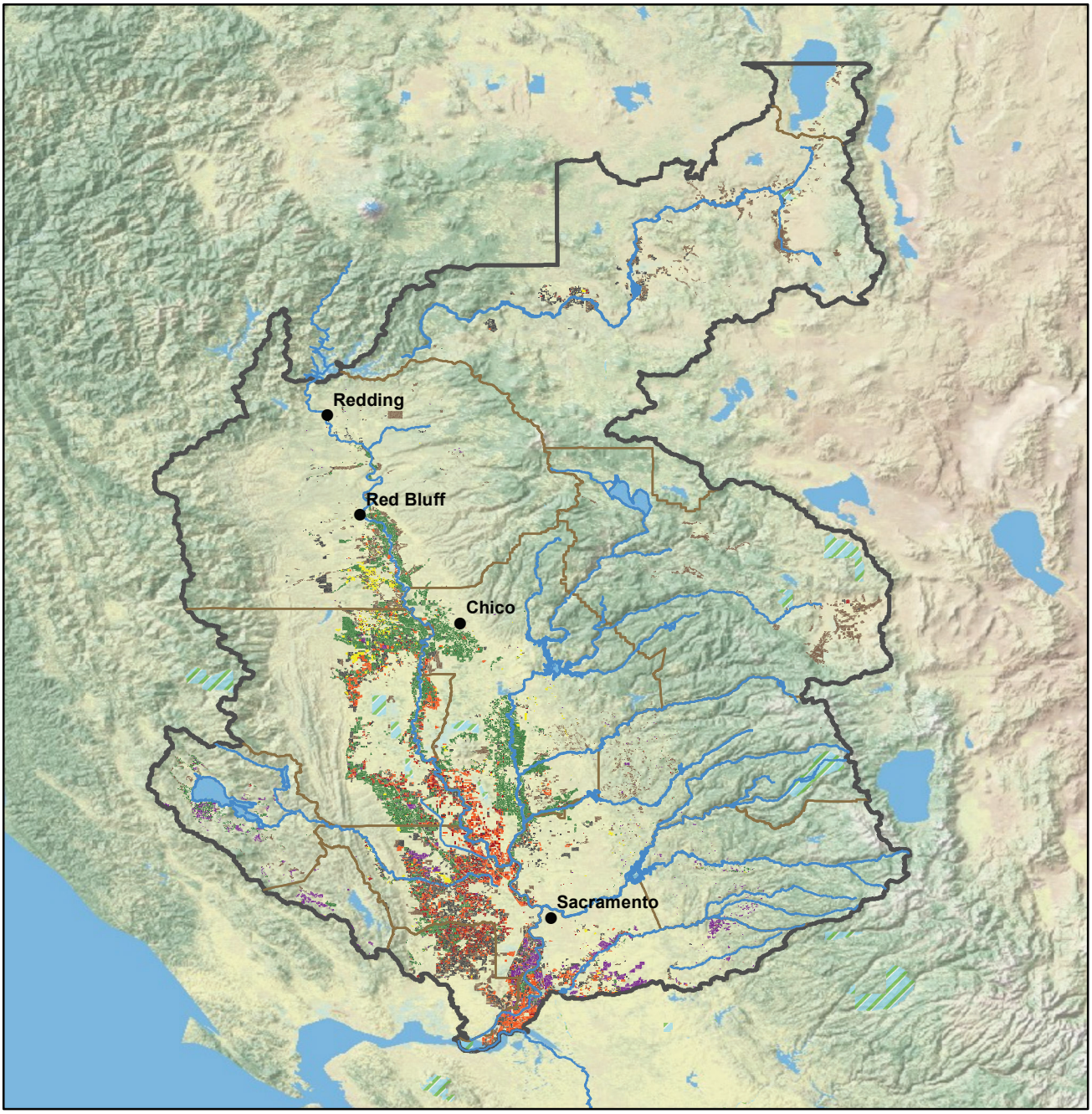


Source: Land Use (DWR, CalAg PUR 2013); Subwatersheds (SVWQC 2013); Basemap, City, County, River (ESRI 2011). Datum is NAD83.

LEGEND

- Cities
- Rivers
- SVWQC Boundary
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

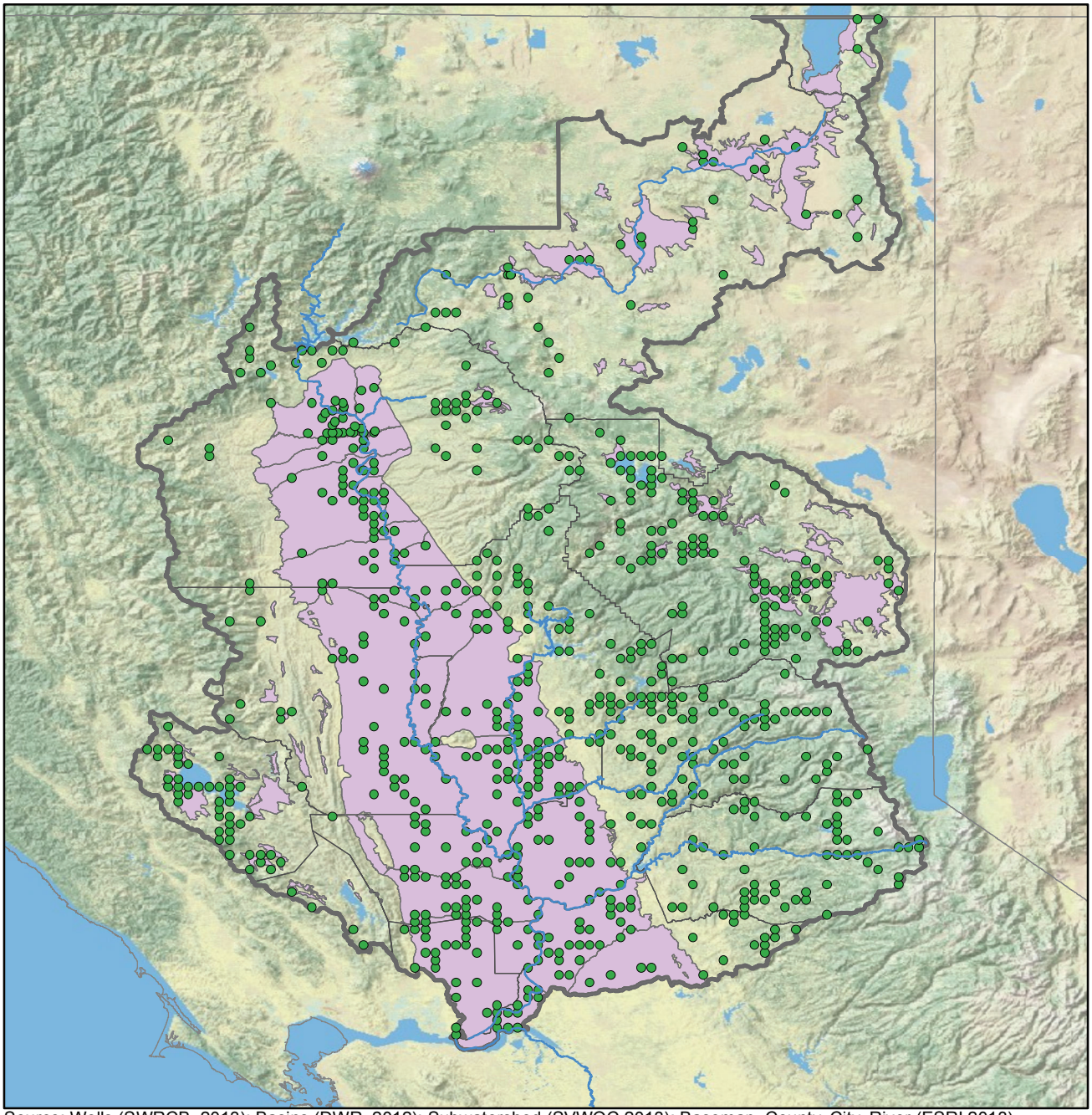
N

0 5 10 20 30 40
Miles

Notes:
1. Cal Ag PUR Field Boundaries land use data for registered pesticides was obtained from 2013. Most recent DWR land use data is represented for countries with no PUR data.

UNK \\ODIN\PROJ\NORTHERNCALIFORNIAWA\478361_GRDWTRASSMTRPT\GIS\MXD\TM2\ATTACHMENT1_FIGURE1_REVISEDLANDUSE.MXD LPORTA 4/30/2014 4:28:21 PM

FIGURE 2-11
Major Irrigated Crop Categories in the Sacramento River Watershed
Groundwater Quality Assessment Report



Source: Wells (SWRCB, 2013); Basins (DWR, 2012); Subwatershed (SVWQC 2013); Basemap, County, City, River (ESRI 2013).
Datum is NAD83.

LEGEND

- GeoTracker California Department of Public Health (CDPH) Wells
- Rivers
- DWR Groundwater Basins
- SVWQC Boundary
- SVWQC Subwatersheds

VICINITY MAP

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Miles

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FIGURE 3-1
SWRCB GeoTracker GAMA Database: CDPH wells in the Study Area
Groundwater Quality Assessment Report

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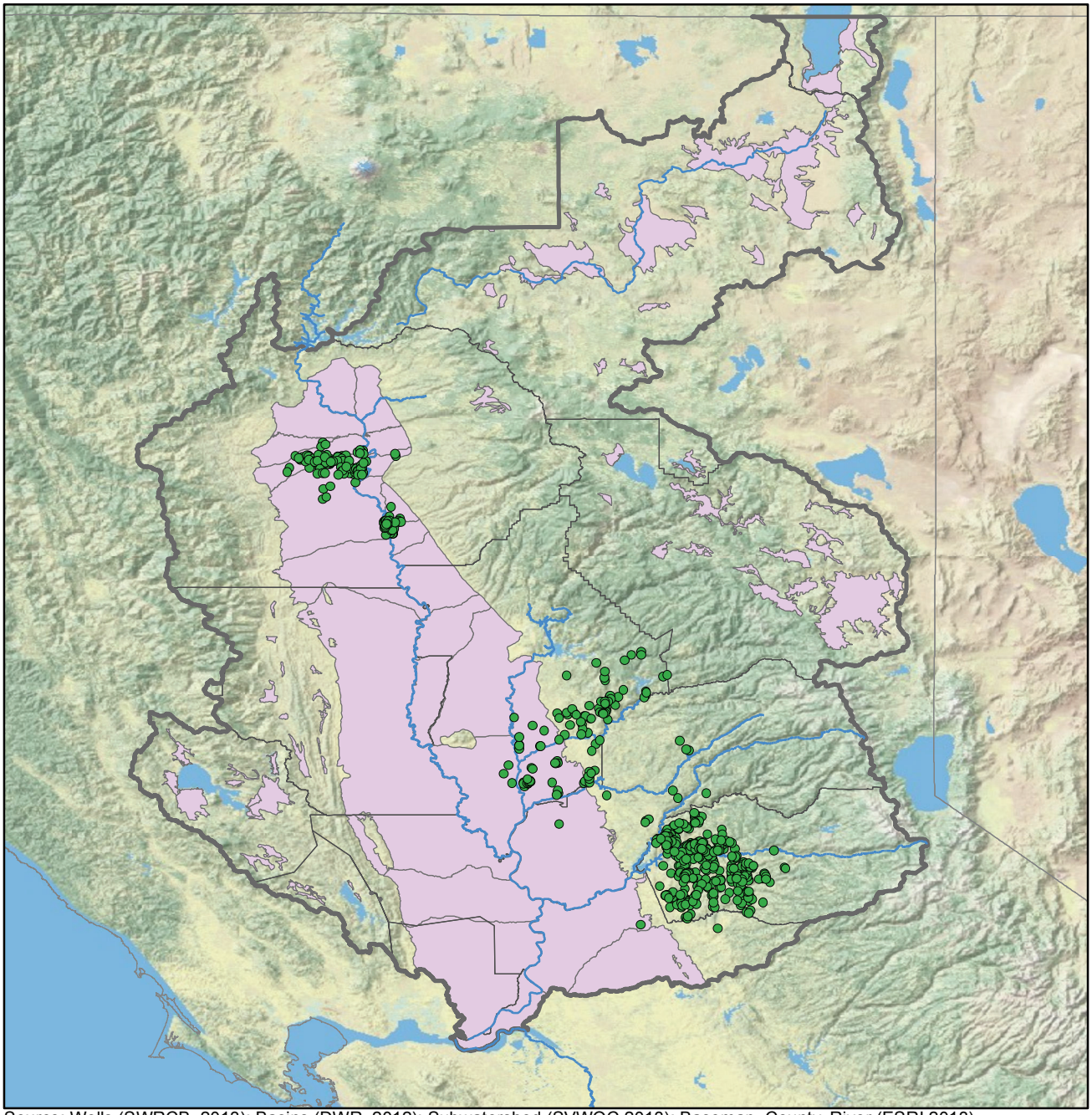
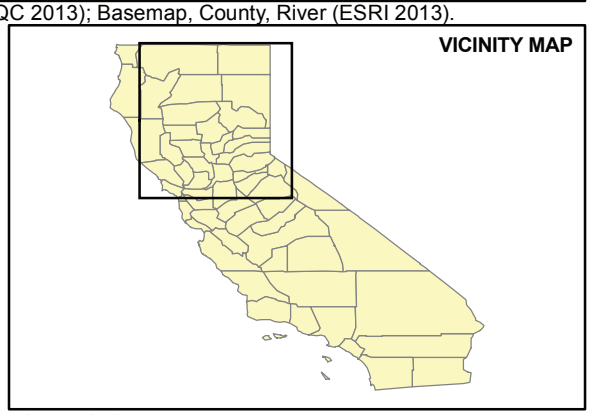


Source: Wells (SWRCB, 2013); Basins (DWR, 2012); Subwatershed (SVWQC 2013); Basemap, County, River (ESRI 2013).
Datum is NAD83.

LEGEND

- GAMA Wells
- River
- DWR Groundwater Basins
- SVWQC Boundary
- SVWQC Subwatersheds



0 5 10 20 30 40
Miles

N

FIGURE 3-2
SWRCB GeoTracker GAMA Database: GAMA wells in the Study Area
Groundwater Quality Assessment Report

UNK O:\NORTHERNCALIFORNIAWA\478361_GRDWTRASSMTRPT\GIS\MXD\TM1\
FIG16_GEOTRACKERGAMA.MXD GTOMASIN 11/26/2013 1:58:46 PM

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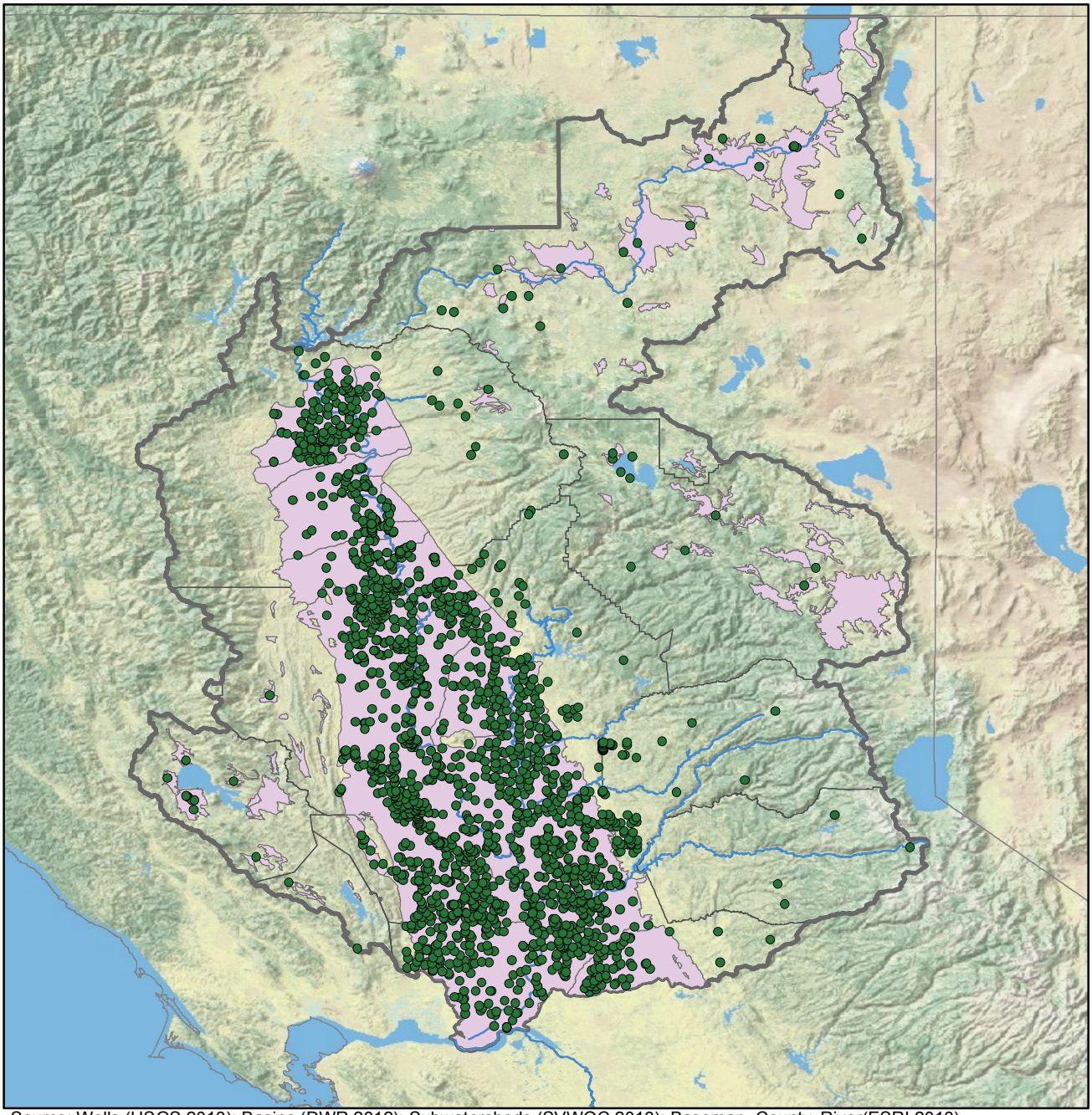

Source: Wells (USGS,2013); Basins (DWR 2012); Subwatersheds (SVWQC 2013); Basemap, County, River(ESRI 2013).
Datum is NAD83.

LEGEND

- USGS NWIS Wells
- Rivers
- DWR Groundwater Basins
- SVWQC Boundary
- SVWQC Subwatersheds

VICINITY MAP

0 5 10 20 30 40
Miles

N

FIGURE 3-3
USGS NWIS wells in the Study Area
Groundwater Quality Assessment Report

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FIG17_USGSNWIS.MXD GTOMASIN 11/26/2013 2:07:34 PM

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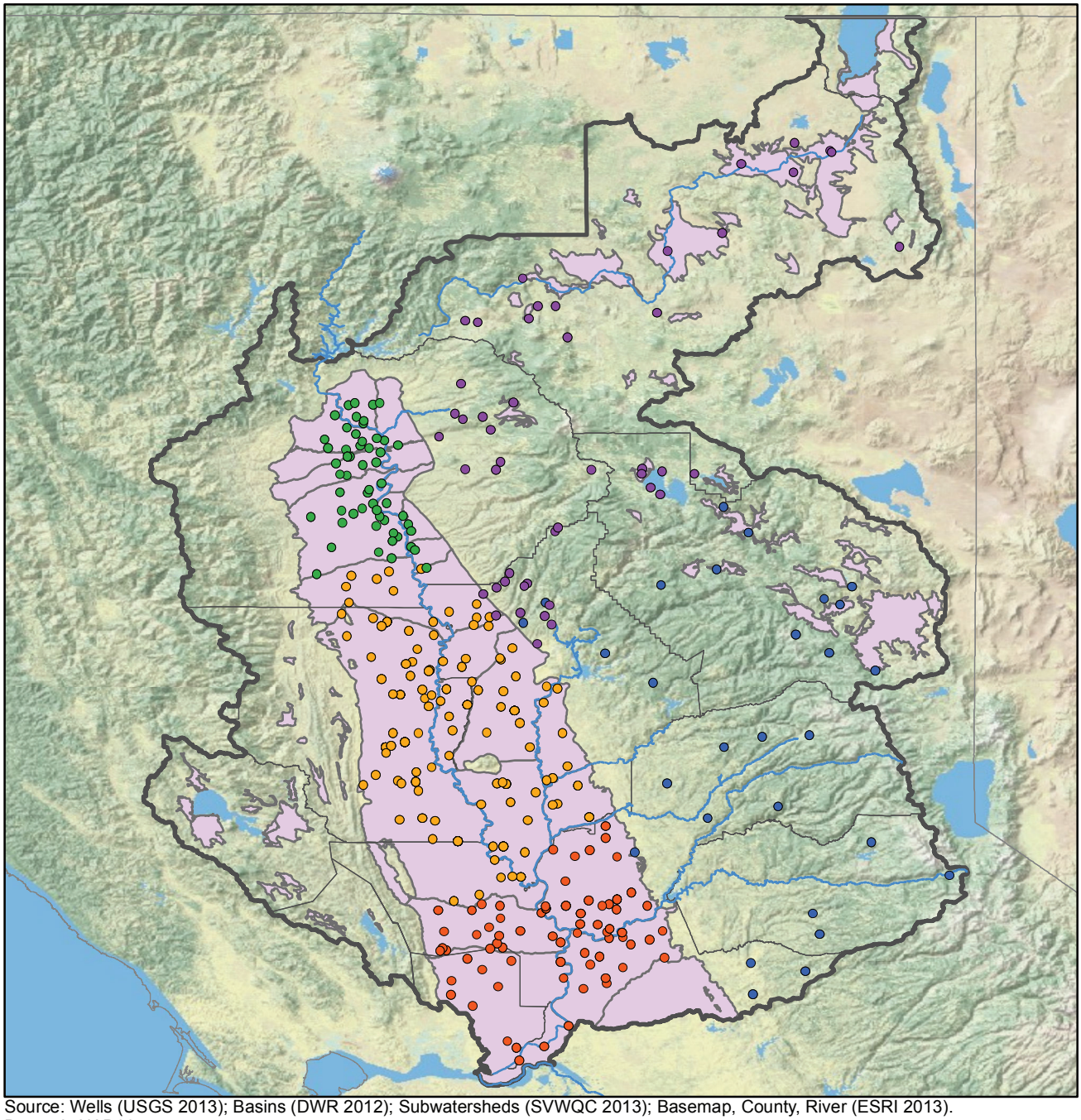
CH2MHILL



Source: Wells (USGS 2013); Basins (DWR 2012); Subwatersheds (SVWQC 2013); Basemap, County, River (ESRI 2013).
Datum is NAD83.

LEGEND

Study Area

- Modoc Plateau & Cascades
- Upper Sacramento Valley
- Middle Sacramento Valley
- Southern Sacramento Valley
- Sierra Nevada
- Rivers
- DWR Groundwater Basins
- SVWQC Boundary
- SVWQC Subwatersheds

0 5 10 20 30 40
Miles

N

VICINITY MAP

FIGURE 3-4
USGS GAMA wells in the Study Area
Groundwater Quality Assessment Report

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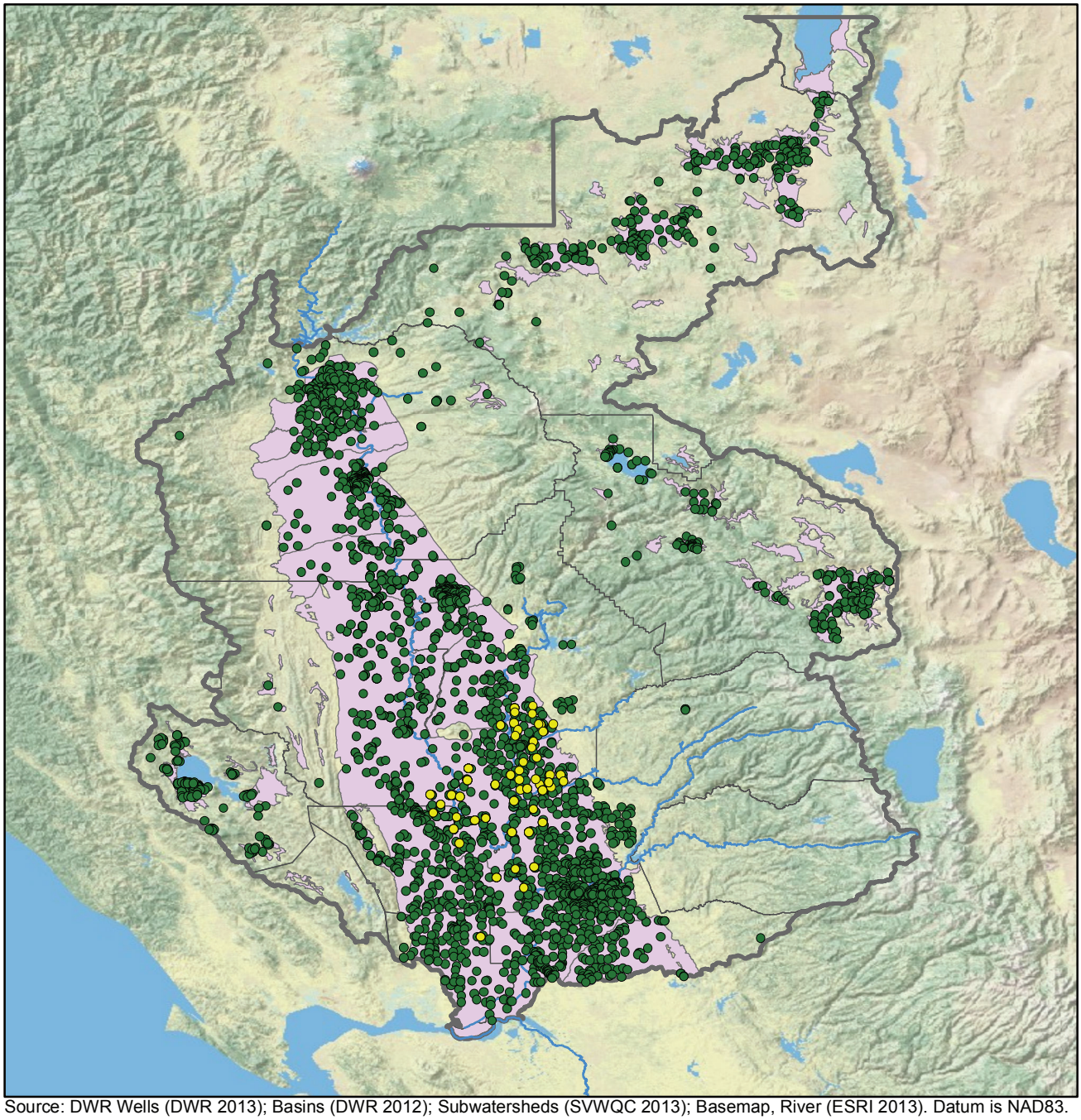

Source: DWR Wells (DWR 2013); Basins (DWR 2012); Subwatersheds (SVWQC 2013); Basemap, River (ESRI 2013). Datum is NAD83.

LEGEND

- DWR Monitored Wells
- DWR Dedicated Groundwater Quality Monitoring Wells
- Rivers
- DWR Groundwater Basins
- SVWQC Boundary
- SVWQC Subwatersheds

0 5 10 20 30 40
Miles

N

FIGURE 3-5
DWR Wells with Groundwater Quality Measurements in the Study Area
Groundwater Quality Assessment Report

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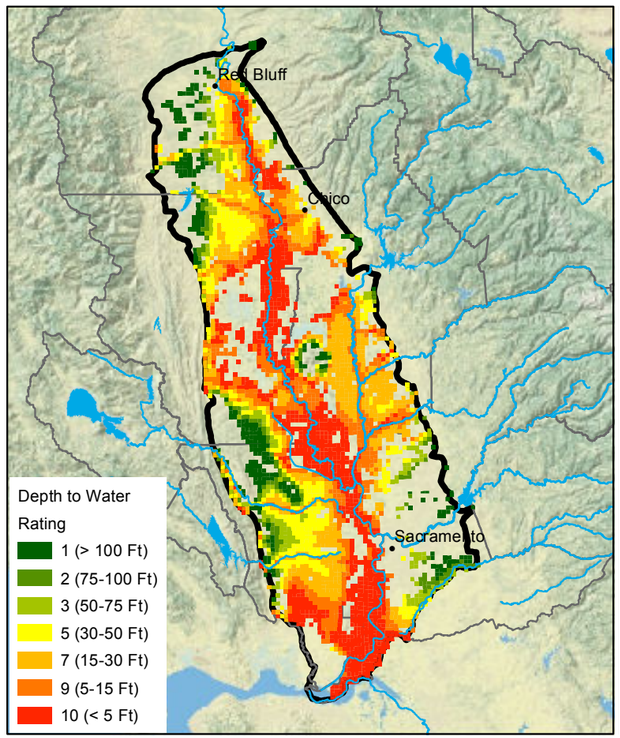
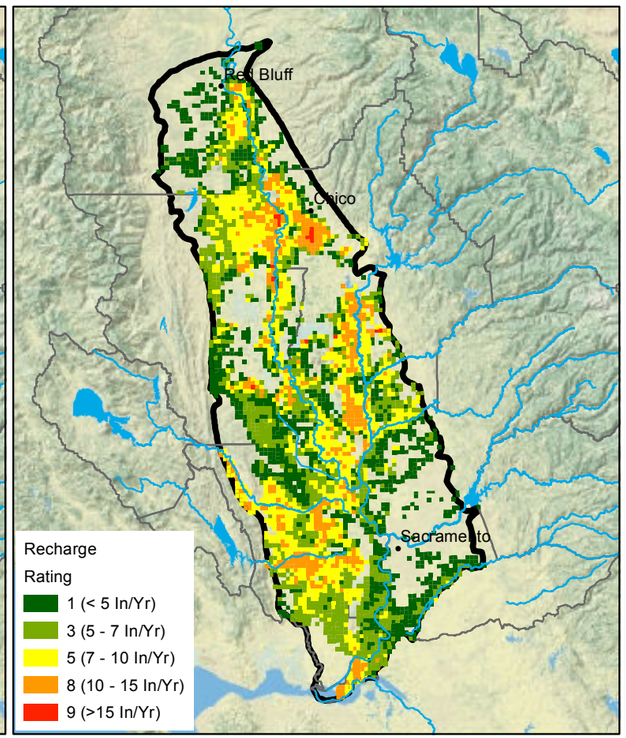
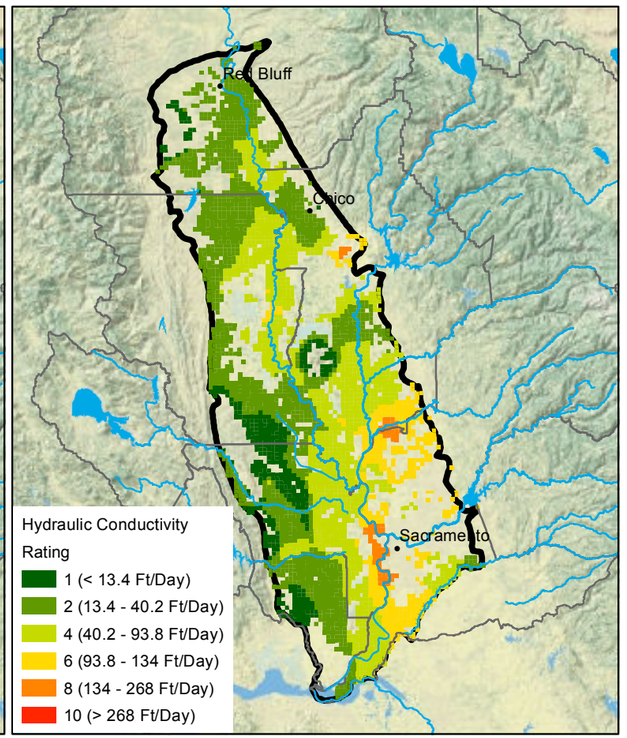
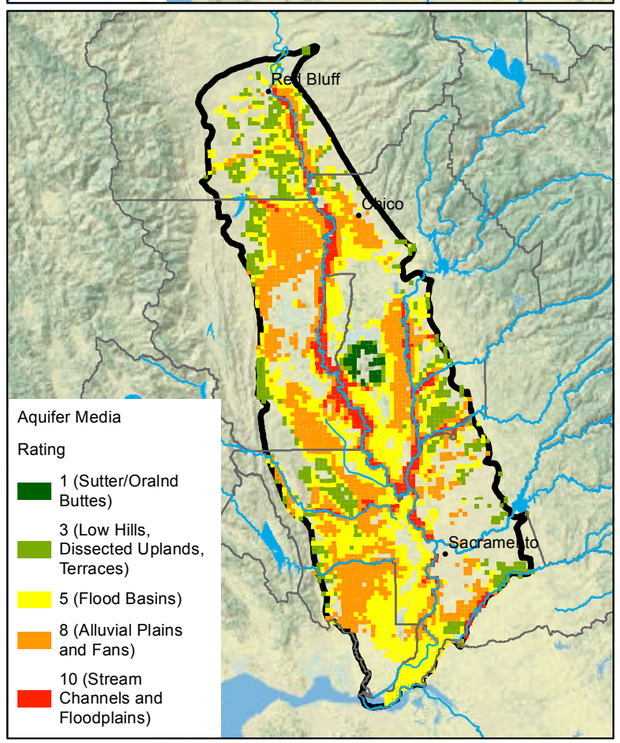
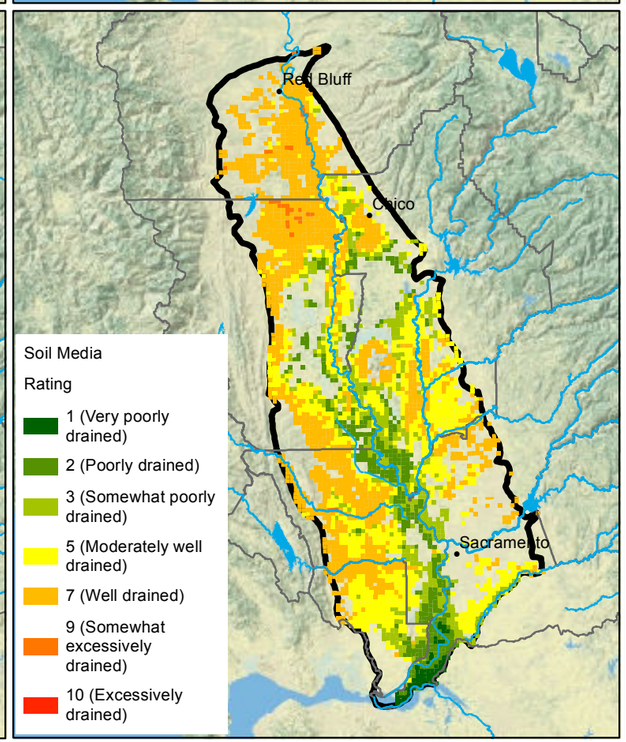
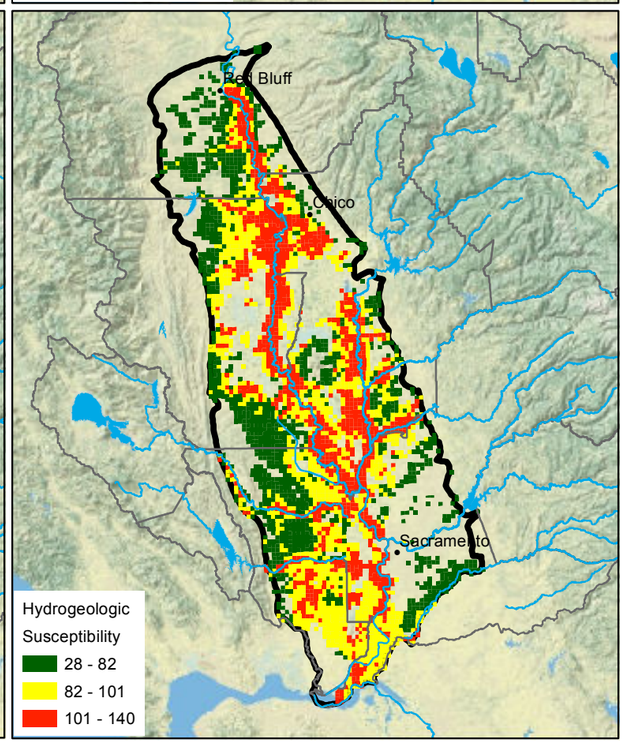


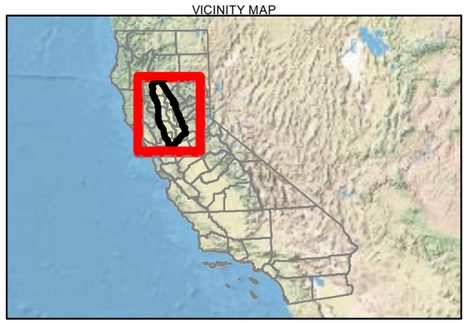












LEGEND

- Cities
- Rivers
- Waterbodies
- Subwatersheds
- SACFEM Boundary

Notes:

Equation for hydrogeologic susceptibility rating:
Susceptibility = 5*D(rating) + 4*R(rating) + 3*A(rating) + 2*S(rating) + 3*C(rating)

Where:
D = Depth to water
R = Recharge rate
A = Aquifer media
S = Soils
C = Hydraulic conductivity

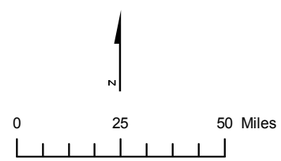
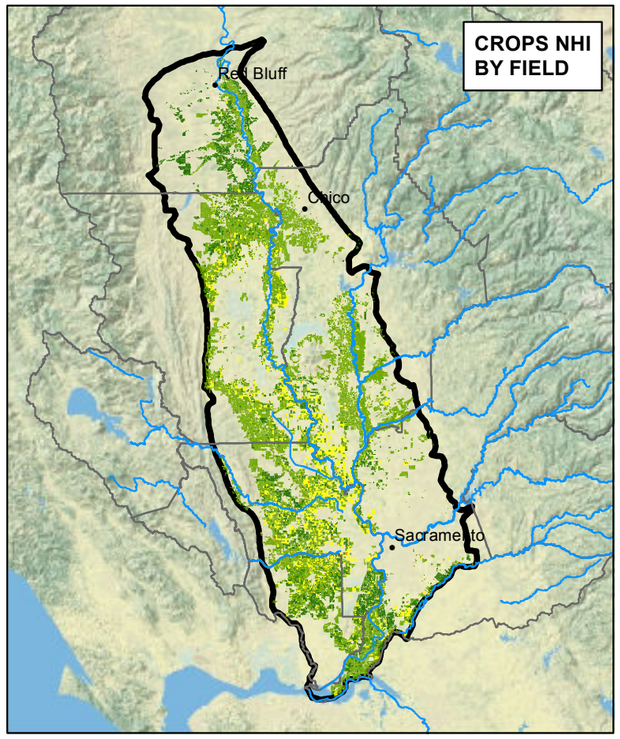
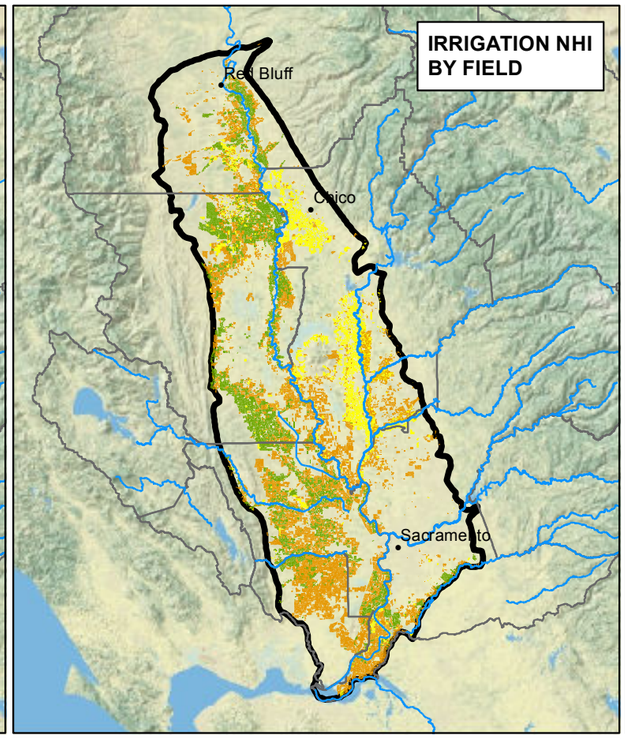
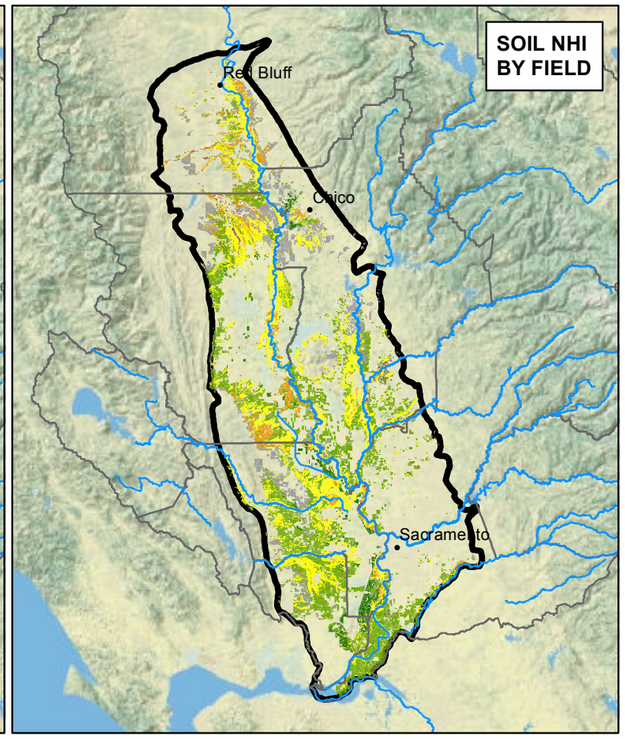
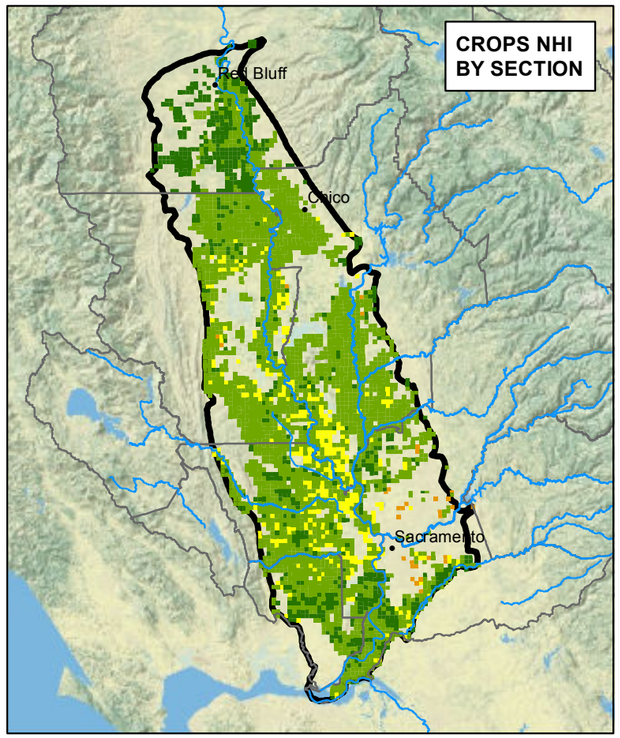


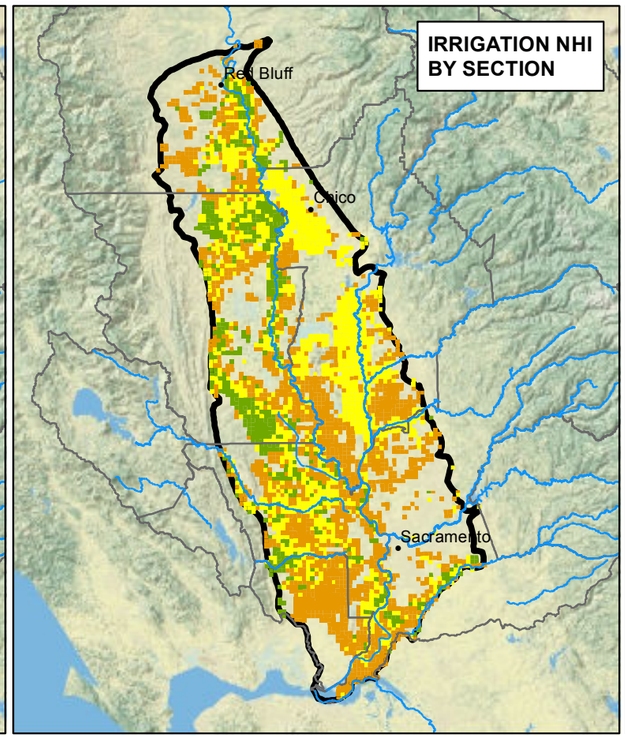
FIGURE 4-1
SACFEM Area Hydrogeology
Groundwater Quality Assessment Report

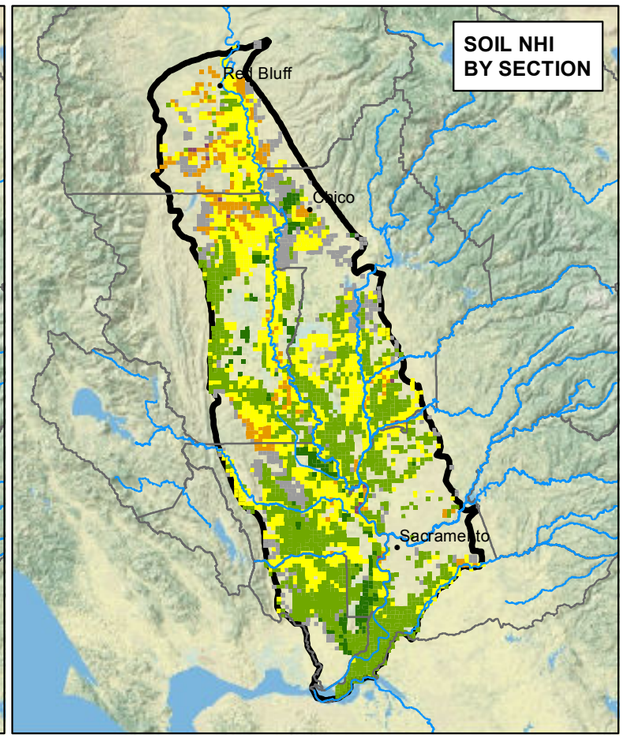


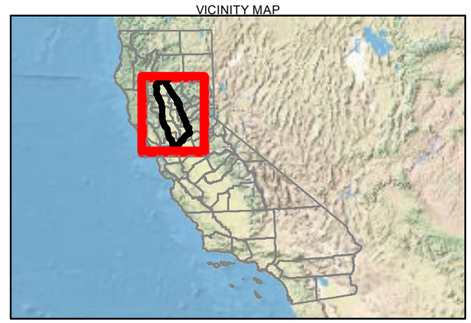












Legend

- Cities
- Rivers
- Subwatersheds
- SACFEM Boundary

Nitrogen Hazard Index

- 1
- 2
- 3
- 4
- 5
- unclassified

Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

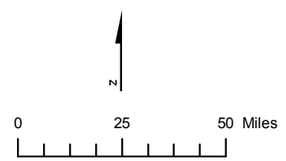
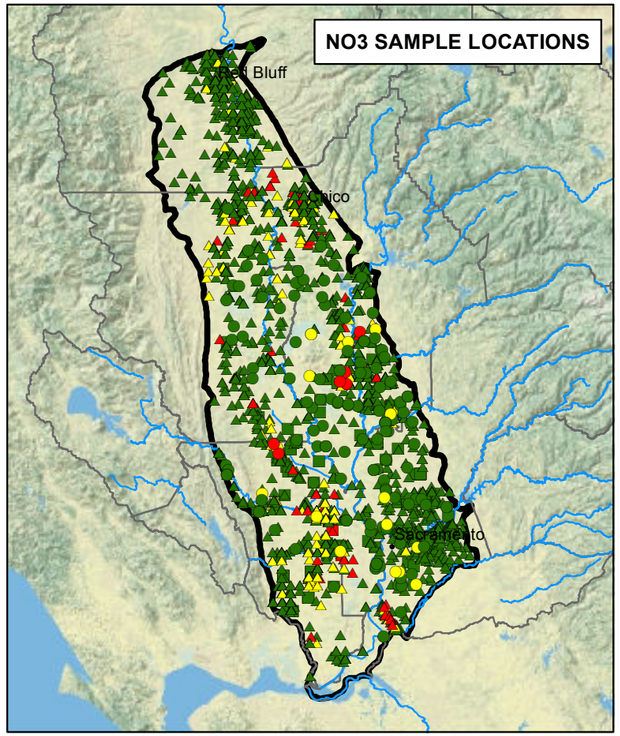
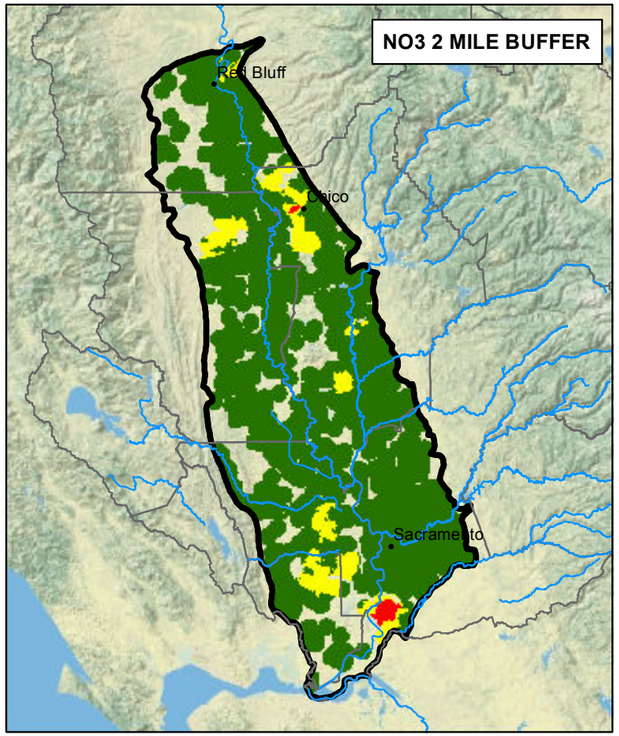
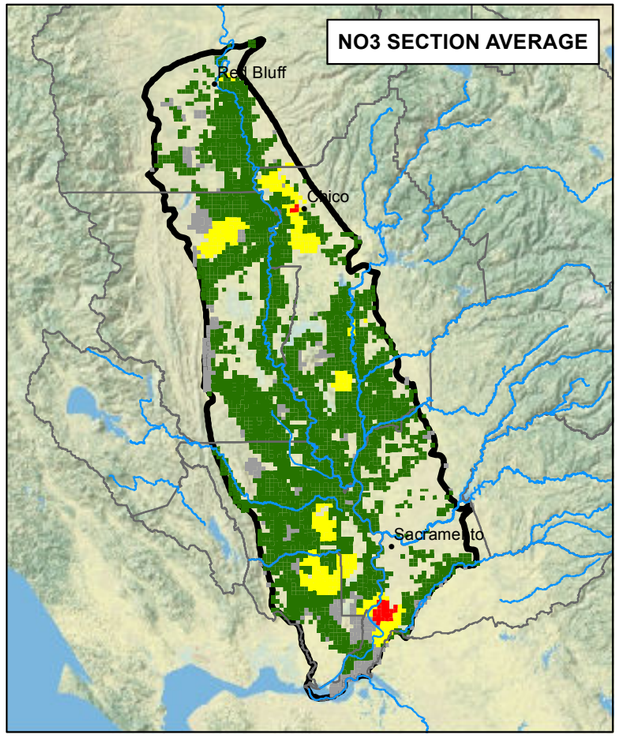
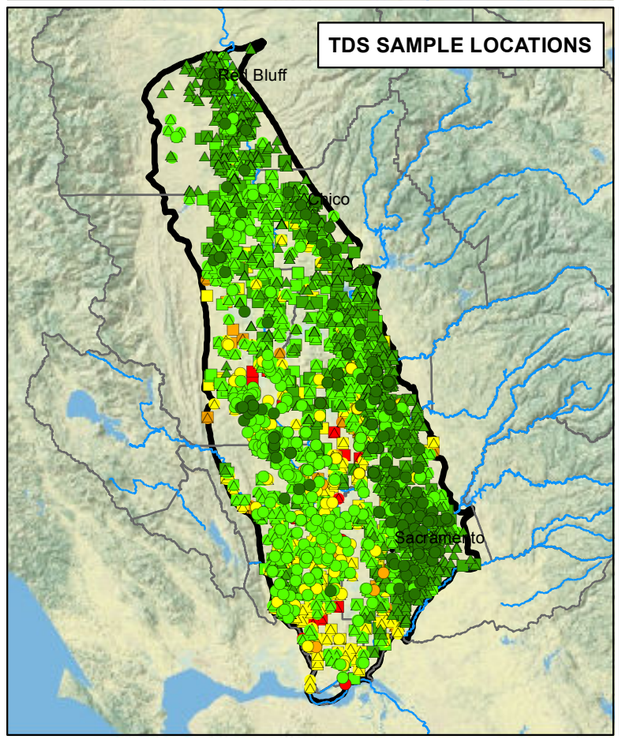


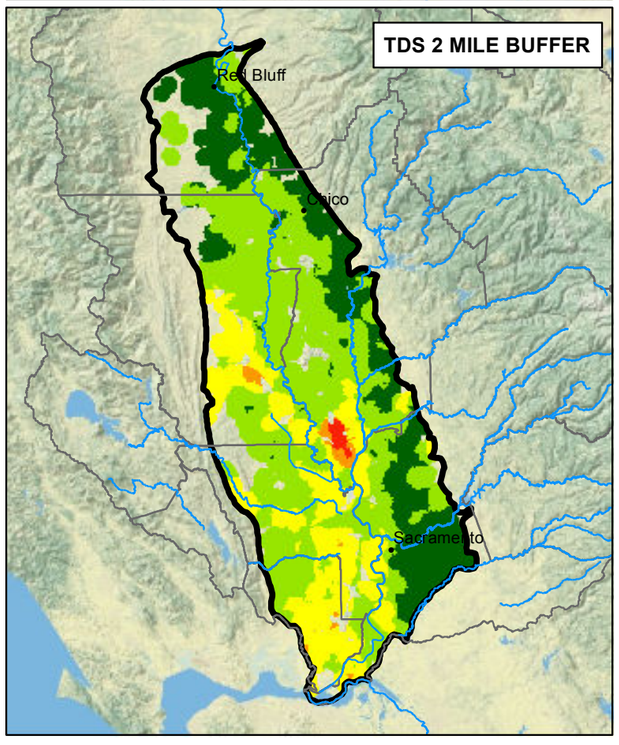
FIGURE 4-2
SACFEM Area NHI
Groundwater Quality Assessment Report

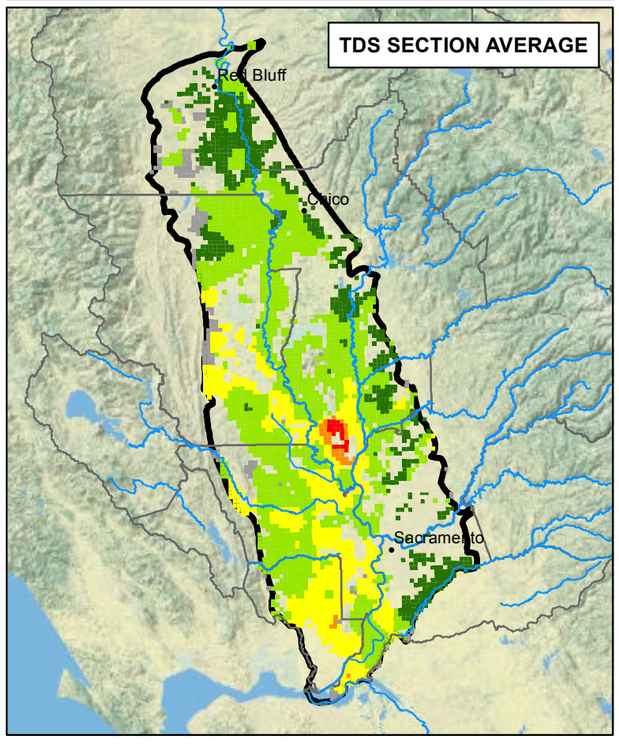


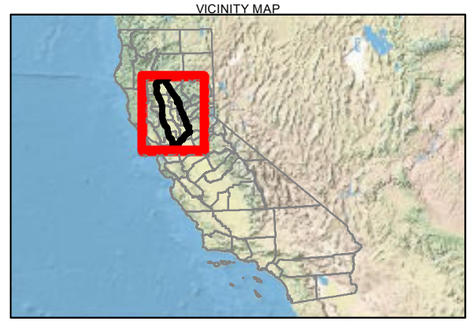












Legend

- Cities
- Rivers
- Subwatersheds
- SACFEM Boundary

Well Depth (Feet)

- unknown
- < 250
- > 250

Nitrate as NO3 Concentration (mg/L)

- < 22.5
- 22.5 - 45
- > 45
- data gap

TDS Concentration (mg/L)

- < 250
- 251 - 500
- 501 -1000
- 1001 - 1500
- > 1500
- data gap

Notes:

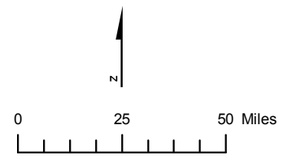
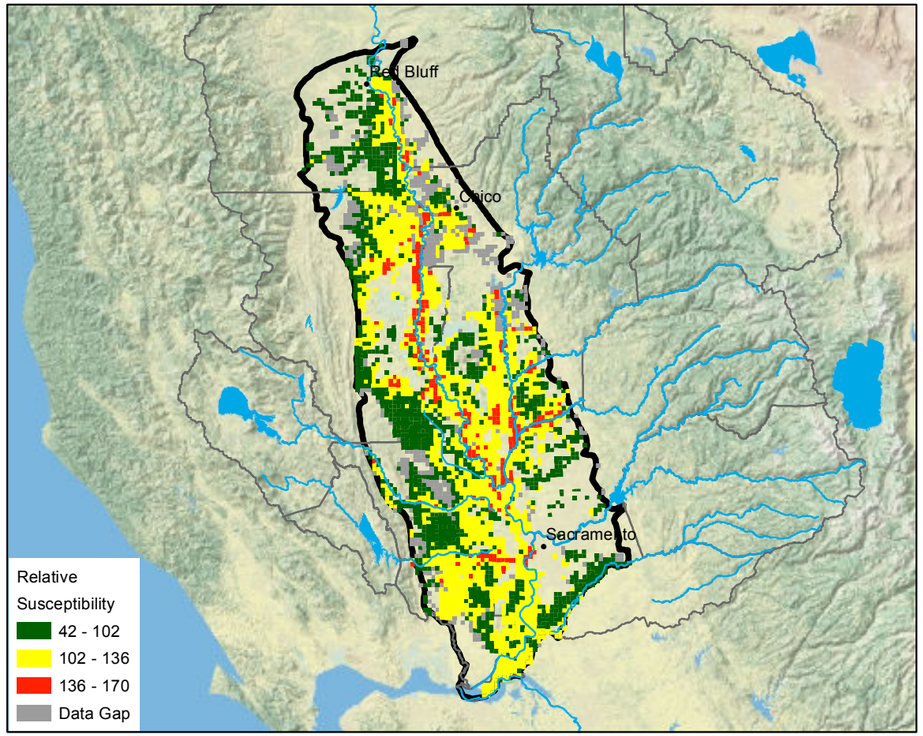
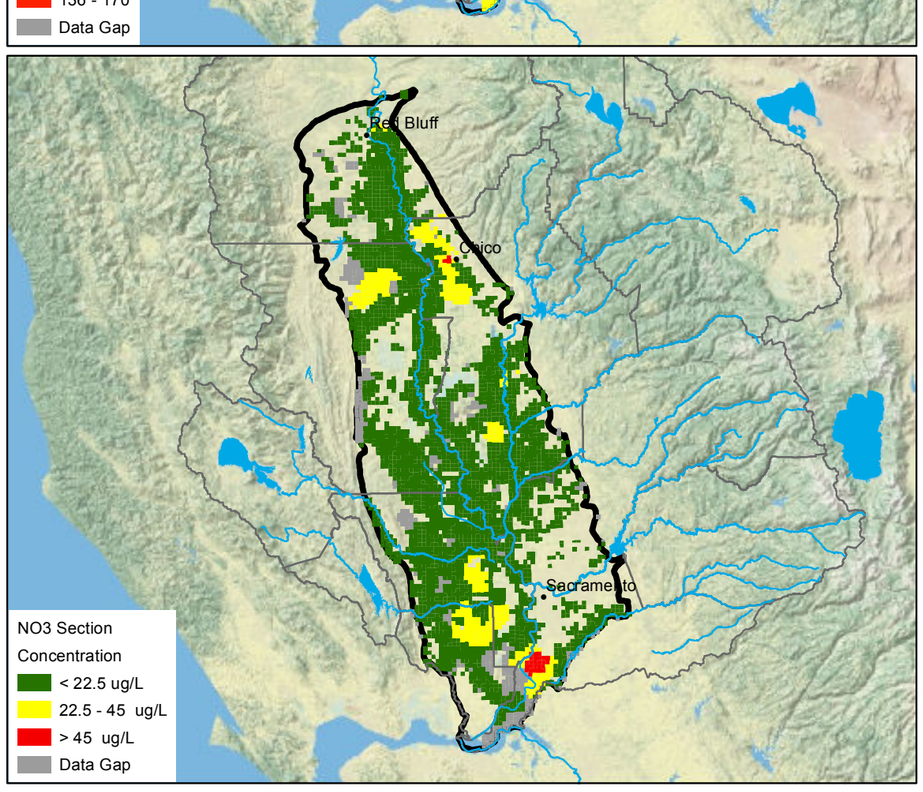
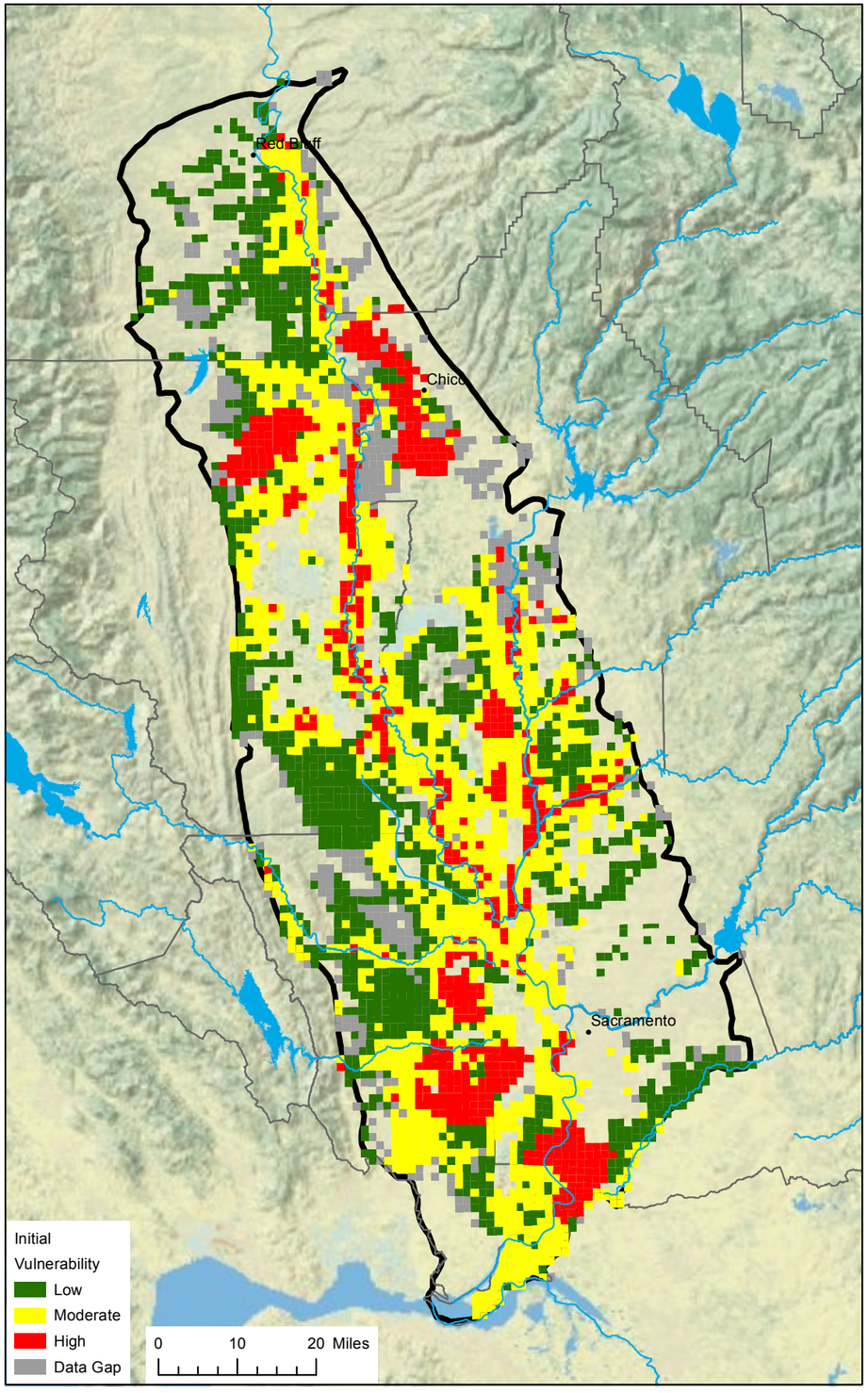
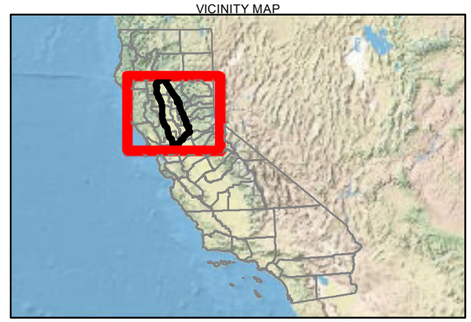


FIGURE 4-3
SACFEM Area Water Quality
Groundwater Quality Assessment Report









LEGEND

- Cities
- Rivers
- Waterbodies
- Subwatersheds
- SACFEM Boundary

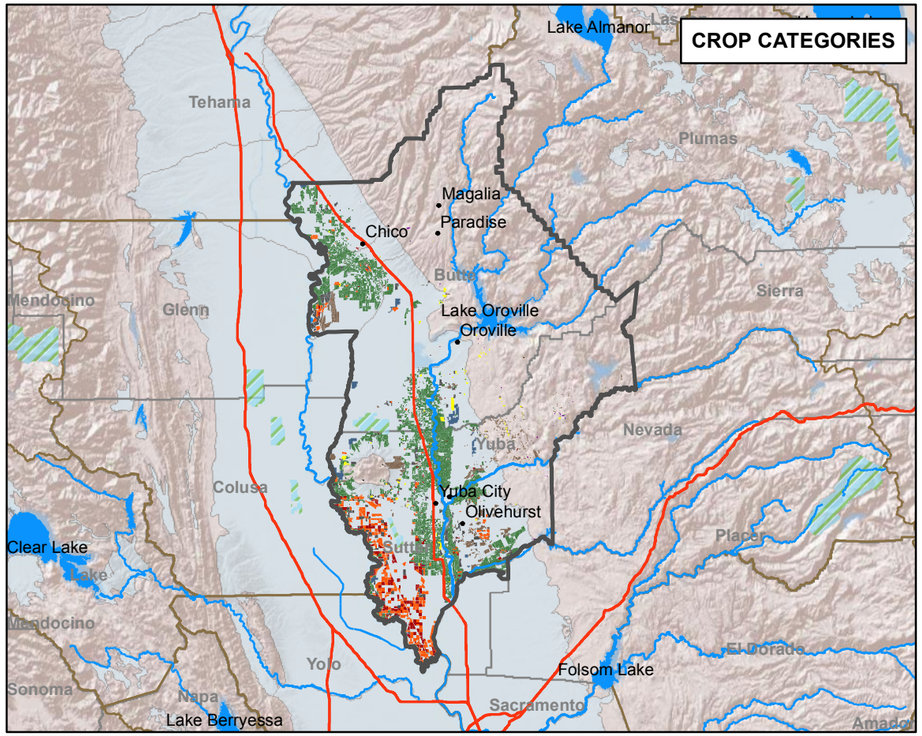
Notes:

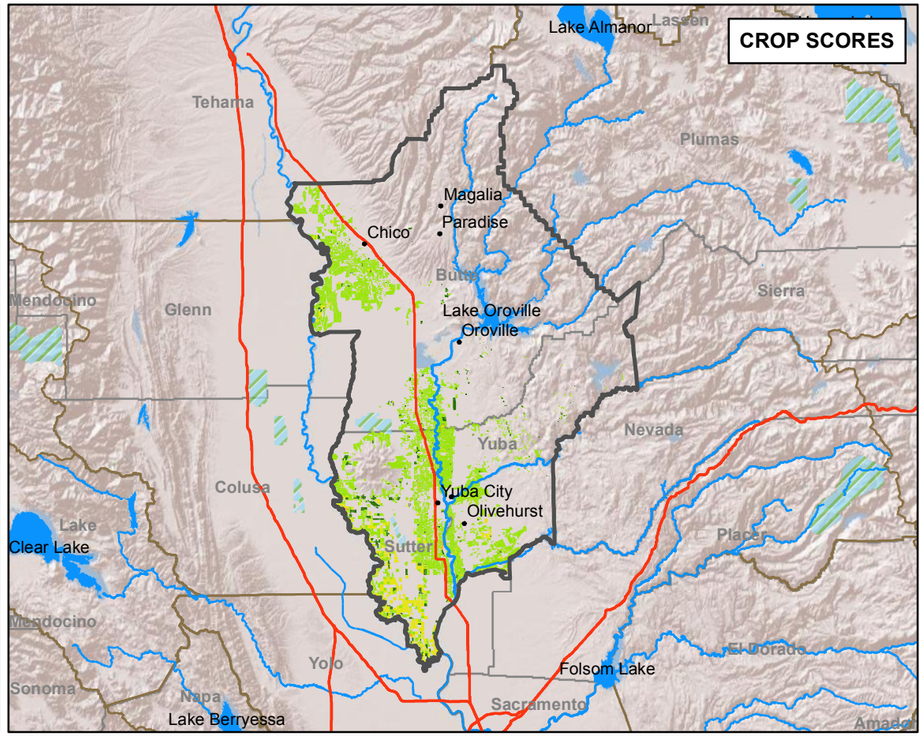
Equation for calculating the Relative Susceptibility index:
Hydrogeologic Susceptibility + NHI

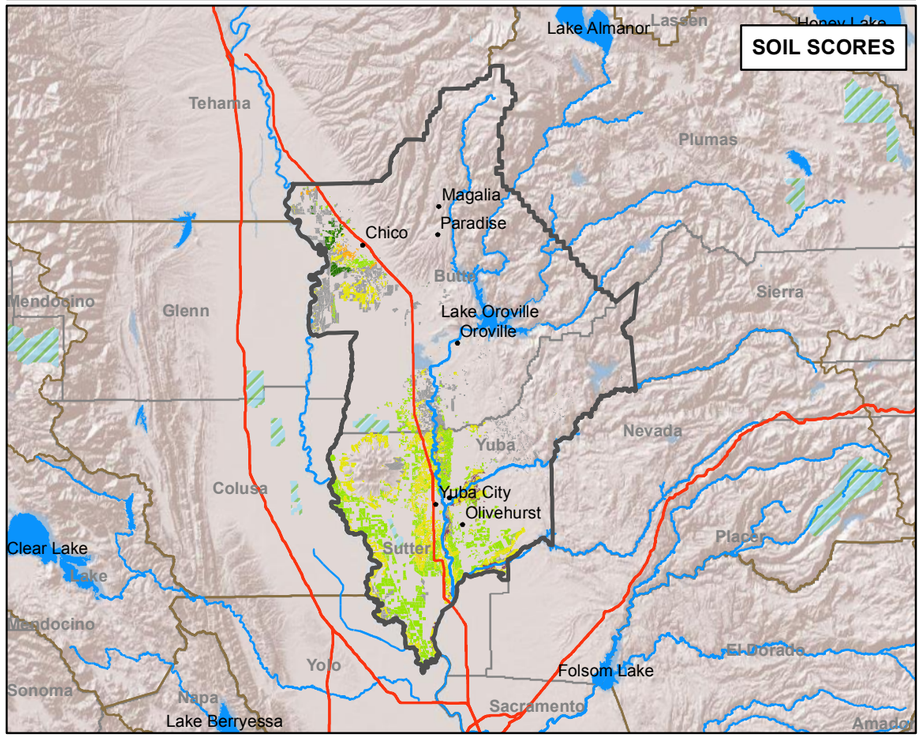
N

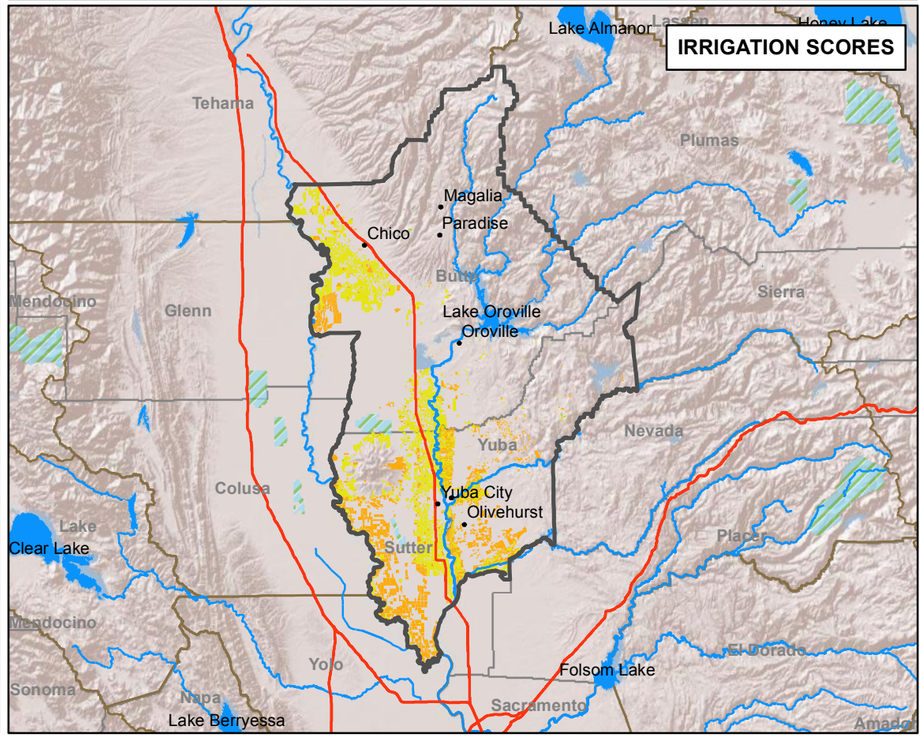
0 20 40 Miles

FIGURE 4-4
SACFEM Area Initial Vulnerability
Groundwater Quality Assessment Report

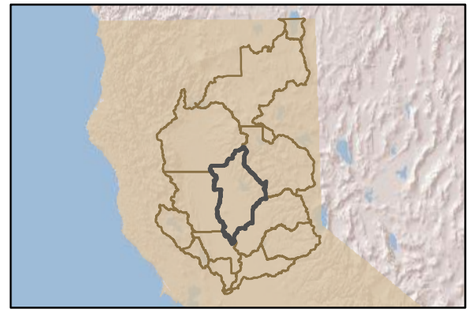








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 10 20

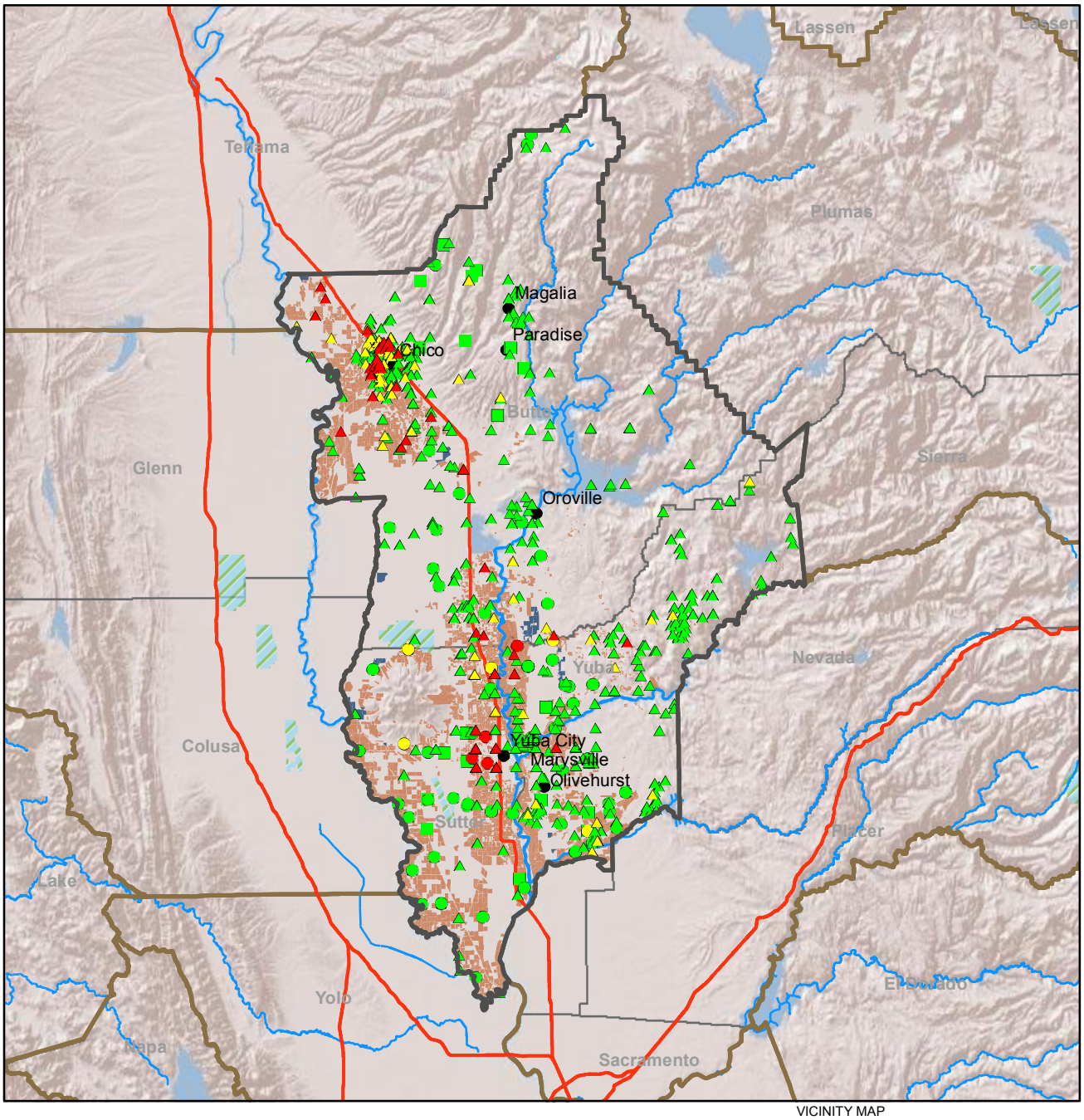
Miles

Notes:

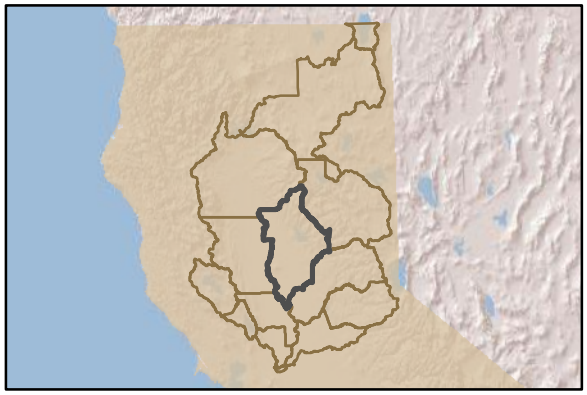
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 5-1
Field Level NHI Results
Butte-Yuba-Sutter Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP



Notes:

FIGURE 5-2
NO3 Sampling Results
Butte-Yuba-Sutter Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

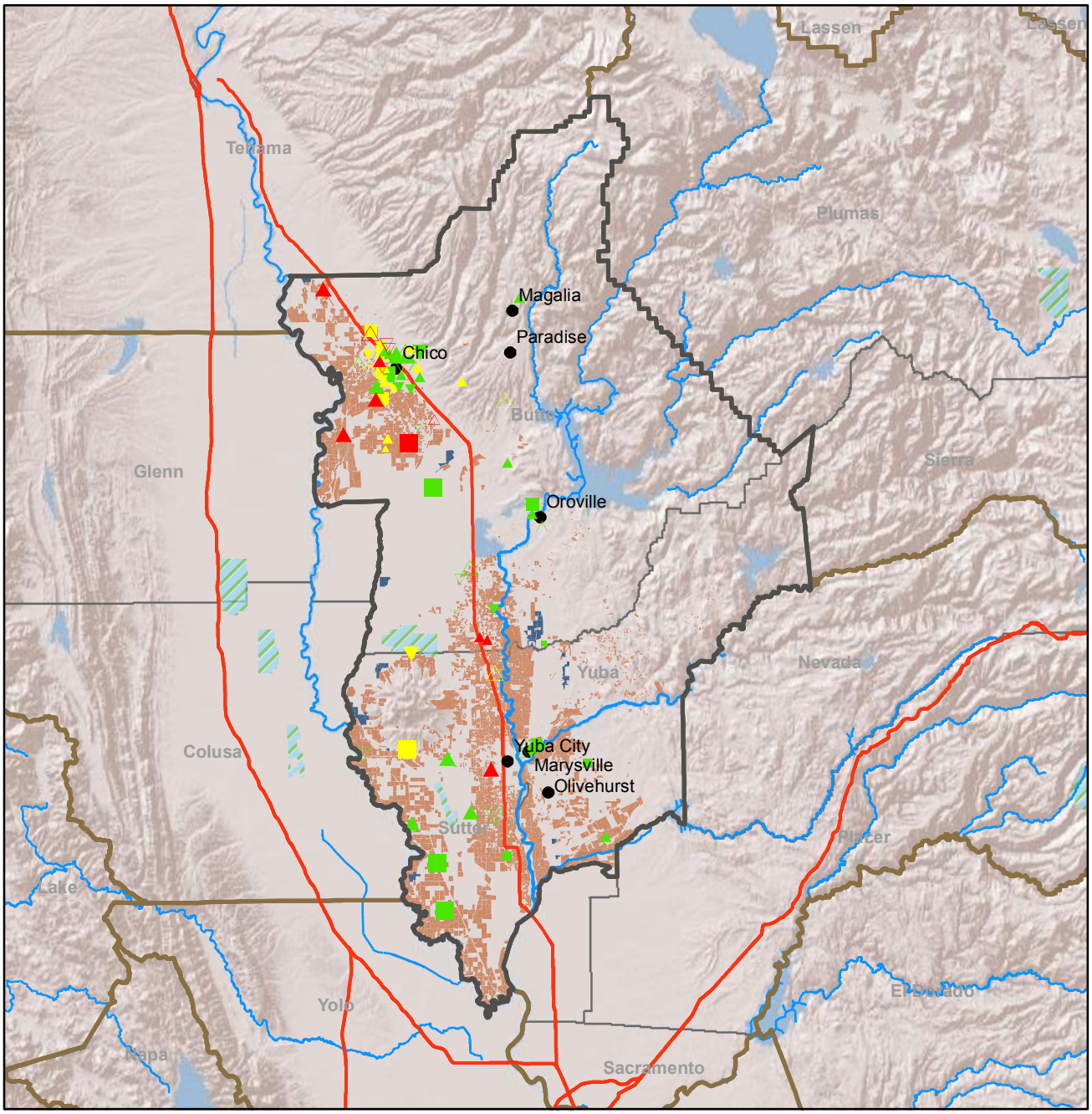
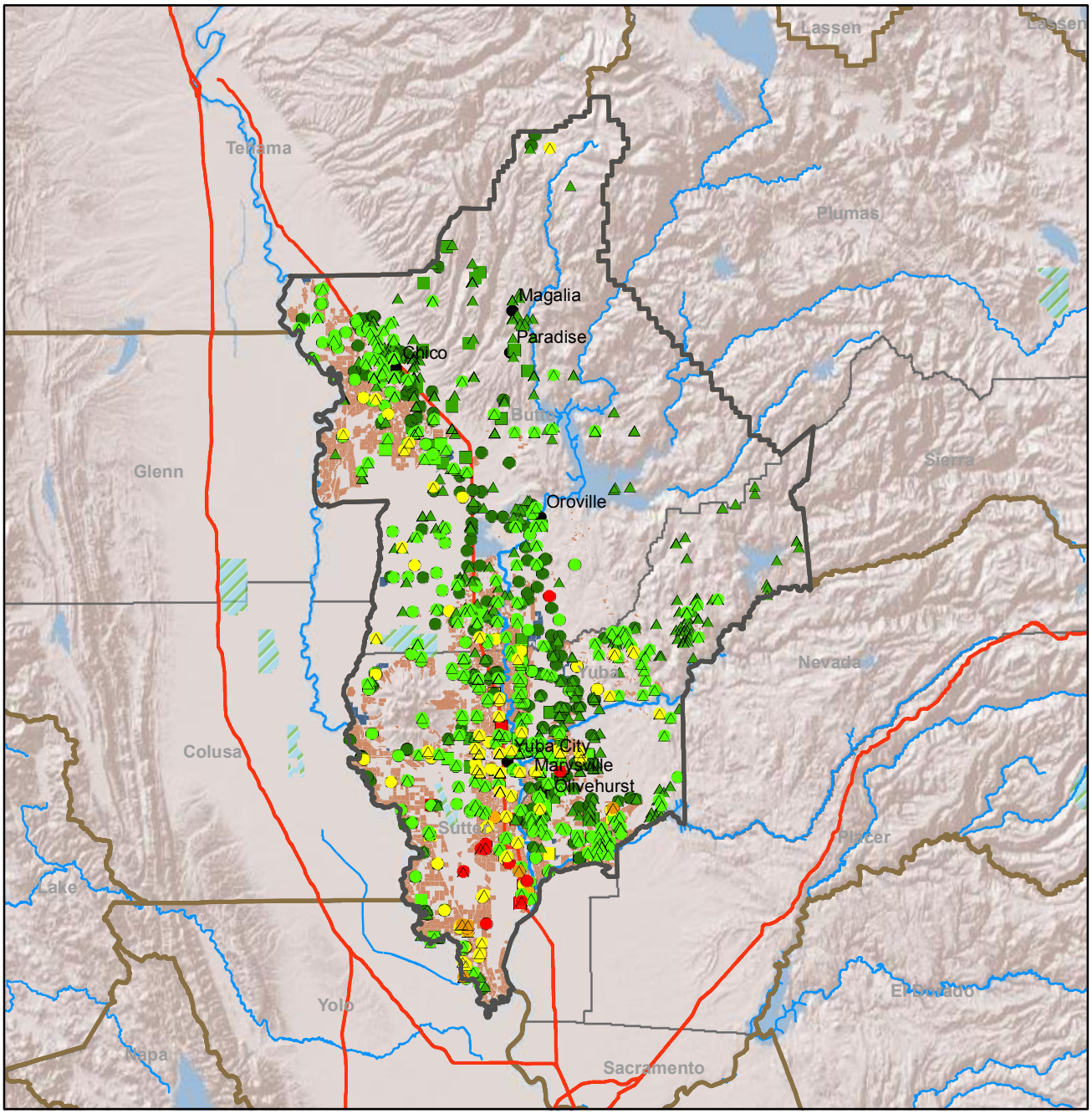


FIGURE 5-3
NO3 Concentration Trend
Butte-Yuba-Sutter Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NO3TREND.MXD THATCH 6/19/2014



Notes:

FIGURE 5-4
TDS Sampling Results
Butte-Yuba-Sutter Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

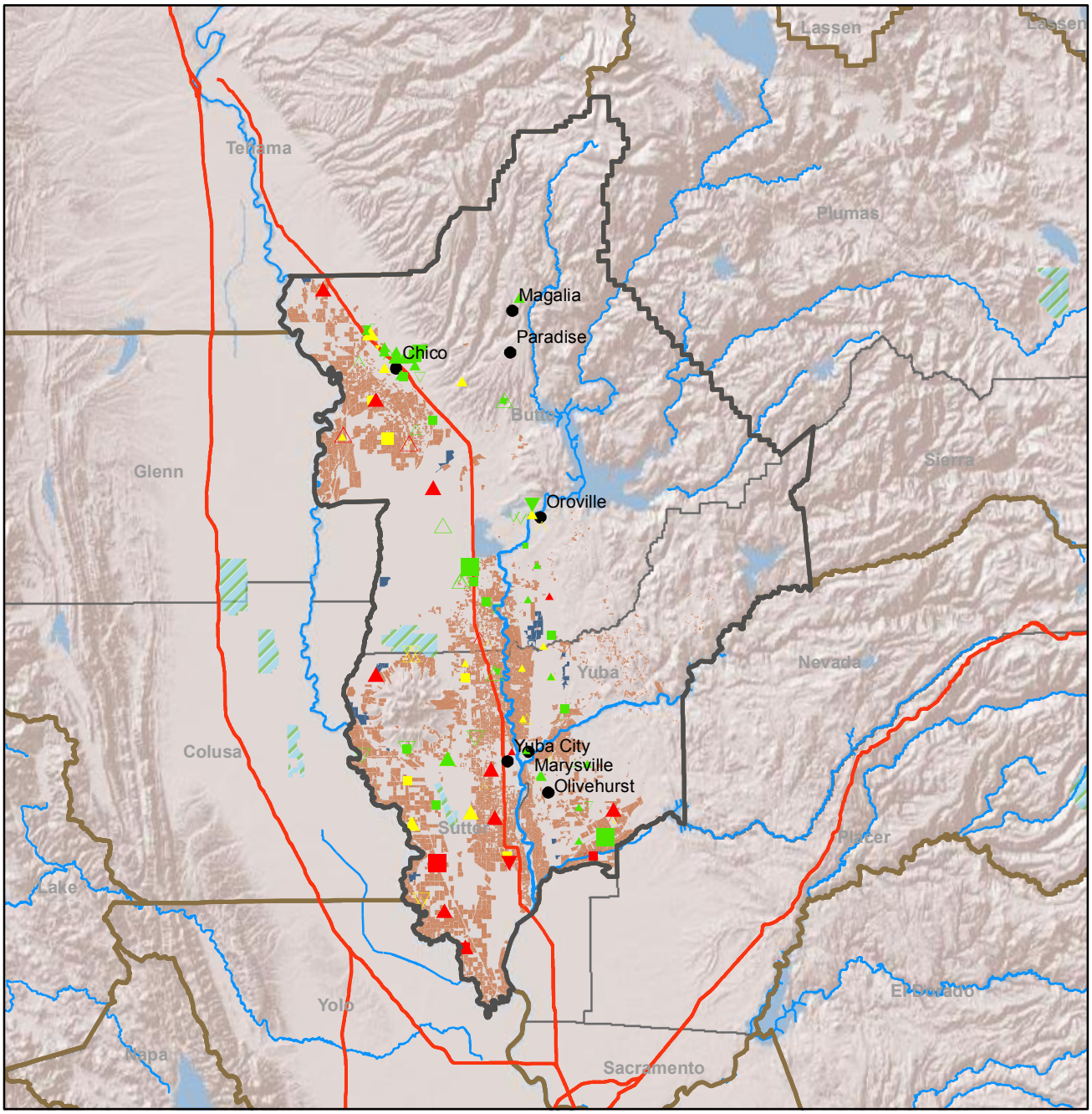
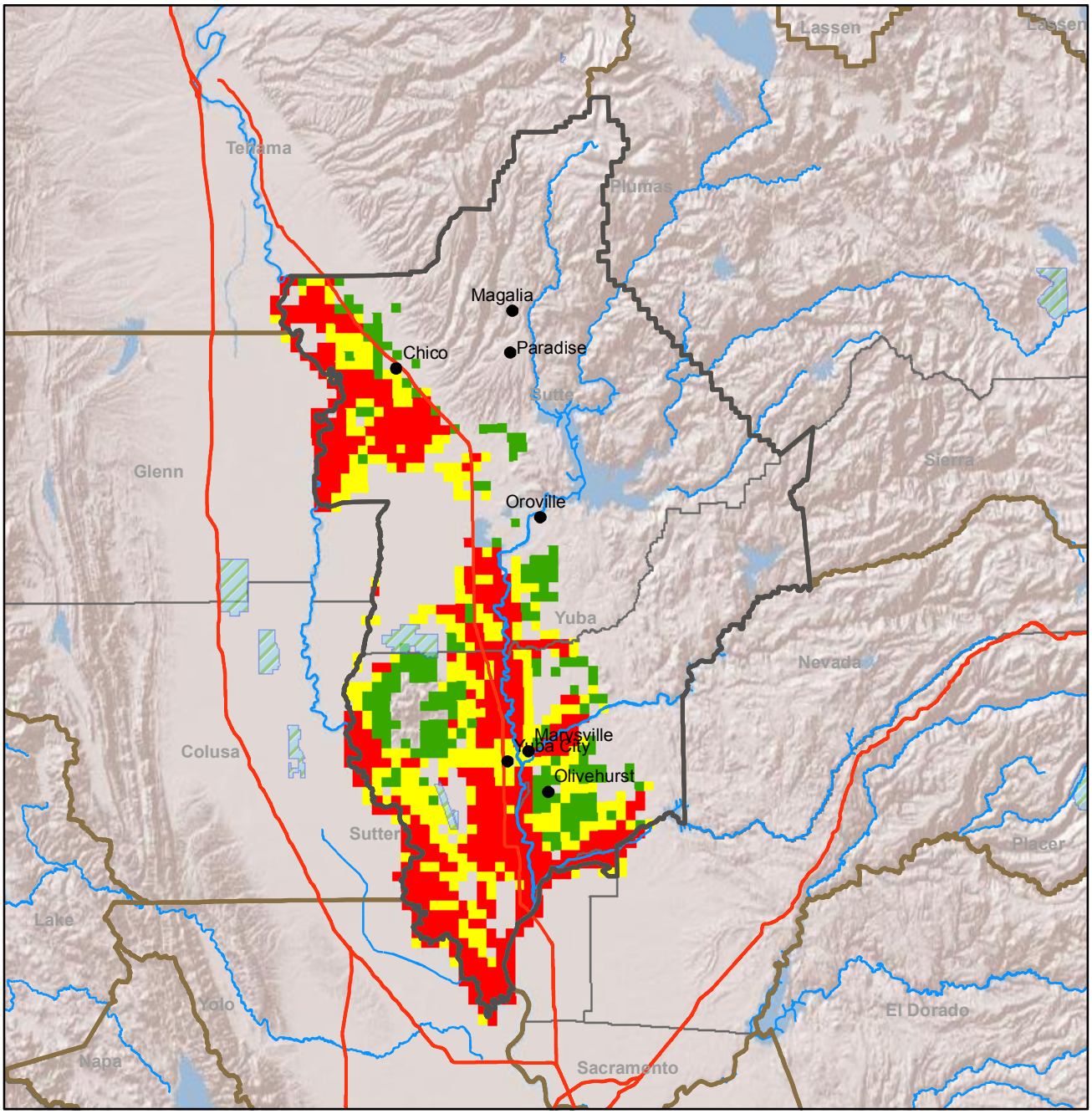


FIGURE 5-5
TDS Concentration Trend
Butte-Yuba-Sutter Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



Notes:

FIGURE 5-6
Hydrogeology Susceptibility
Butte-Yuba-Sutter Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

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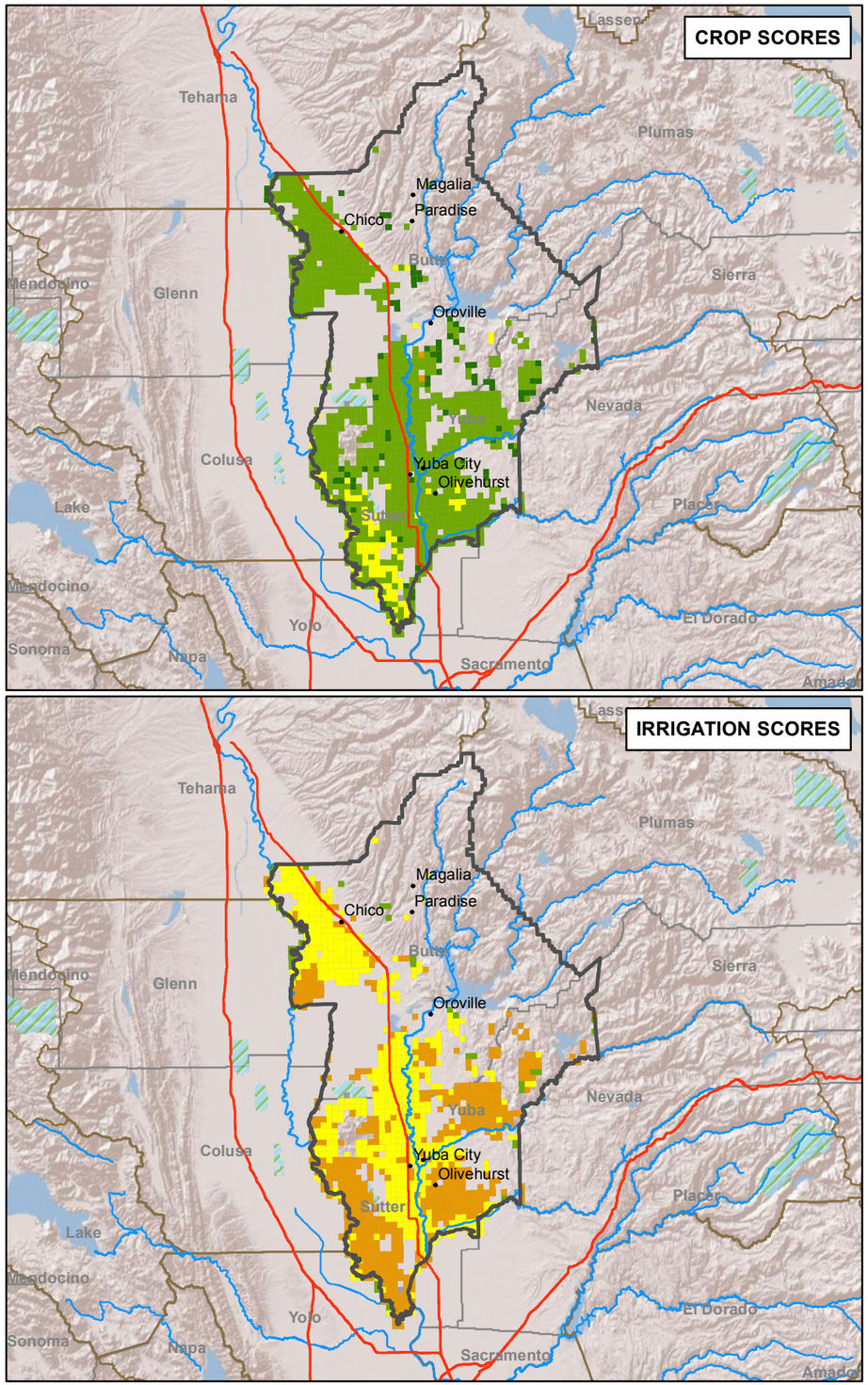
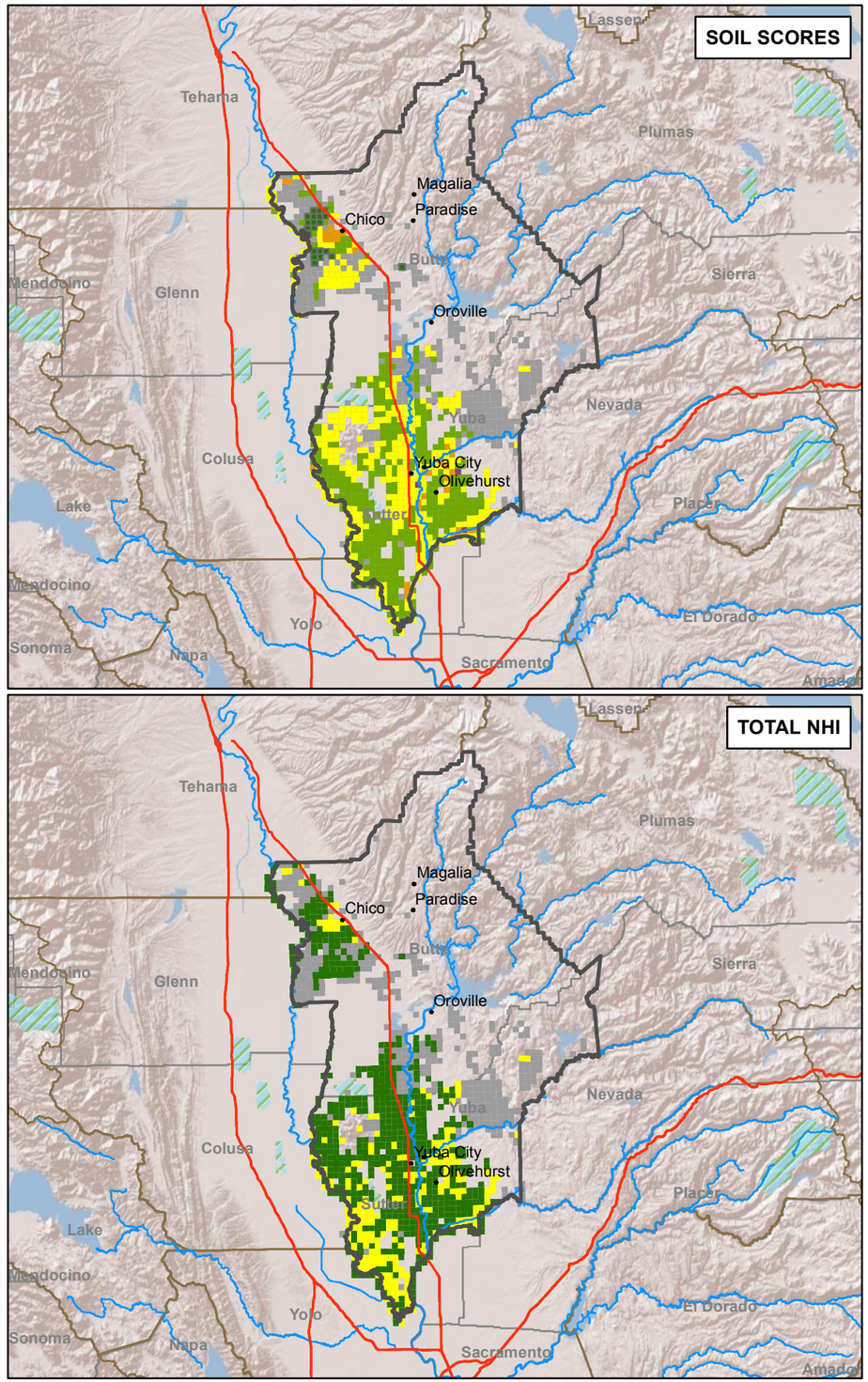
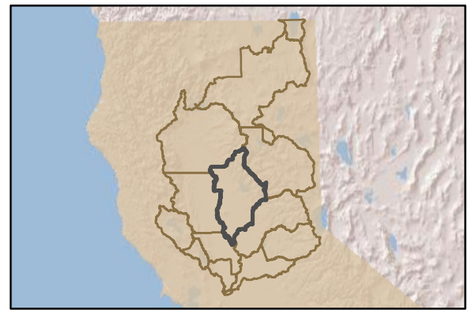




VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

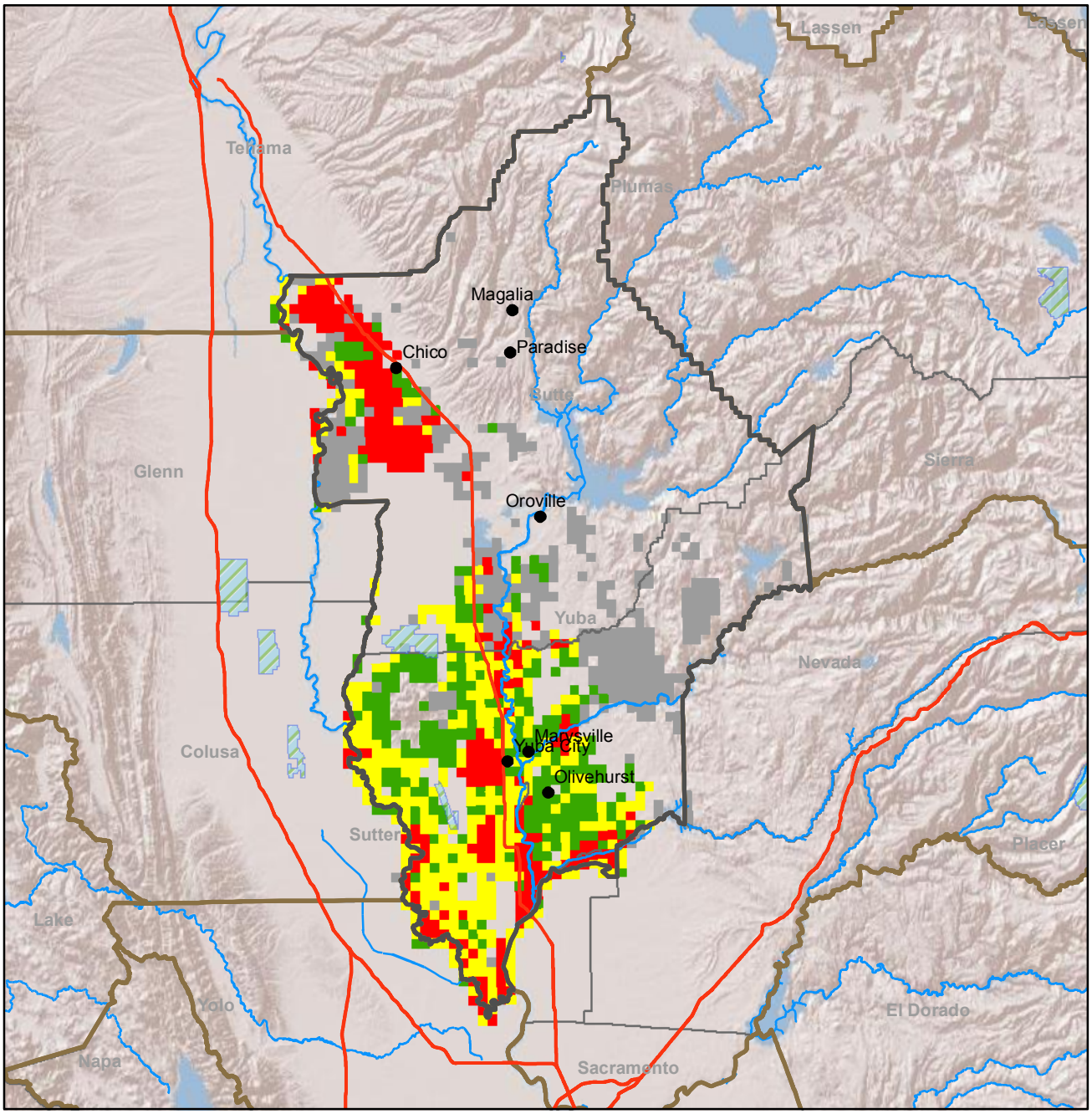
N

0 10 20
Miles

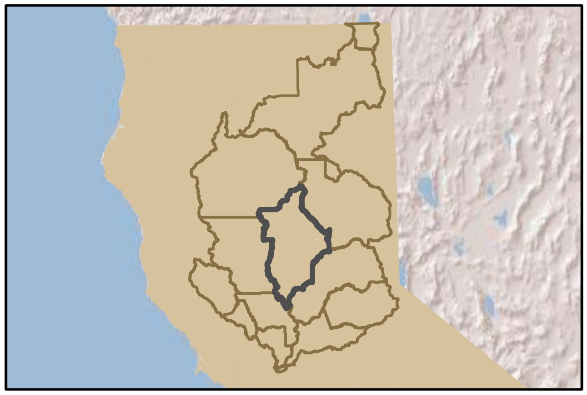
Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 5-7
Section Level NHI Results
Butte-Yuba-Sutter Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

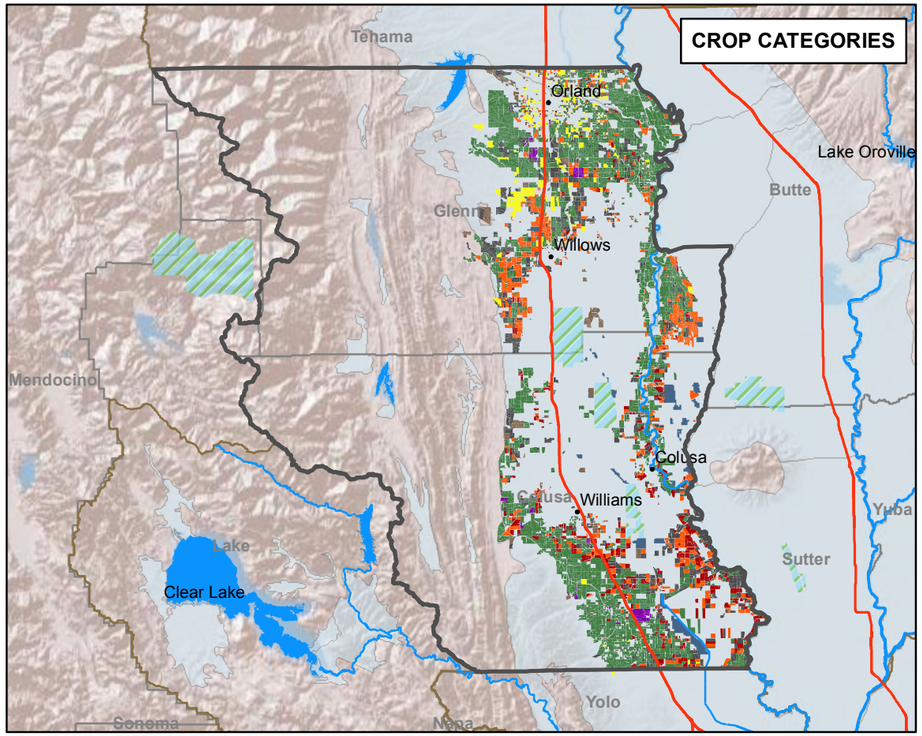


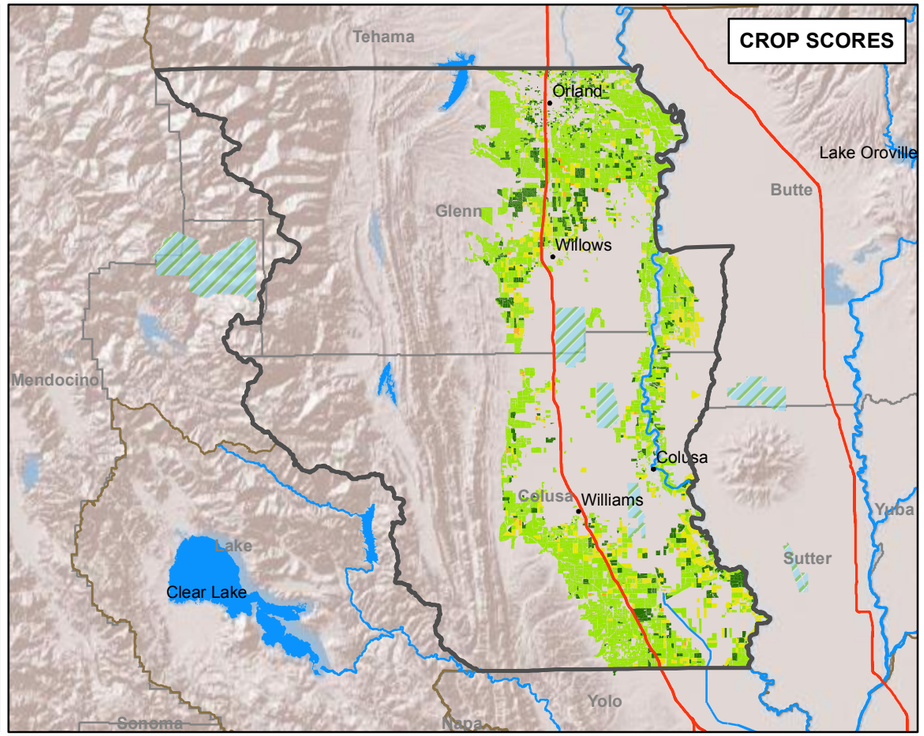
VICINITY MAP

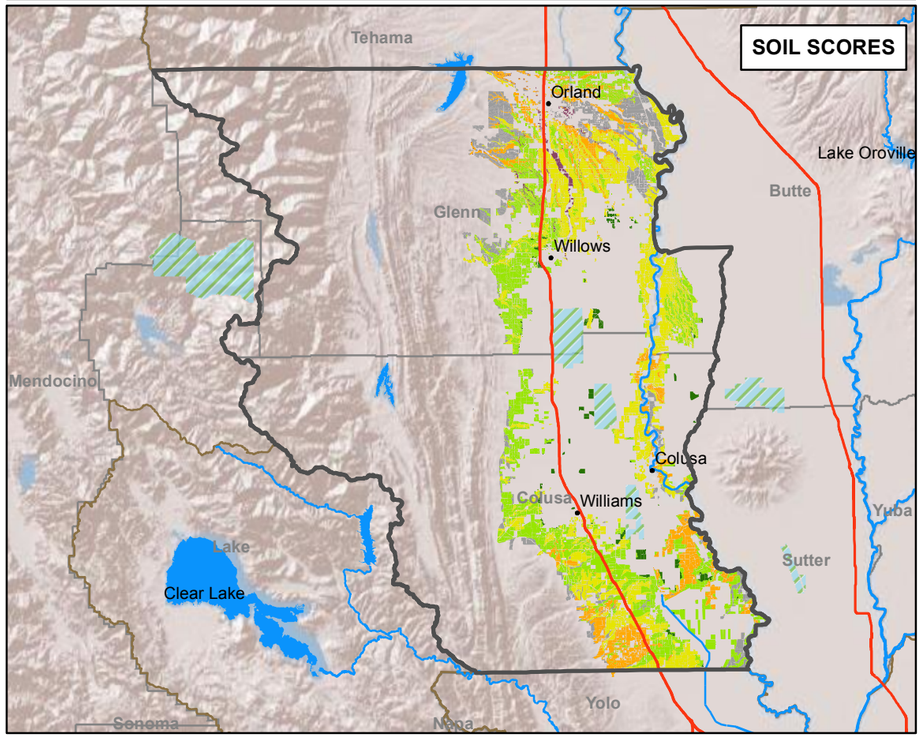


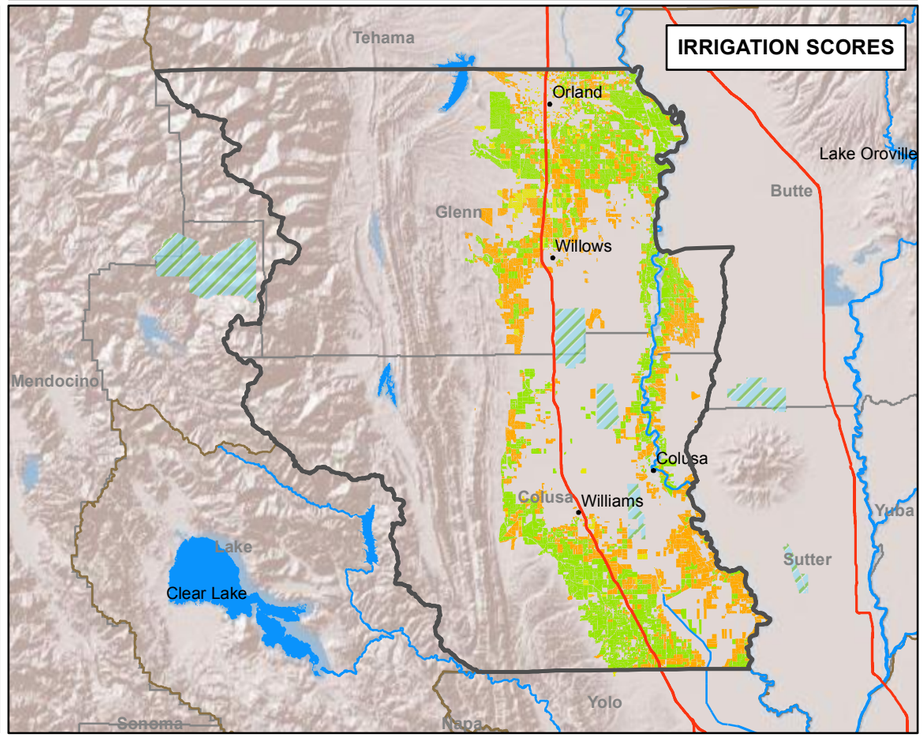
Notes:
SVGB refers to the Sacramento Valley Groundwater Basin

FIGURE 5-8
Vulnerability Designation
Butte-Yuba-Sutter Subwatershed
Groundwater Quality Assessment Report

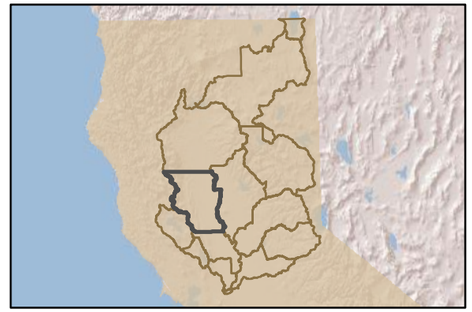








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 7 14

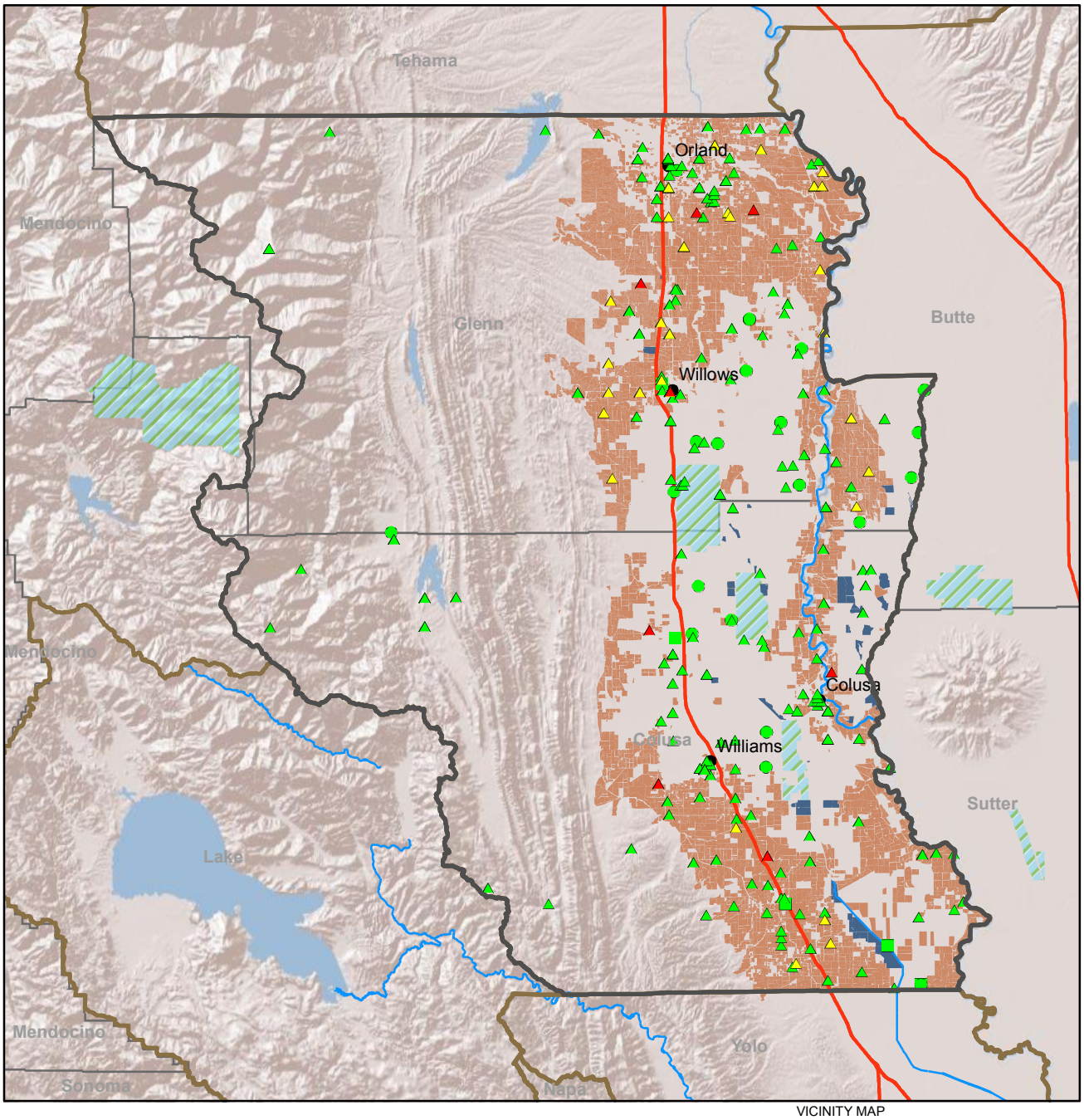
Miles

Notes:

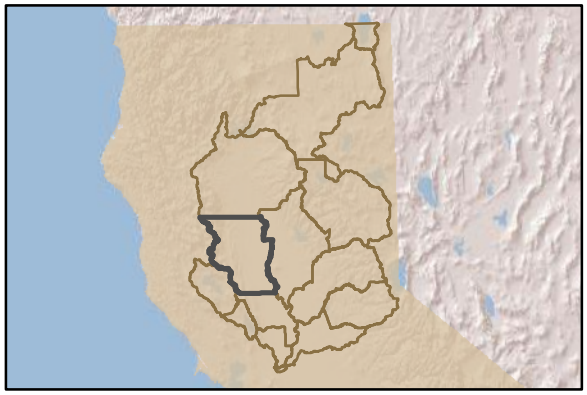
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 6-1
Field Level NHI Results
Colusa-Glenn Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP



- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

NO3 Concentration(mg/L)

- < 22.5
- 22.5 - 45
- > 45

Well Depth (Feet)

- unknown
- < 250
- > 250

Notes:

N

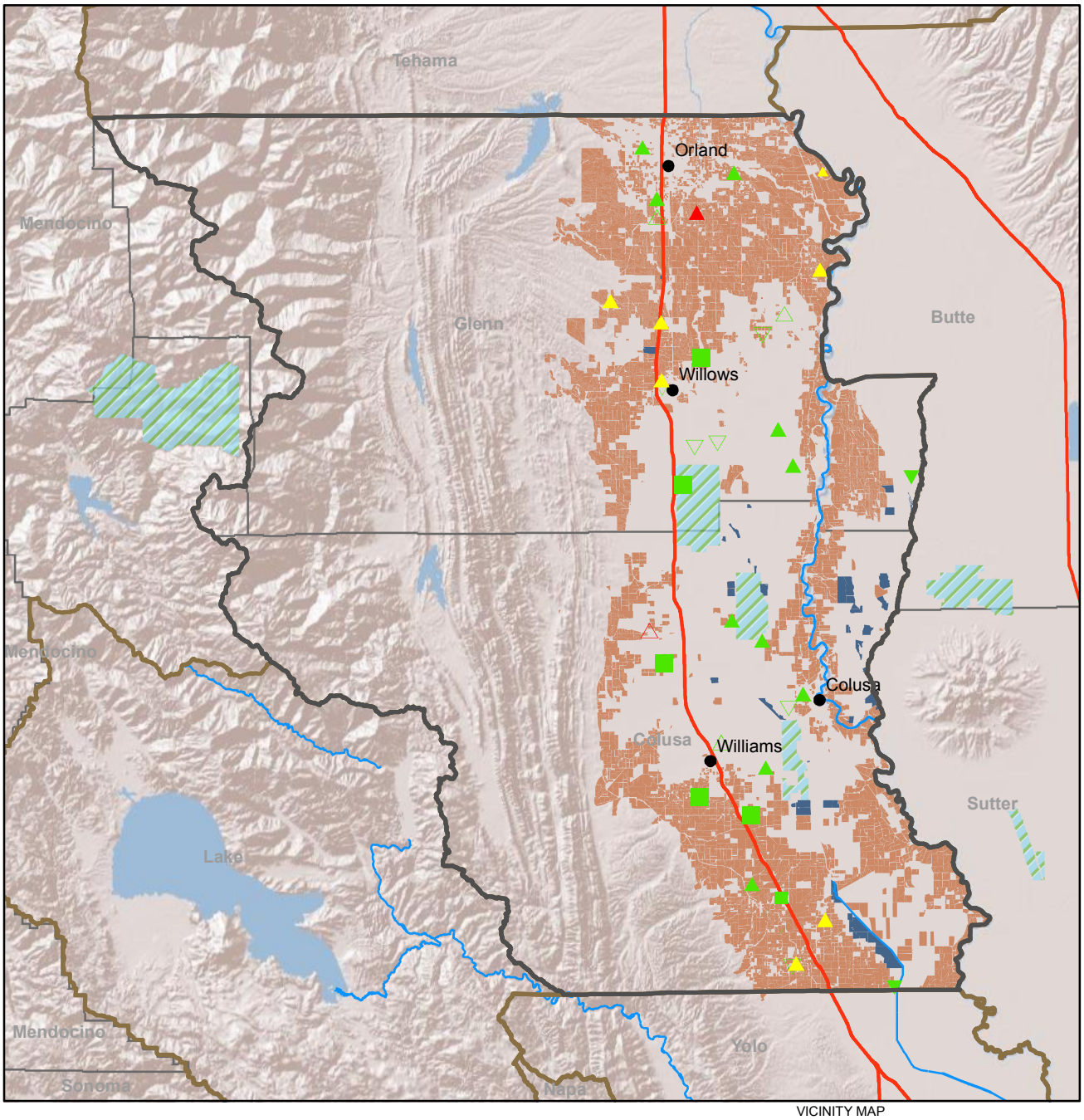
0 5 10

Miles

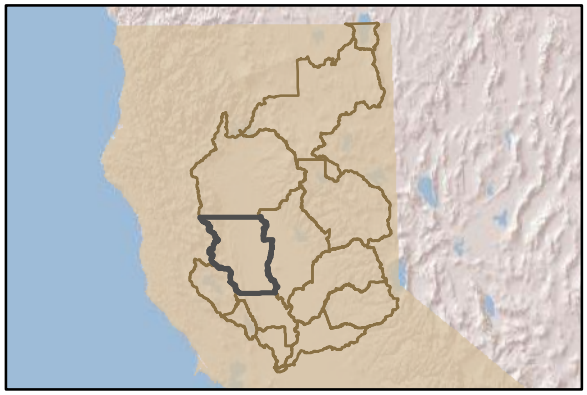
FIGURE 6-2
NO3 Sampling Results
Colusa-Glenn Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NO3.MXD THATCH 5/14/2014



VICINITY MAP



- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

Most Recent NO3 Concentration(mg/L)
- < 22.5
- 22.5 - 45
- > 45

Mann Kendall Trend
- Decrease
- Increase
- No Trend
- Probable Decrease
- Probable Increase

Decade of Most Recent NO3 Measurement
- Before 1970s
- 1970s
- 1980s
- 1990s
- 2000s

Notes:

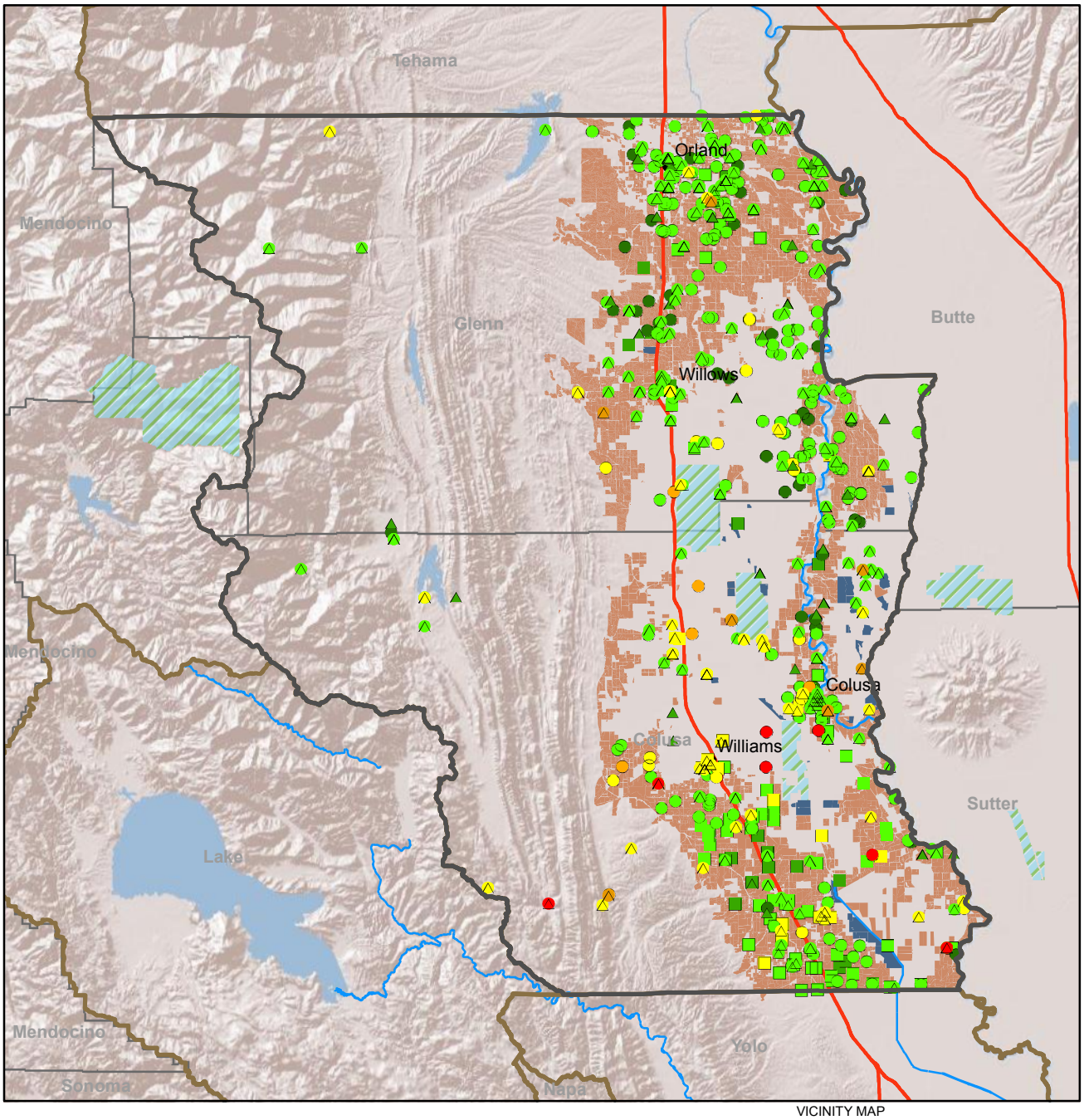
N

0 5 10

Miles

FIGURE 6-3
NO3 Concentration Trend
Colusa-Glenn Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



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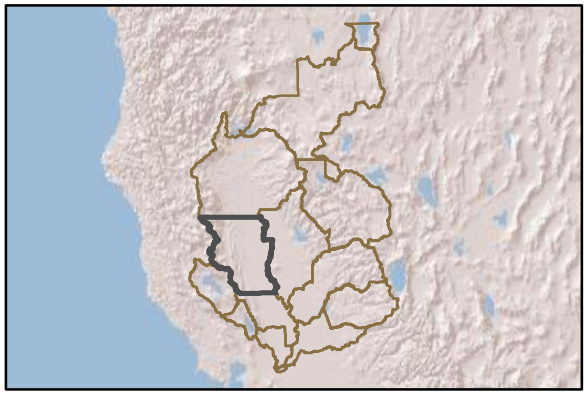


Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

TDS Concentration(mg/L)

< 250
251 - 500
501 - 1000
1001 - 1500
> 1500

Well Depth (Feet)

unknown
< 250
> 250

Notes:

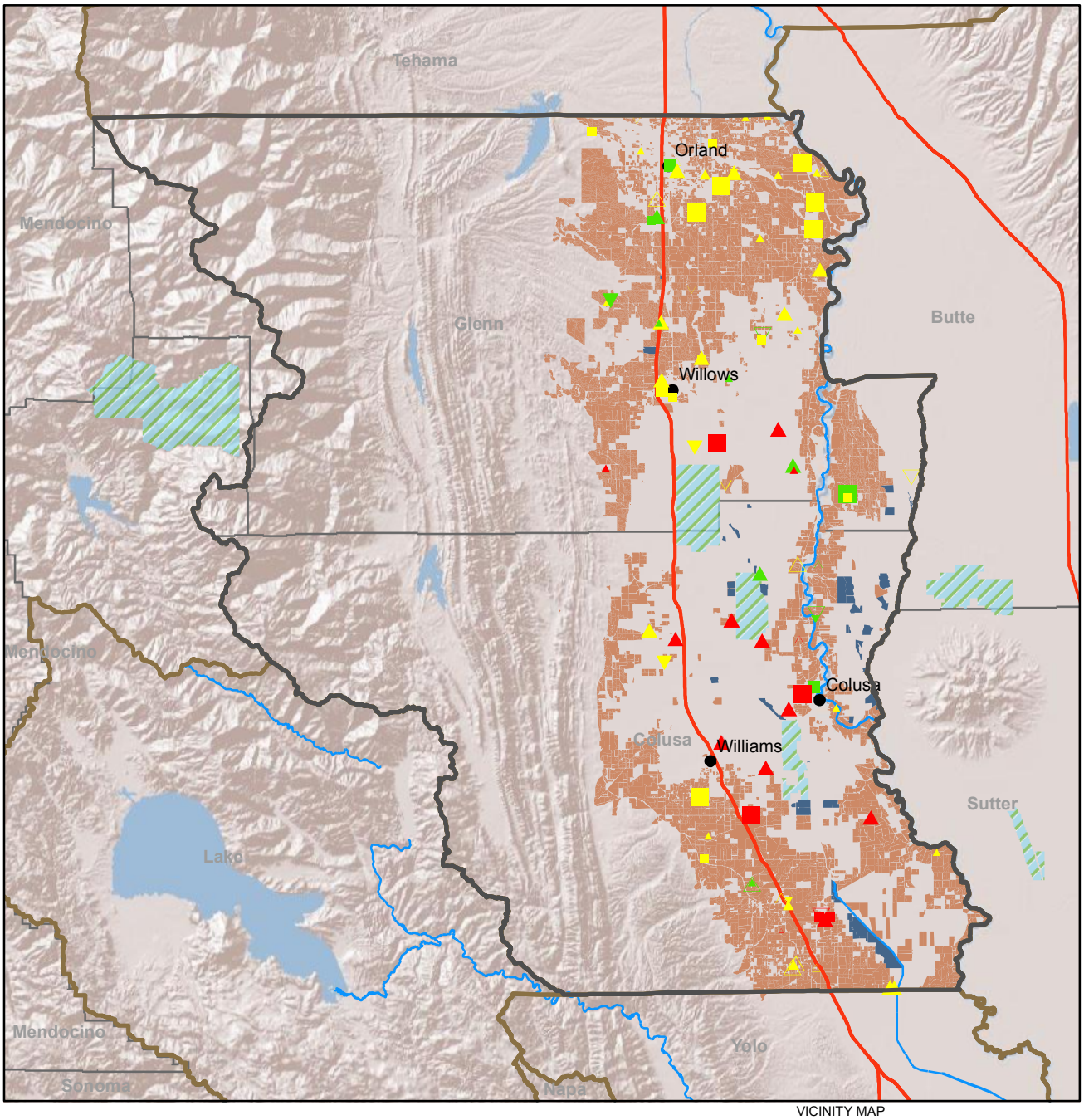
N

0 5 10

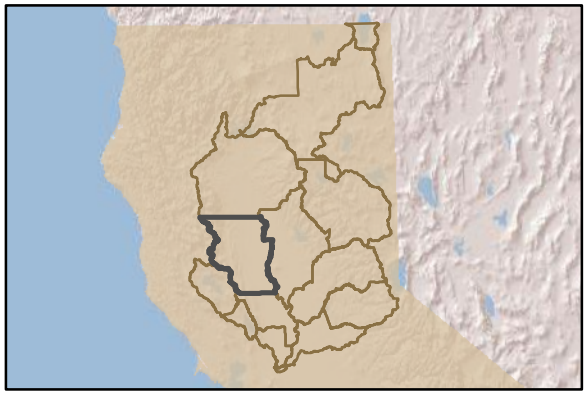
Miles

FIGURE 6-4
TDS Sampling Results
Colusa-Glenn Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP



- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

Notes:

N

0 5 10

Miles

Most Recent TDS Concentration(mg/L)

- < 250
- 250 - 500
- > 500

Mann Kendall Trend

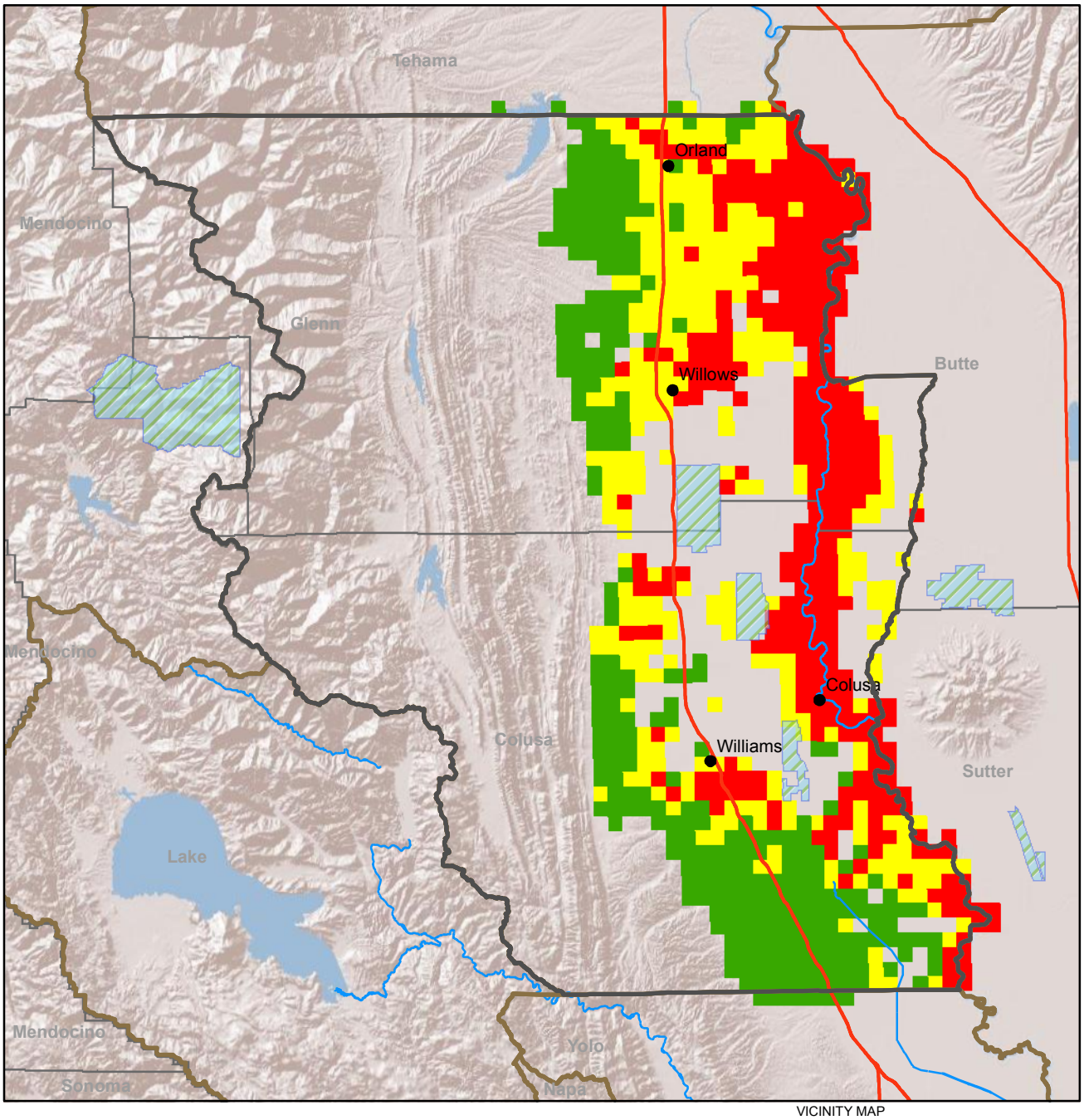
- Decrease
- Increase
- No Trend
- Probable Decrease
- Probable Increase

Decade of Most Recent TDS Measurement

- Before 1970s
- 1970s
- 1980s
- 1990s
- 2000s

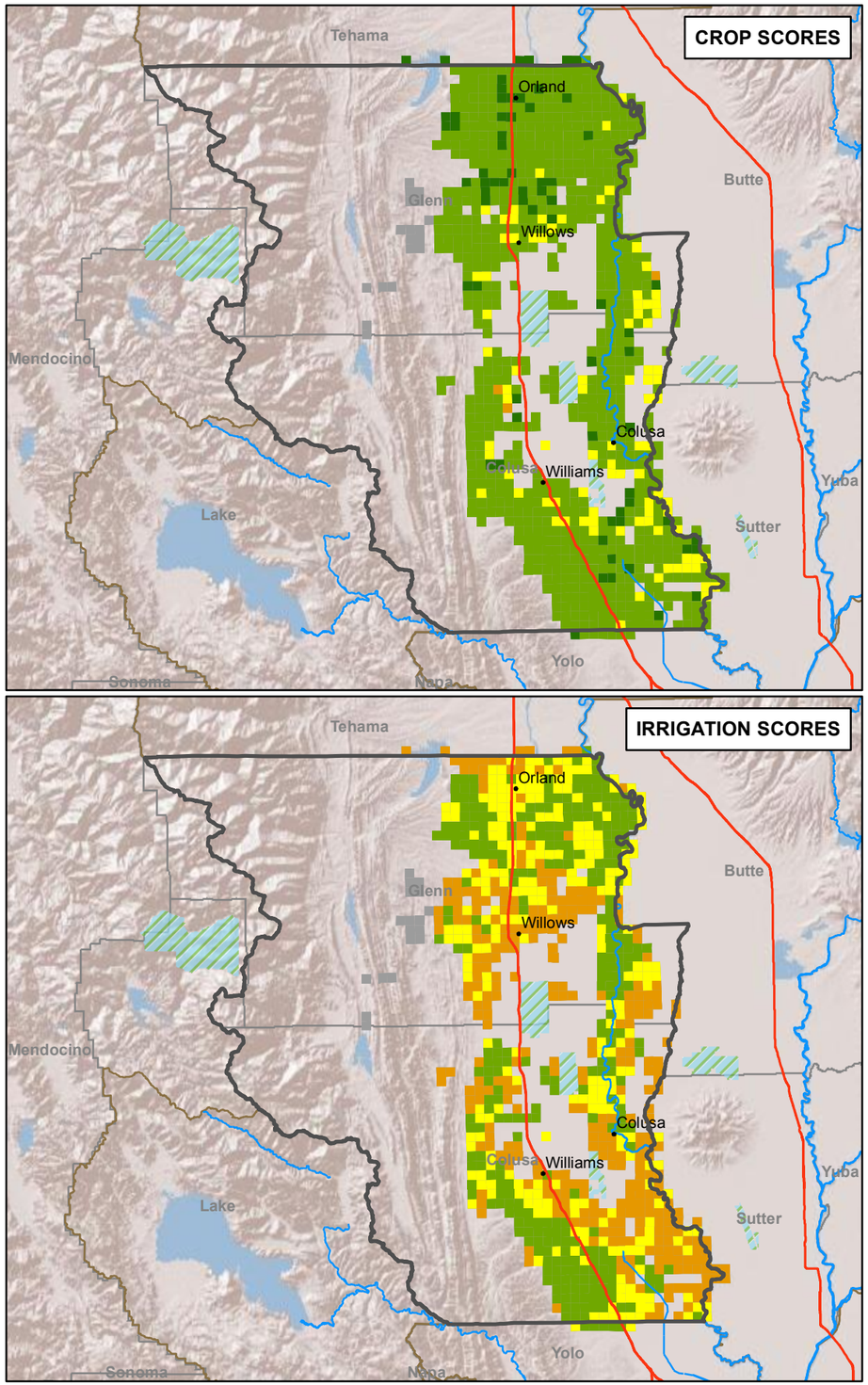
FIGURE 6-5
TDS Concentration Trend
Colusa-Glenn Subwatershed
Groundwater Quality Assessment Report

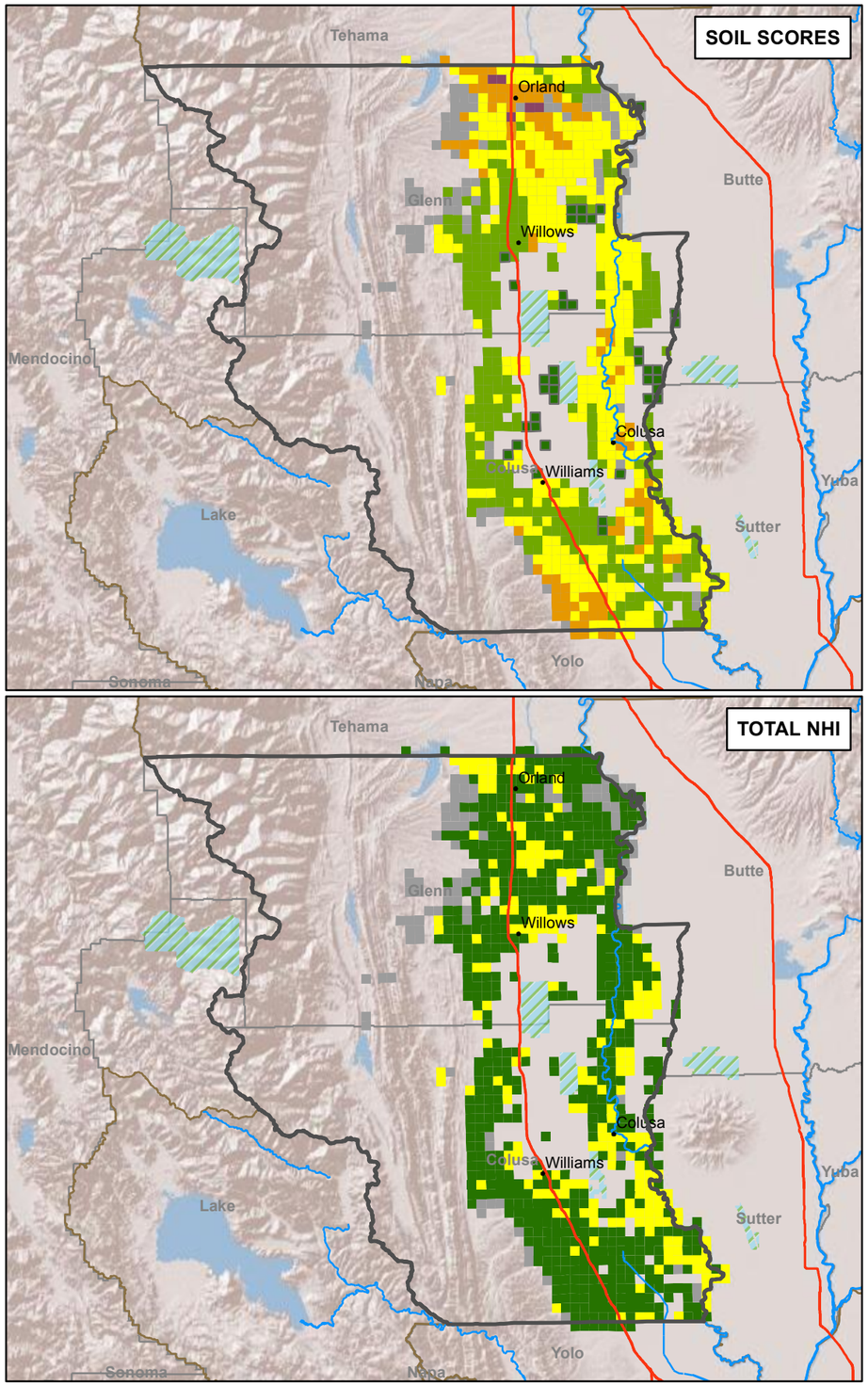
CH2MHILL



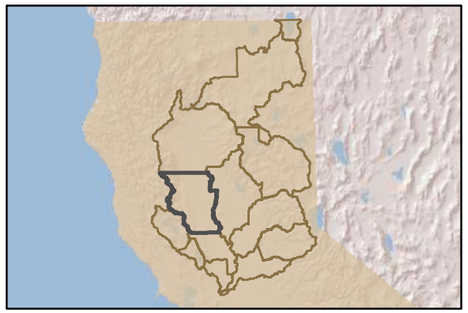
Notes:

FIGURE 6-6
Hydrogeology Susceptibility
Colusa-Glenn Subwatershed
Groundwater Quality Assessment Report





VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

N

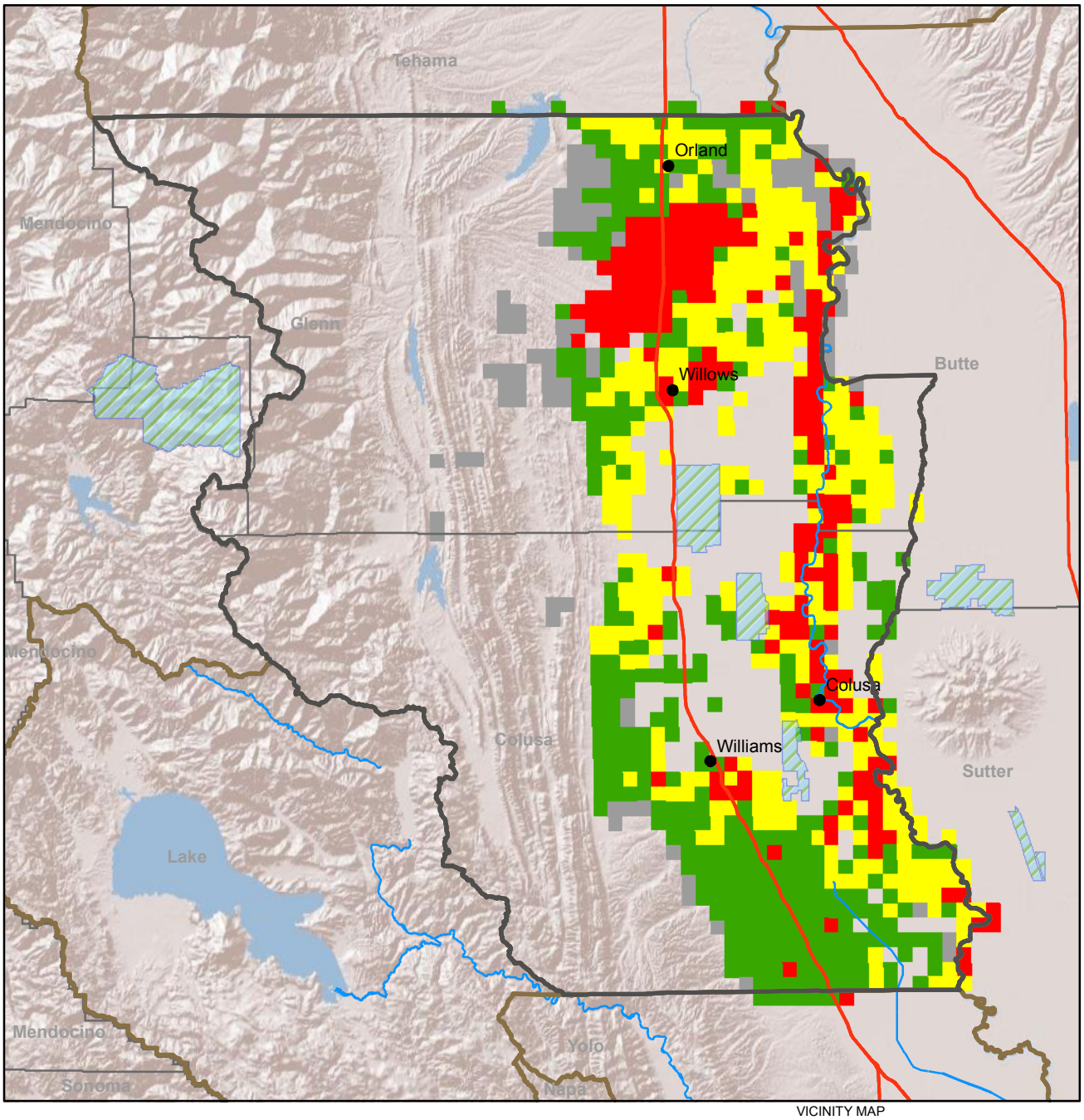
0 7 14
Miles

Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 6-7
Section Level NHI Results
Colusa-Glenn Subwatershed
Groundwater Quality Assessment Report

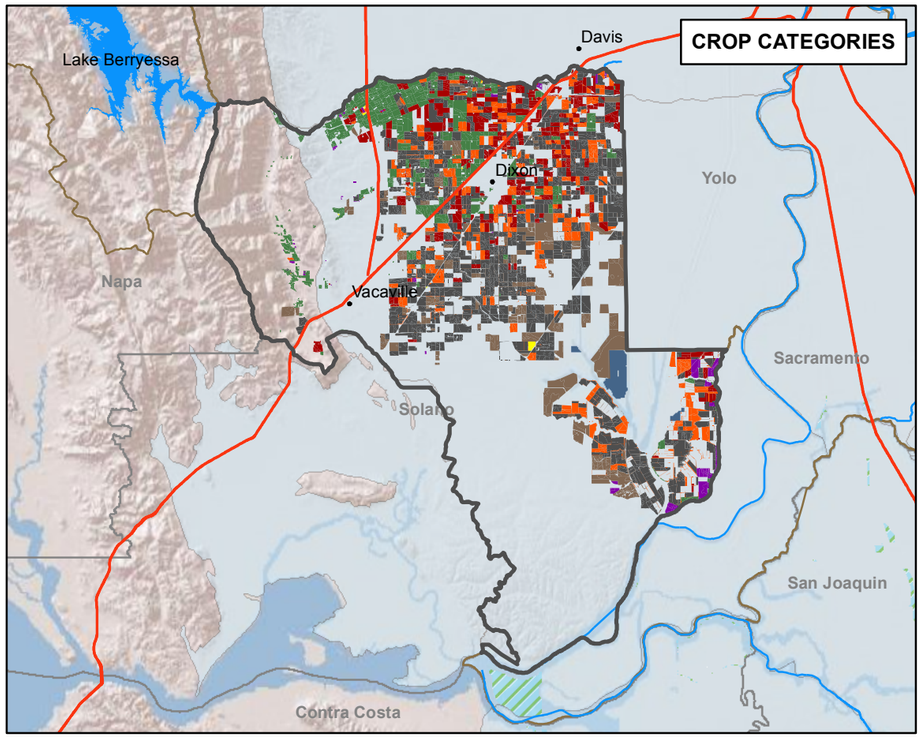
CH2MHILL

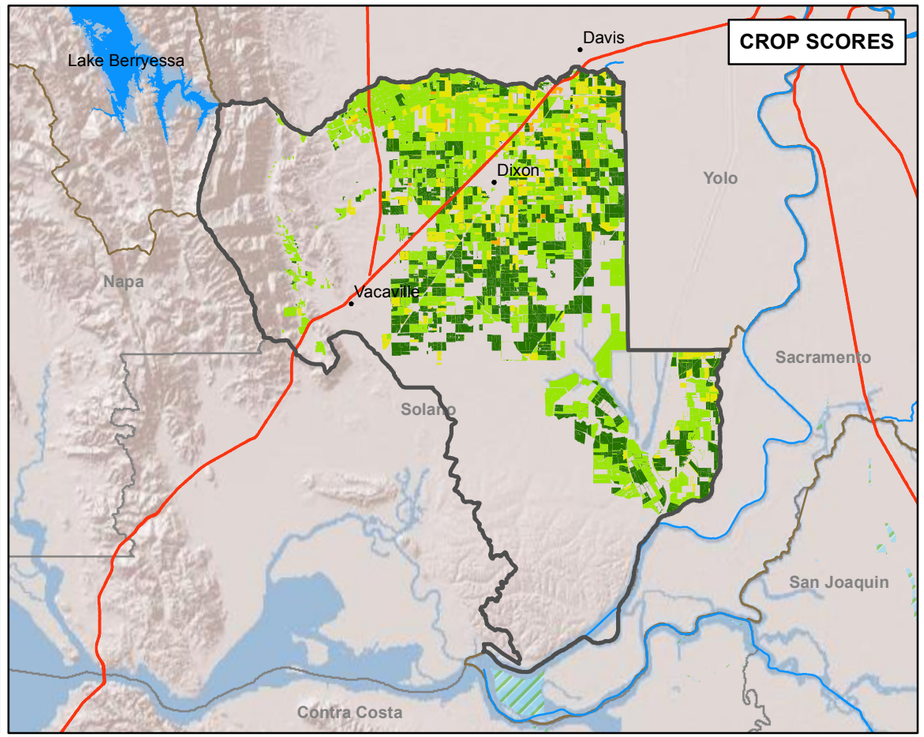
UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NHISECTION.MXD THATCH 5/14/2014

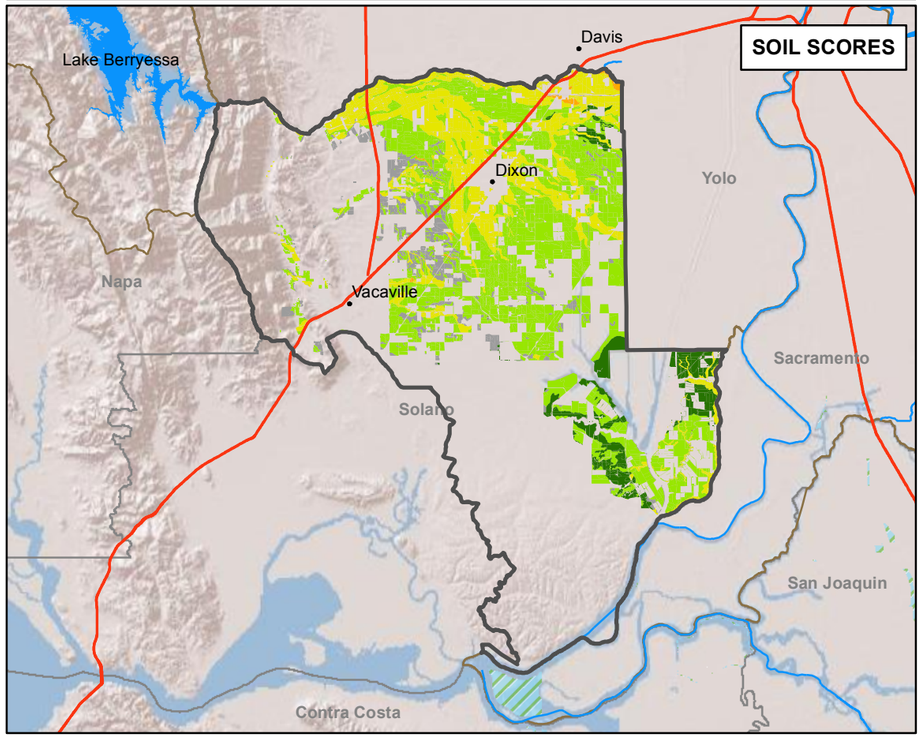


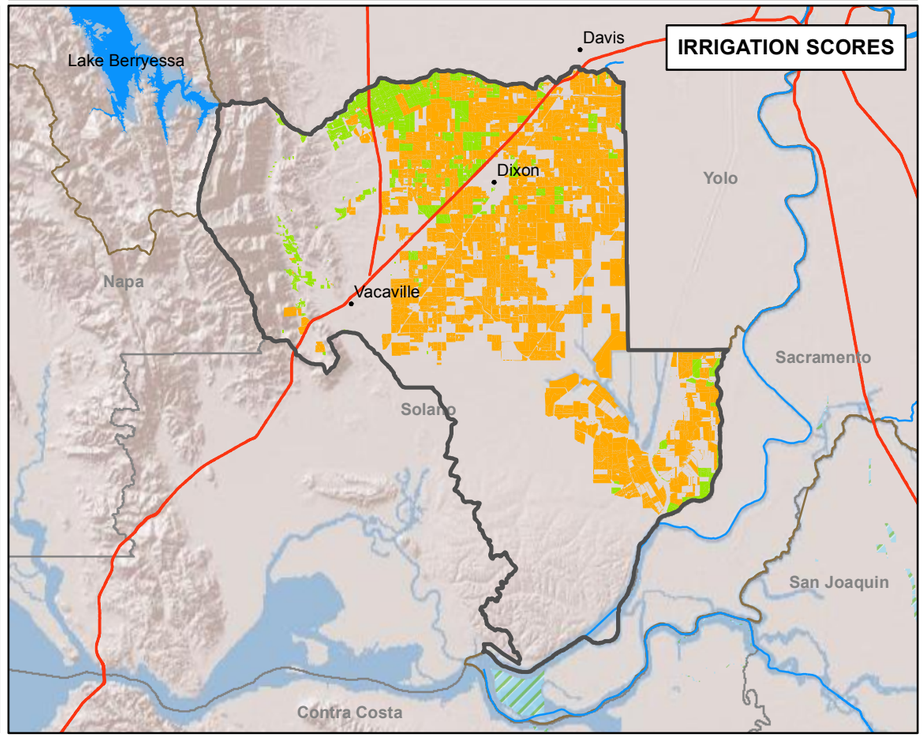
Notes:
SVGB refers to the Sacramento Valley Groundwater Basin

FIGURE 6-8
Vulnerability Designation
Colusa-Glenn Subwatershed
Groundwater Quality Assessment Report









VICINITY MAP

Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 4 8

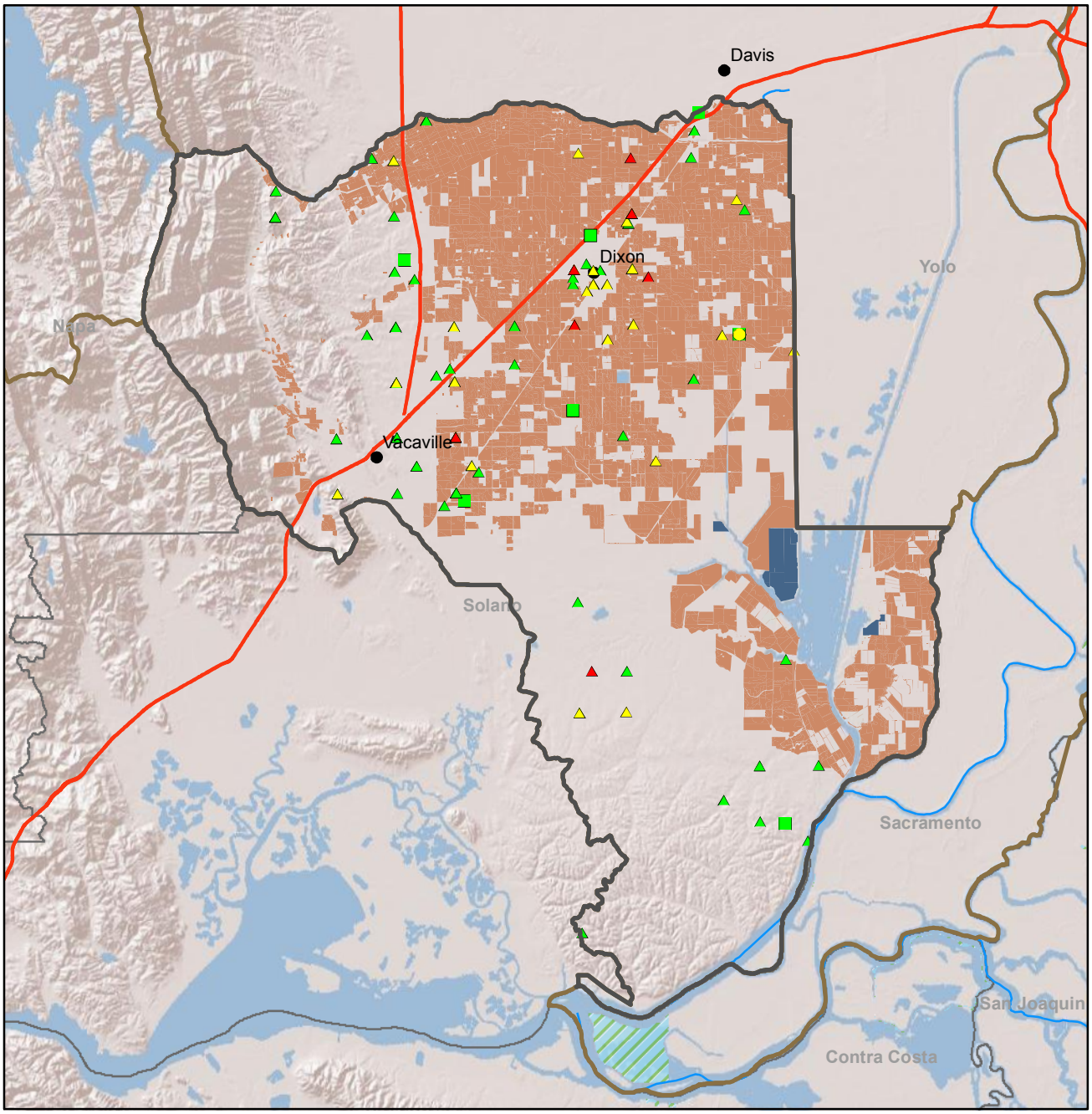
Miles

Notes:

1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 7-1
Field Level NHI Results
Dixon-Solano Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP

- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

NO3 Concentration(mg/L)

- < 22.5
- 22.5 - 45
- > 45

Well Depth (Feet)

- unknown
- < 250
- > 250

Notes:

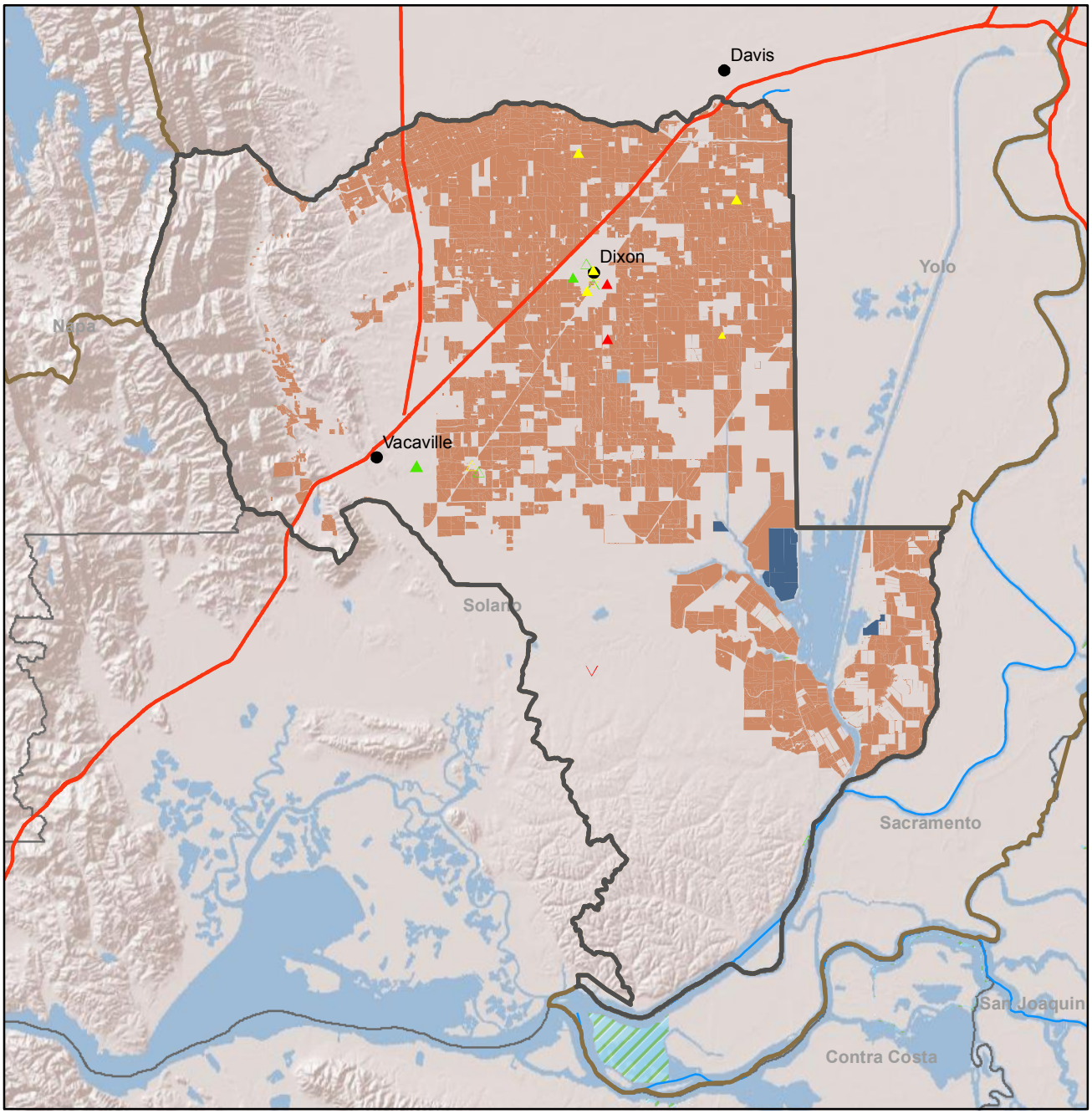
N

0 2.5 5

Miles

FIGURE 7-2
NO3 Sampling Results
Dixon-Solano Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP

Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

Most Recent NO3 Concentration(mg/L)
- < 22.5
- 22.5 - 45
- > 45

Mann Kendall Trend
- Decrease
- Increase
- No Trend
- Probable Decrease
- Probable Increase

Decade of Most Recent NO3 Measurement
- Before 1970s
- 1970s
- 1980s
- 1990s
- 2000s

Notes:

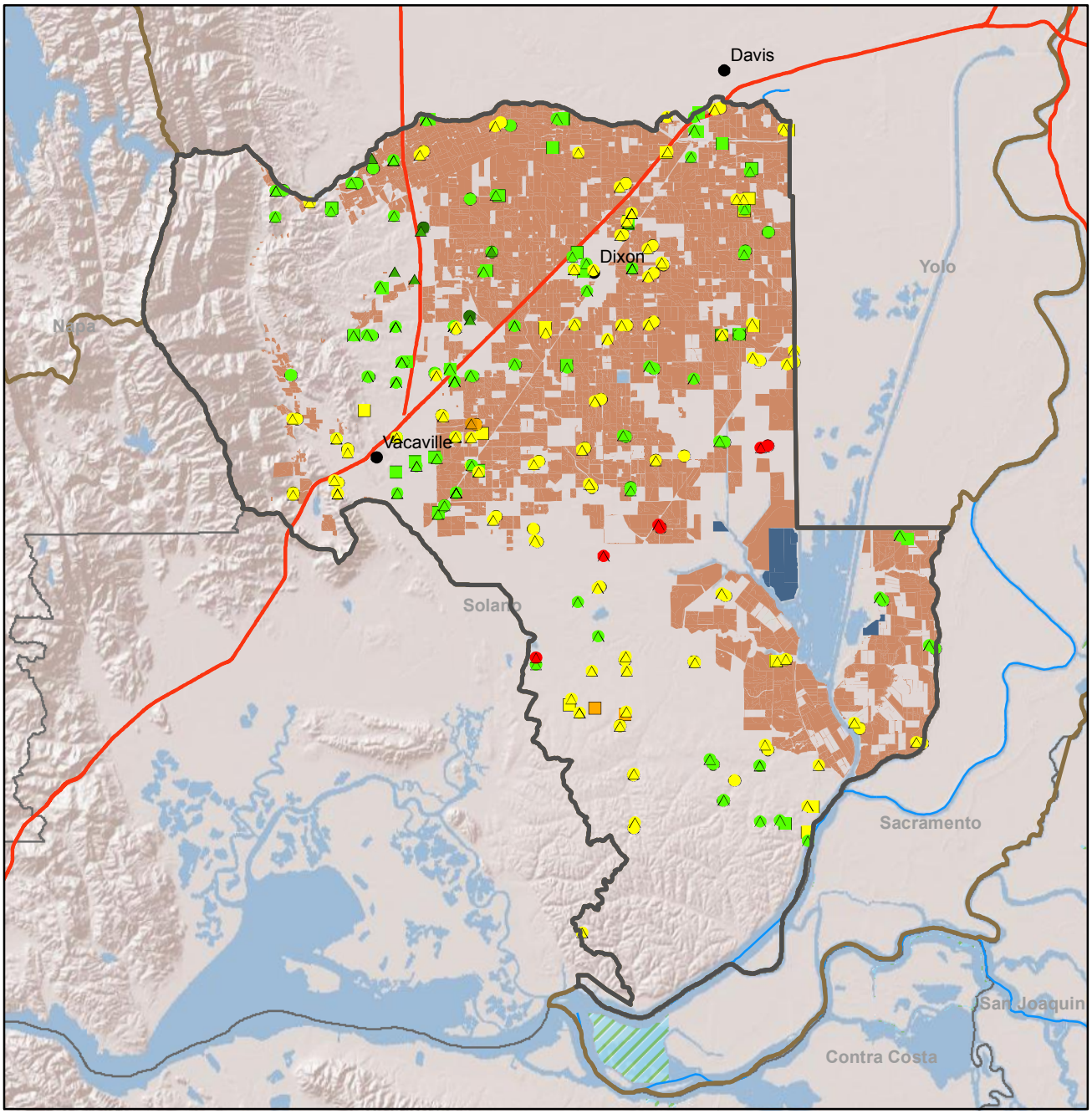
N

0 2.5 5

Miles

FIGURE 7-3
NO3 Concentration Trend
Dixon-Solano Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

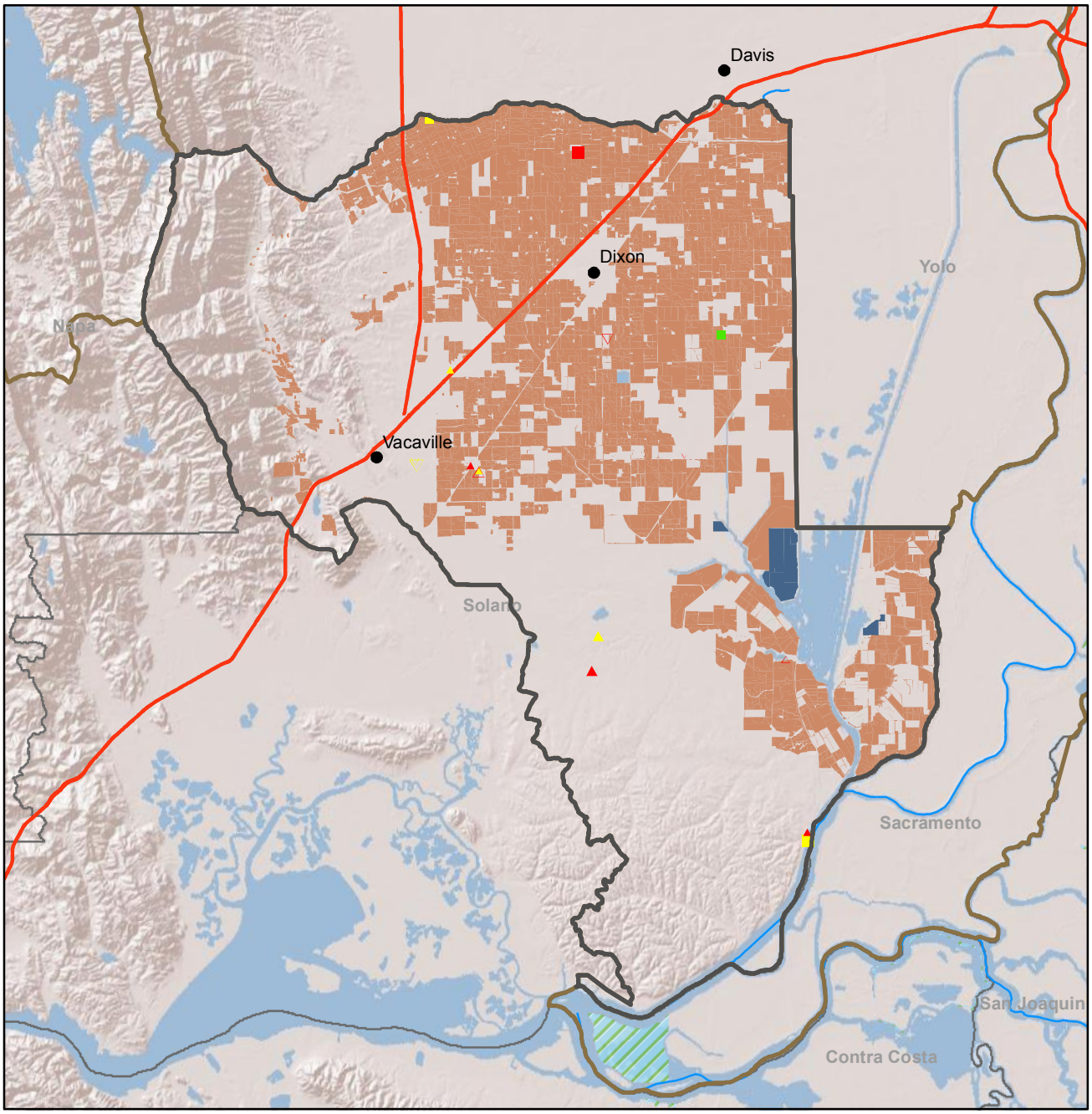


VICINITY MAP

Notes:

FIGURE 7-4
TDS Sampling Results
Dixon-Solano Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

Notes:

N
0 2.5 5
Miles

Most Recent TDS Concentration(mg/L)
- < 250
- 250 - 500
- > 500

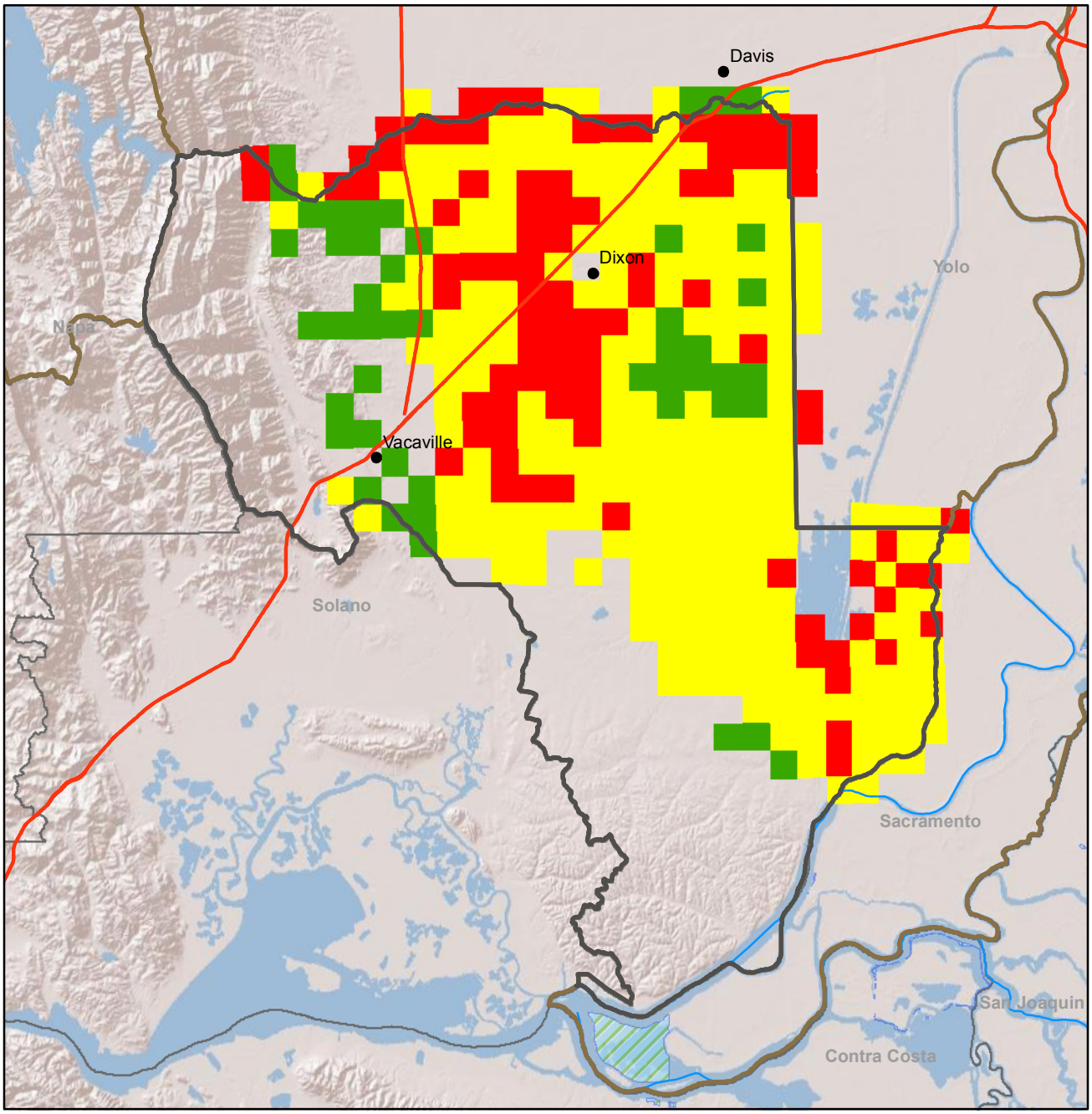
Mann Kendall Trend
- Decrease
- Increase
- No Trend
- Probable Decrease
- Probable Increase

Decade of Most Recent TDS Measurement
- Before 1970s
- 1970s
- 1980s
- 1990s
- 2000s

VICINITY MAP

FIGURE 7-5
TDS Concentration Trend
Dixon-Solano Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP

- Cities
- Highways
- Subwatersheds
- Rivers
- National Wildlife Refuges
- Counties

Hydrogeology Susceptibility

- 28 - 82
- 82 - 101
- 101 - 140

Notes:

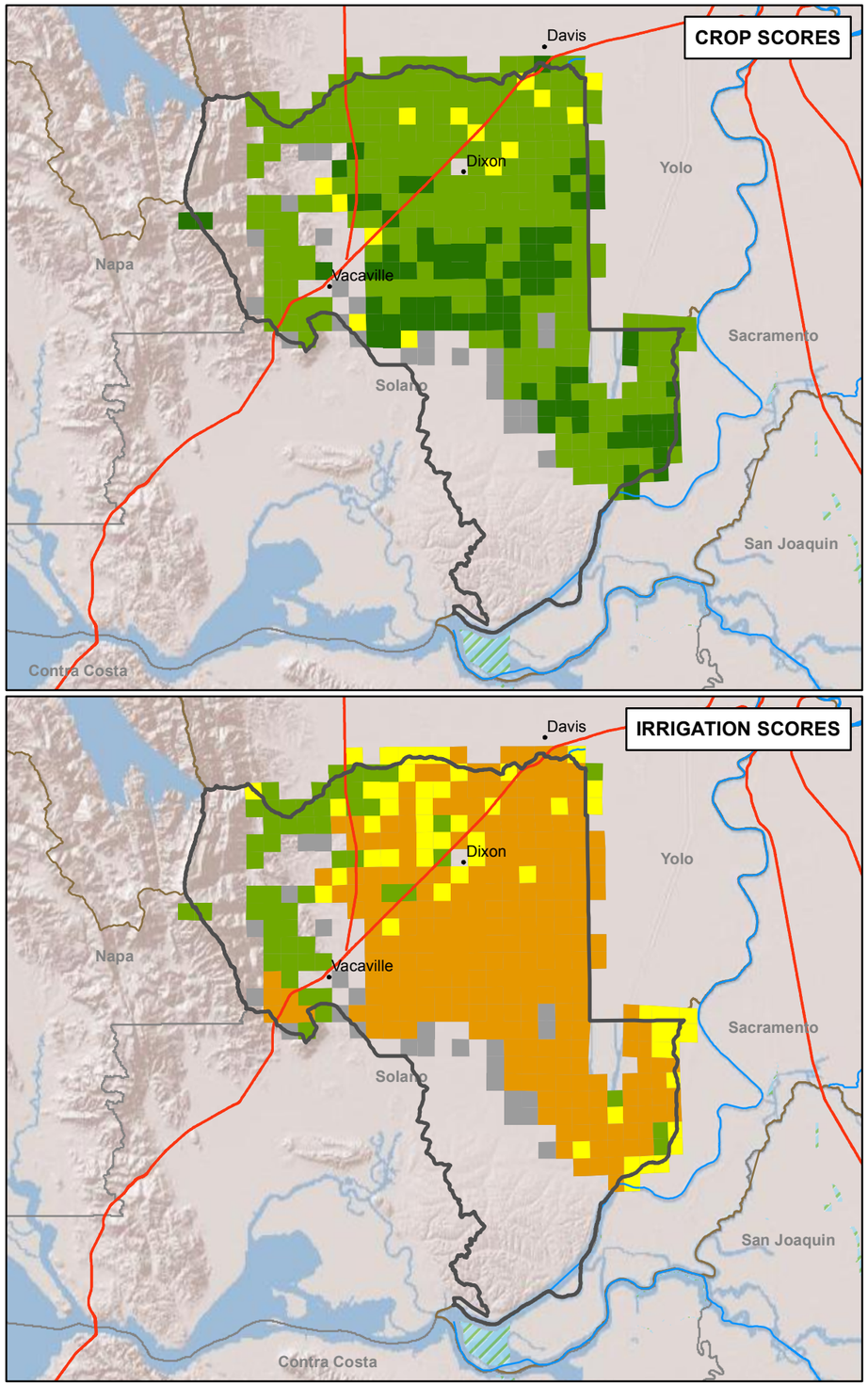
N

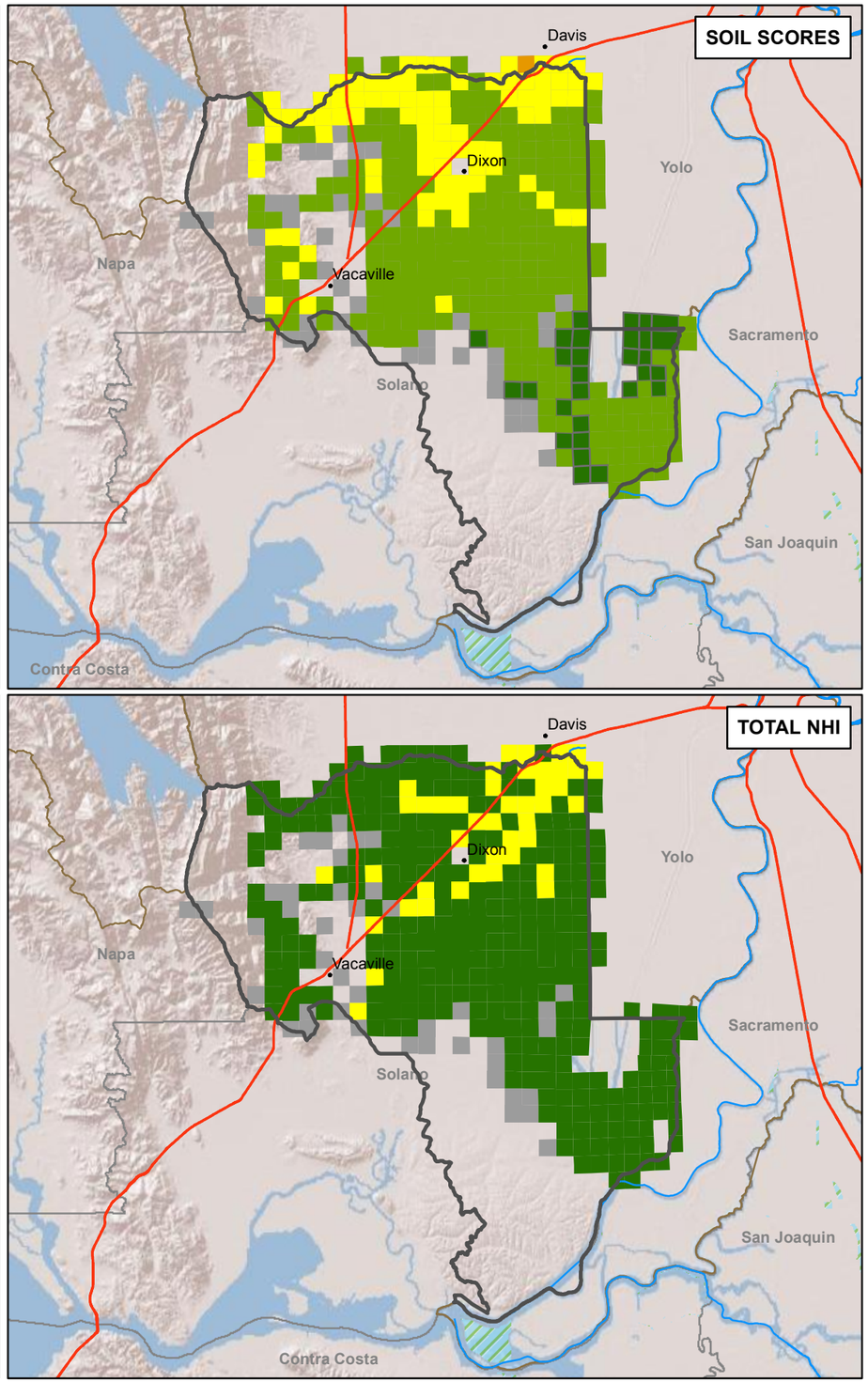
0 2.5 5

Miles

FIGURE 7-6
Hydrogeology Score
Dixon-Solano Subwatershed
Groundwater Quality Assessment Report

CH2MHILL





VICINITY MAP

Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

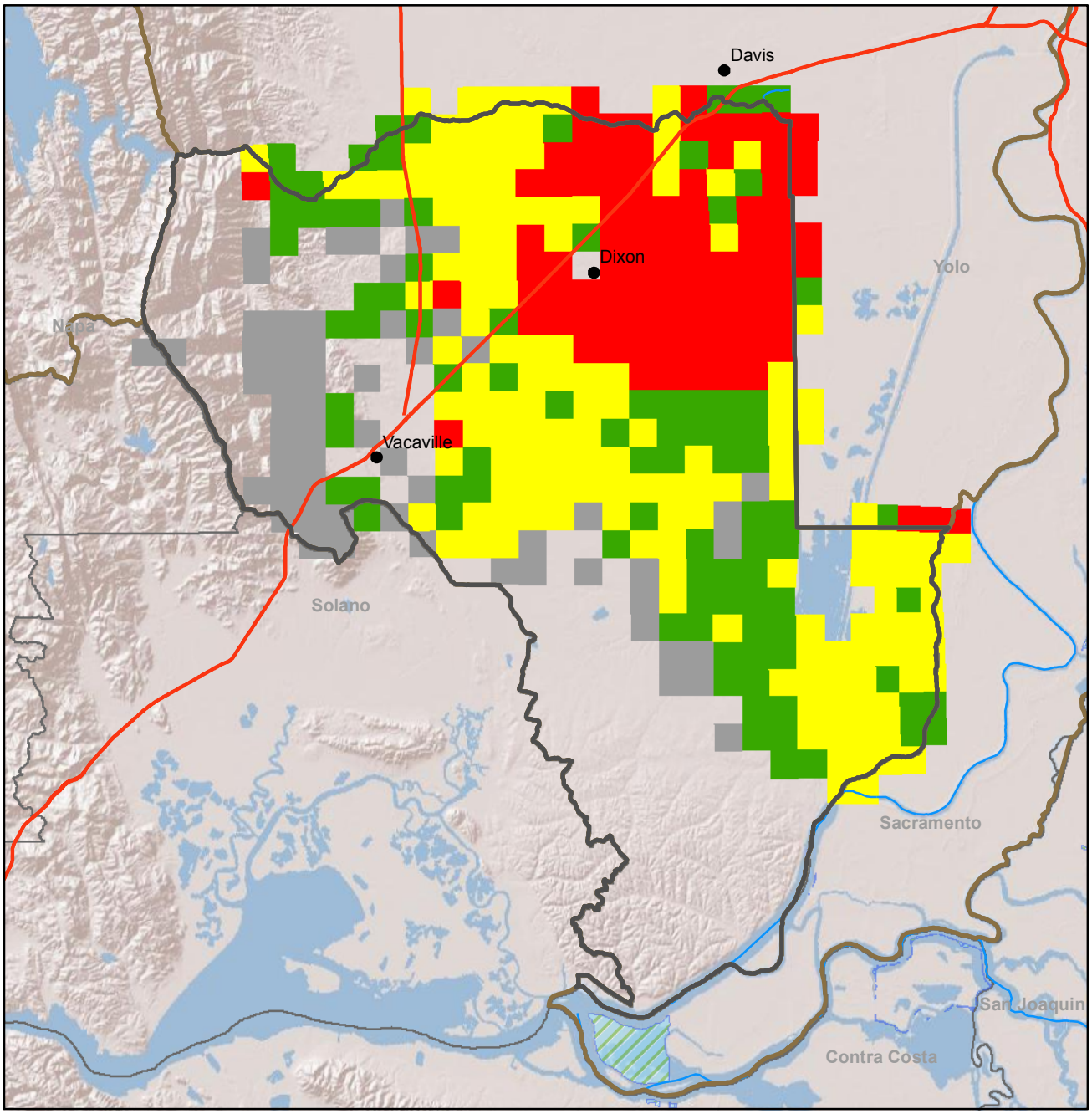
N

0 4 8
Miles

Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 7-7
Section Level NHI Results
Dixon-Solano Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP

Cities
Highways
Subwatersheds
Rivers
National Wildlife Refuges
Counties

Vulnerability

High
Moderate
Low
data gap or outside SVGB boundary

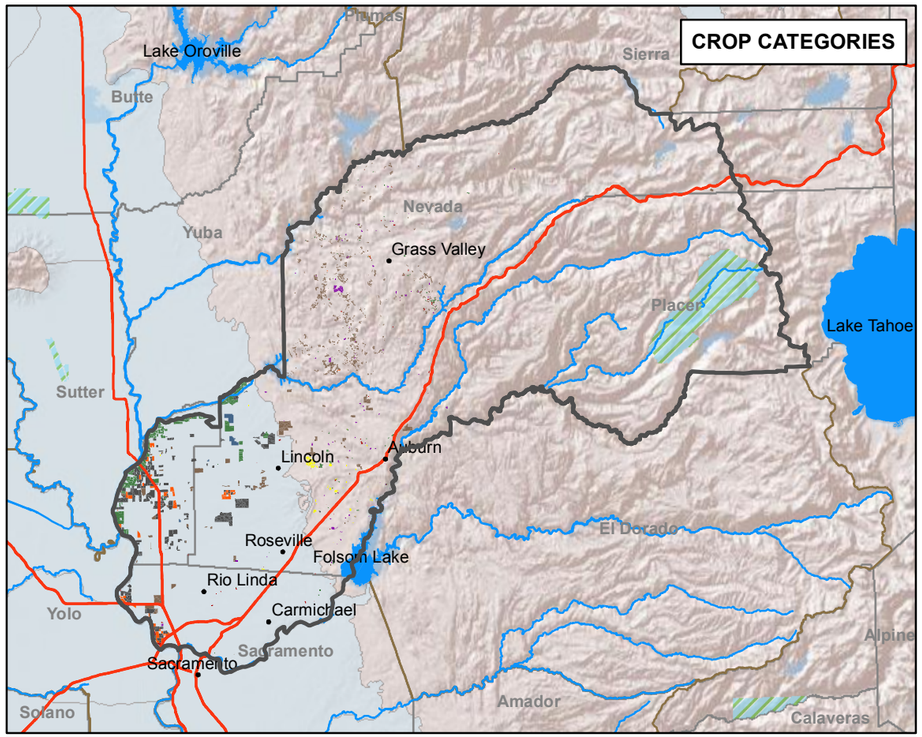
Notes:
SVGB refers to the Sacramento Valley Groundwater Basin

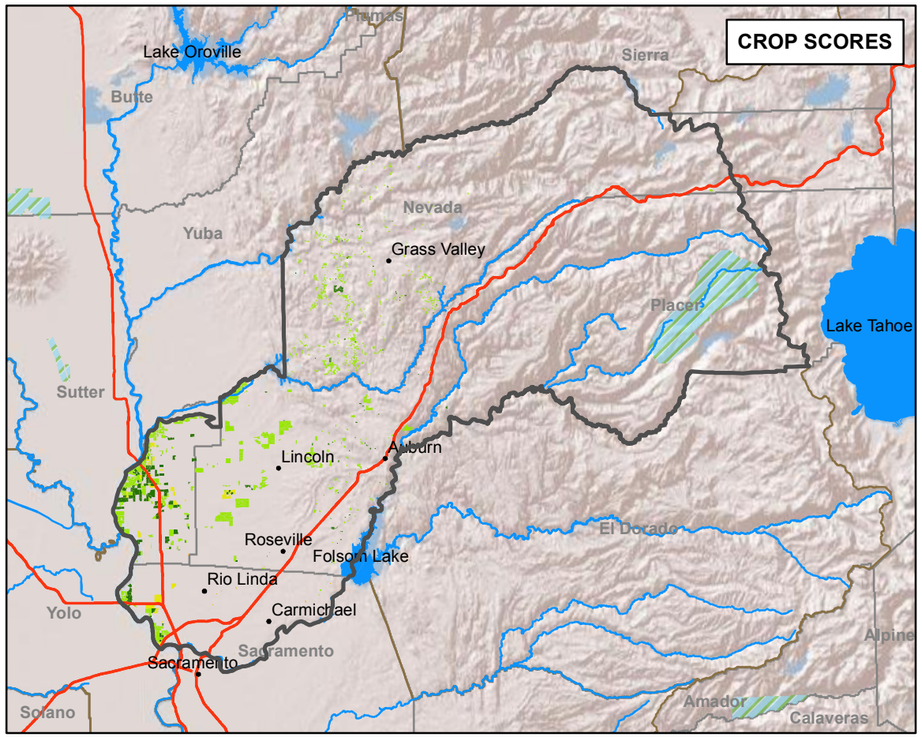
N

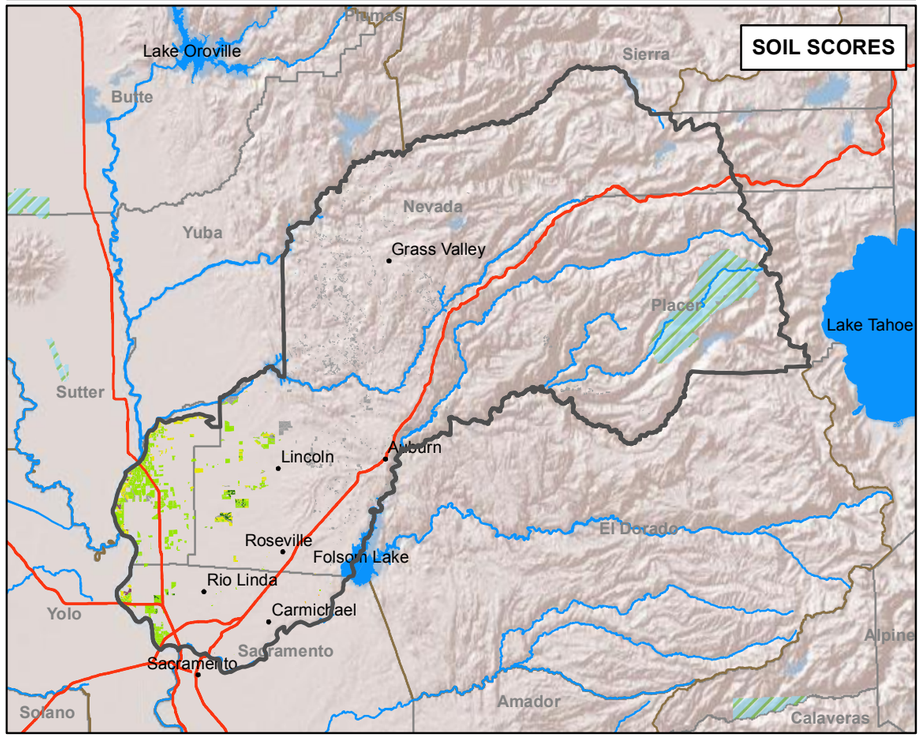
0 2.5 5

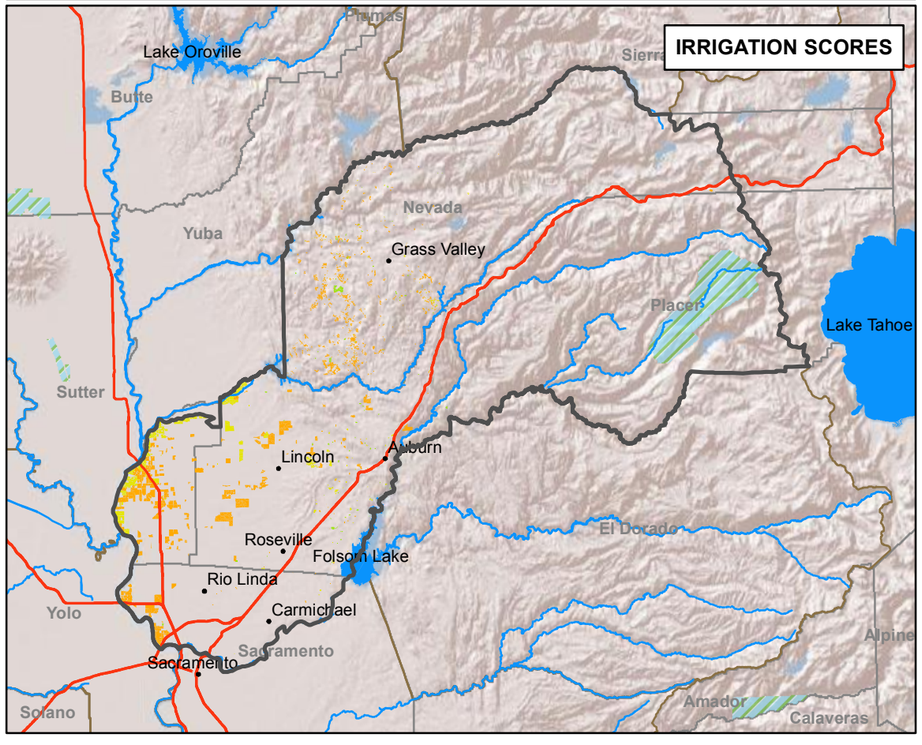
Miles

FIGURE 7-8
Vulnerability Designation
Dixon-Solano Subwatershed
Groundwater Quality Assessment Report

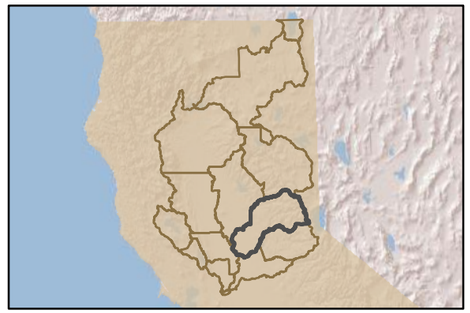








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 7.5 15

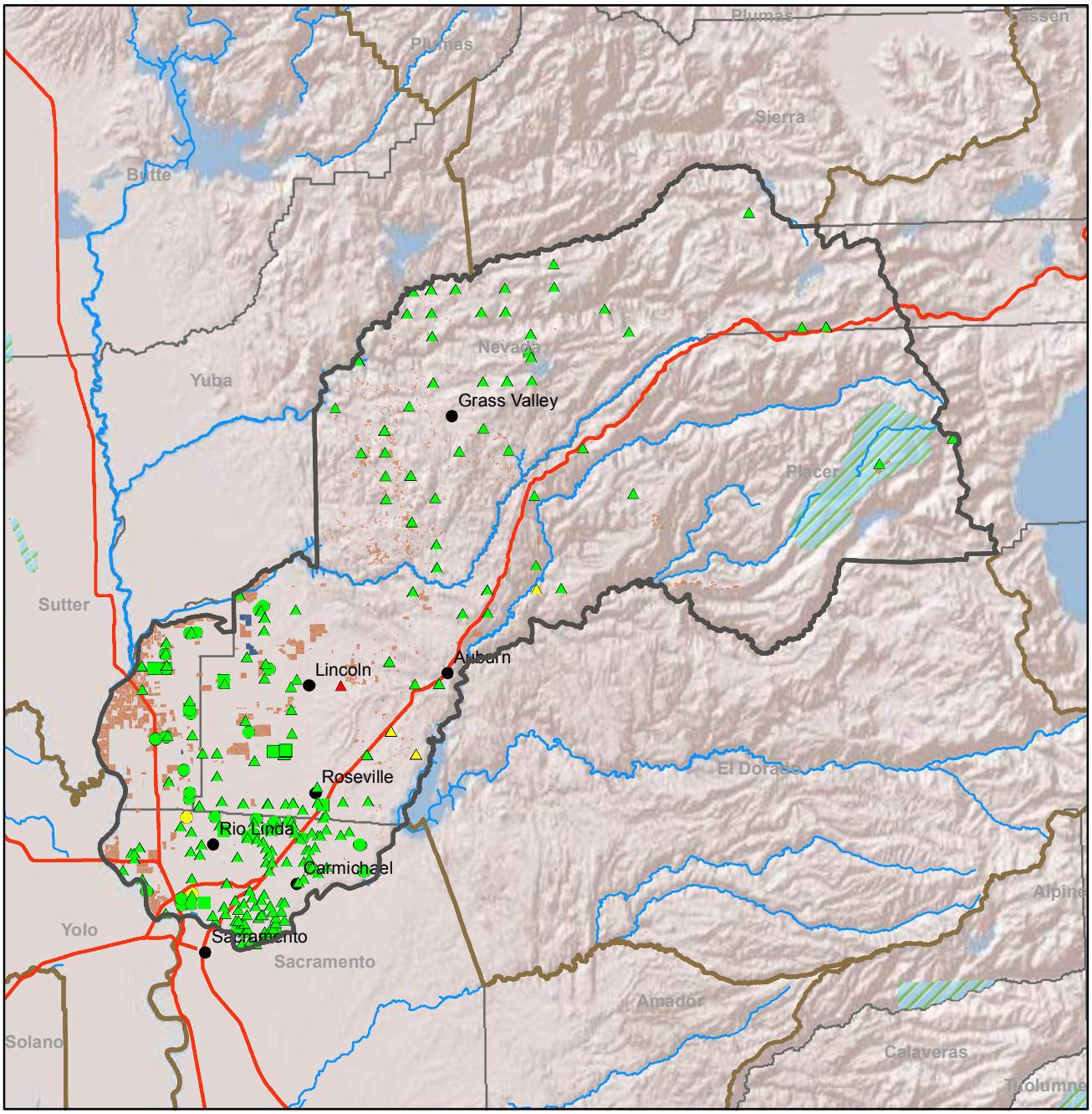
Miles

Notes:

1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 8-1
Field Level NHI Results
Placer-Nevada-S.Sutter-N.Sacramento Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



Notes:

FIGURE 8-2
NO3 Sampling Results
Placer-Nevada-S.Sutter-N.Sacramento Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

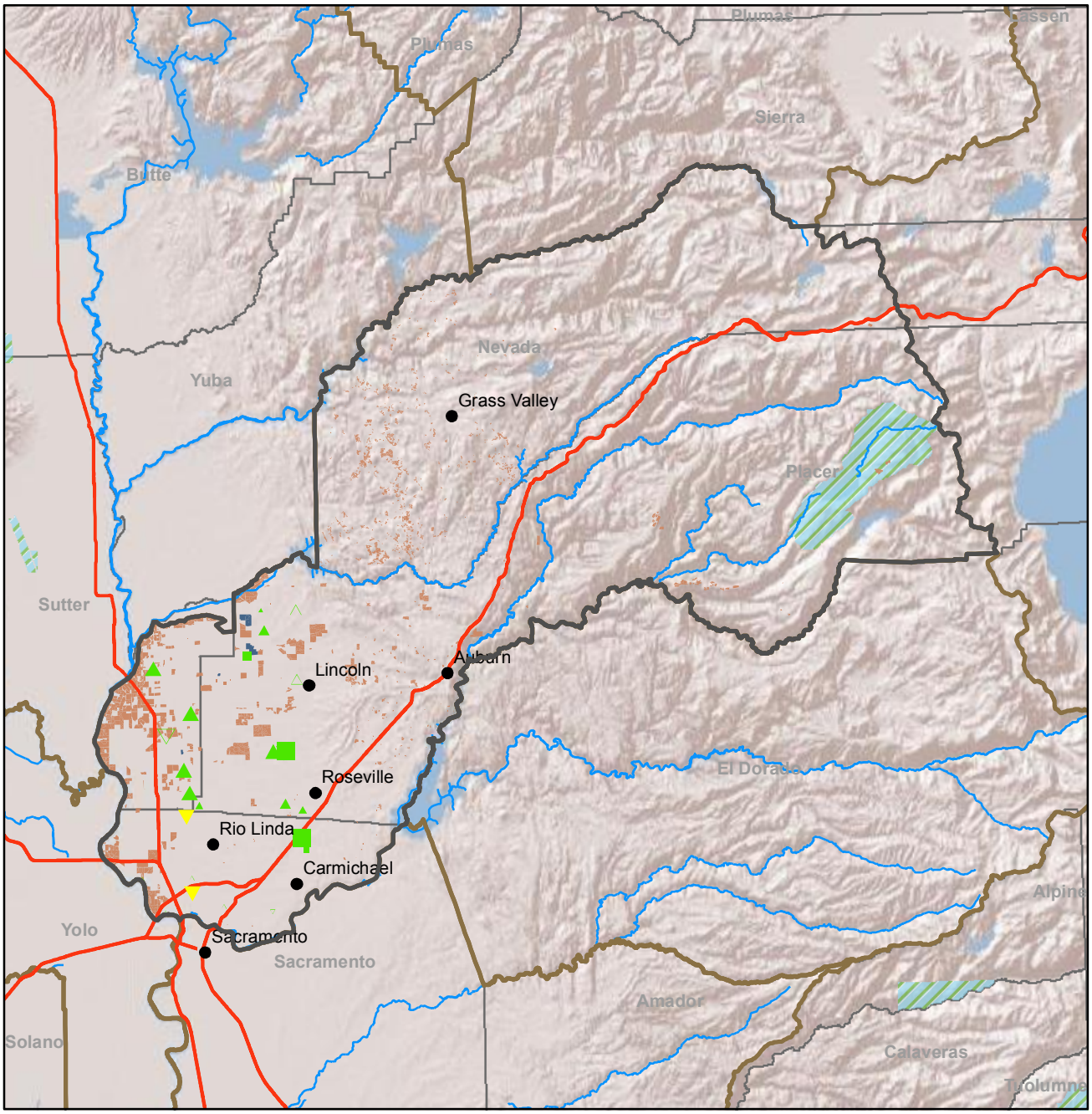


FIGURE 8-3
NO3 Concentration Trend
Placer-Nevada-S.Sutter-N.Sacramento Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

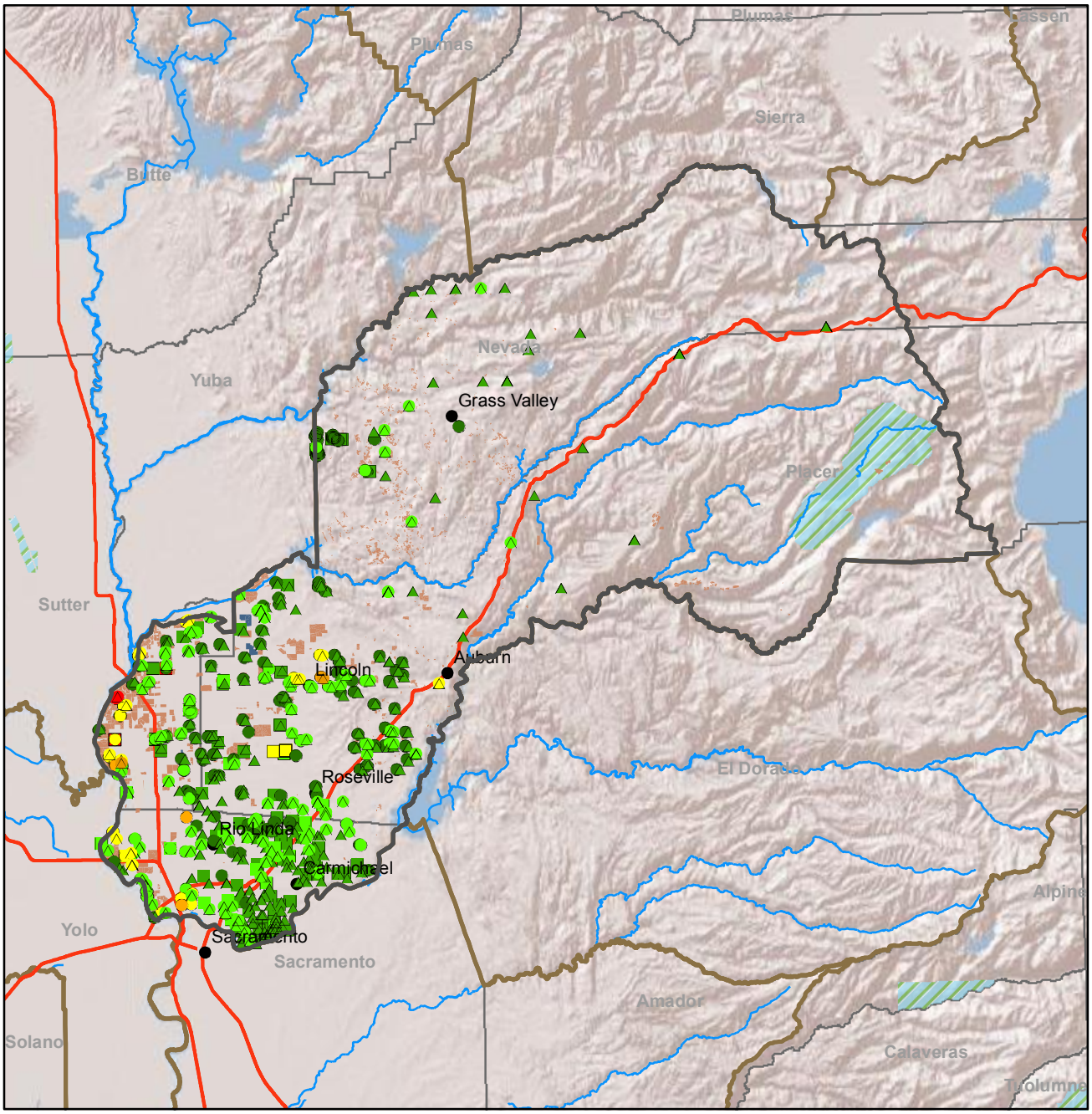


FIGURE 8-4
TDS Sampling Results
Placer-Nevada-S.Sutter-N.Sacramento Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_TDS.MXD THATCH 5/14/2014

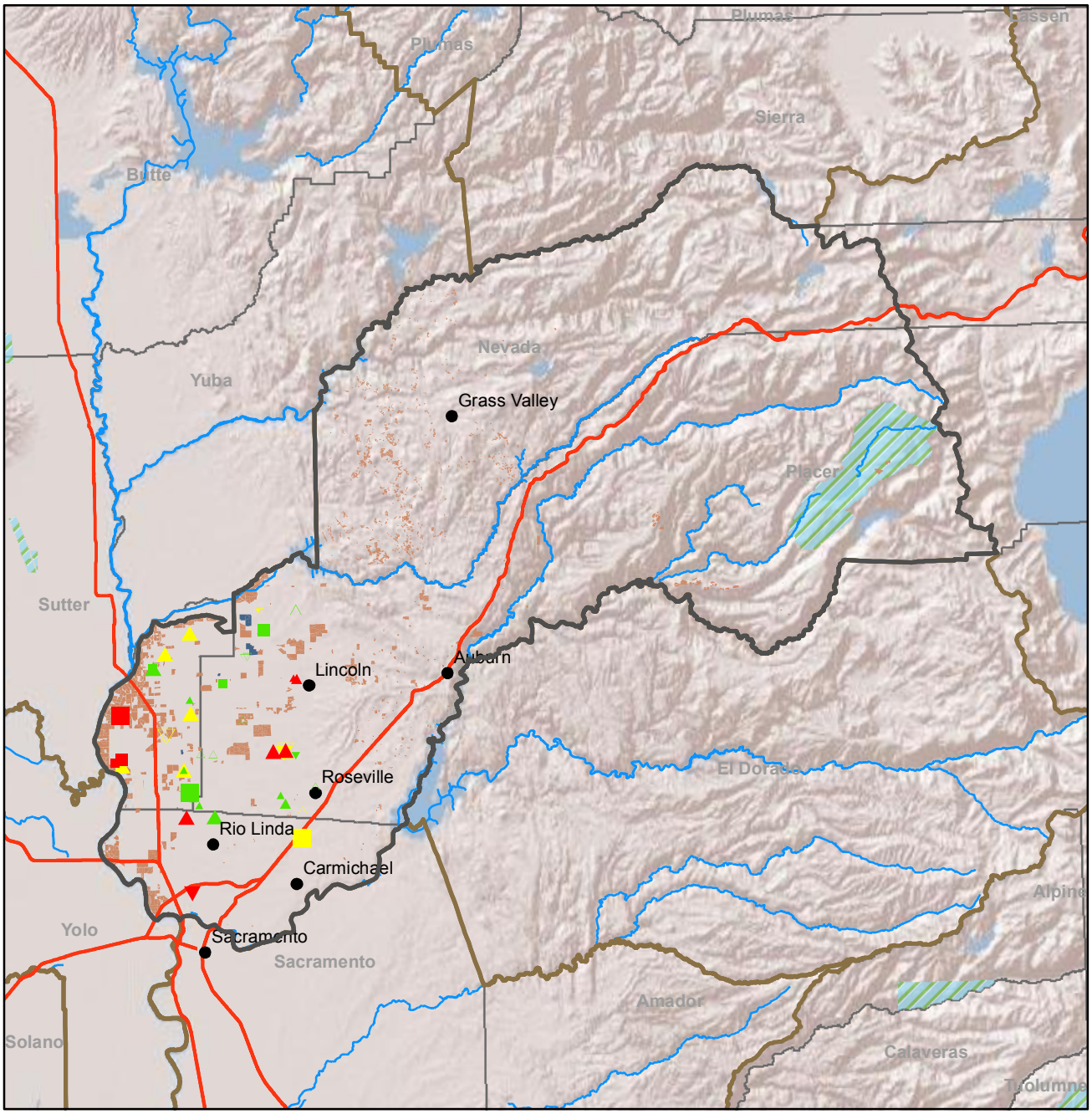


FIGURE 8-5
TDS Concentration Trend
Placer-Nevada-S.Sutter-N.Sacramento Subwatershed
Groundwater Quality Assessment Report

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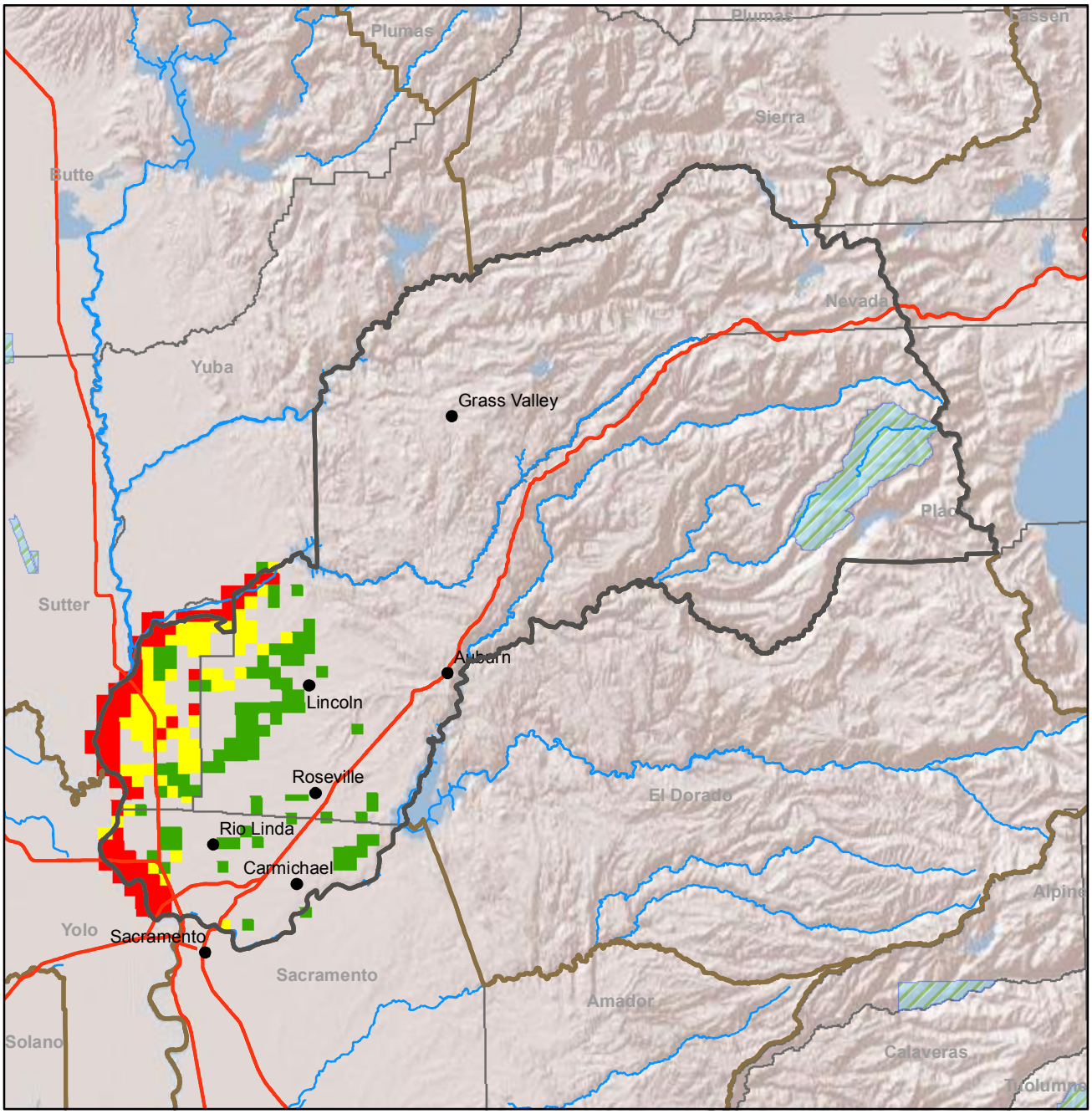

FIGURE 8-6
Hydrogeology Susceptibility
Placer-Nevada-S.Sutter-N.Sacramento Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

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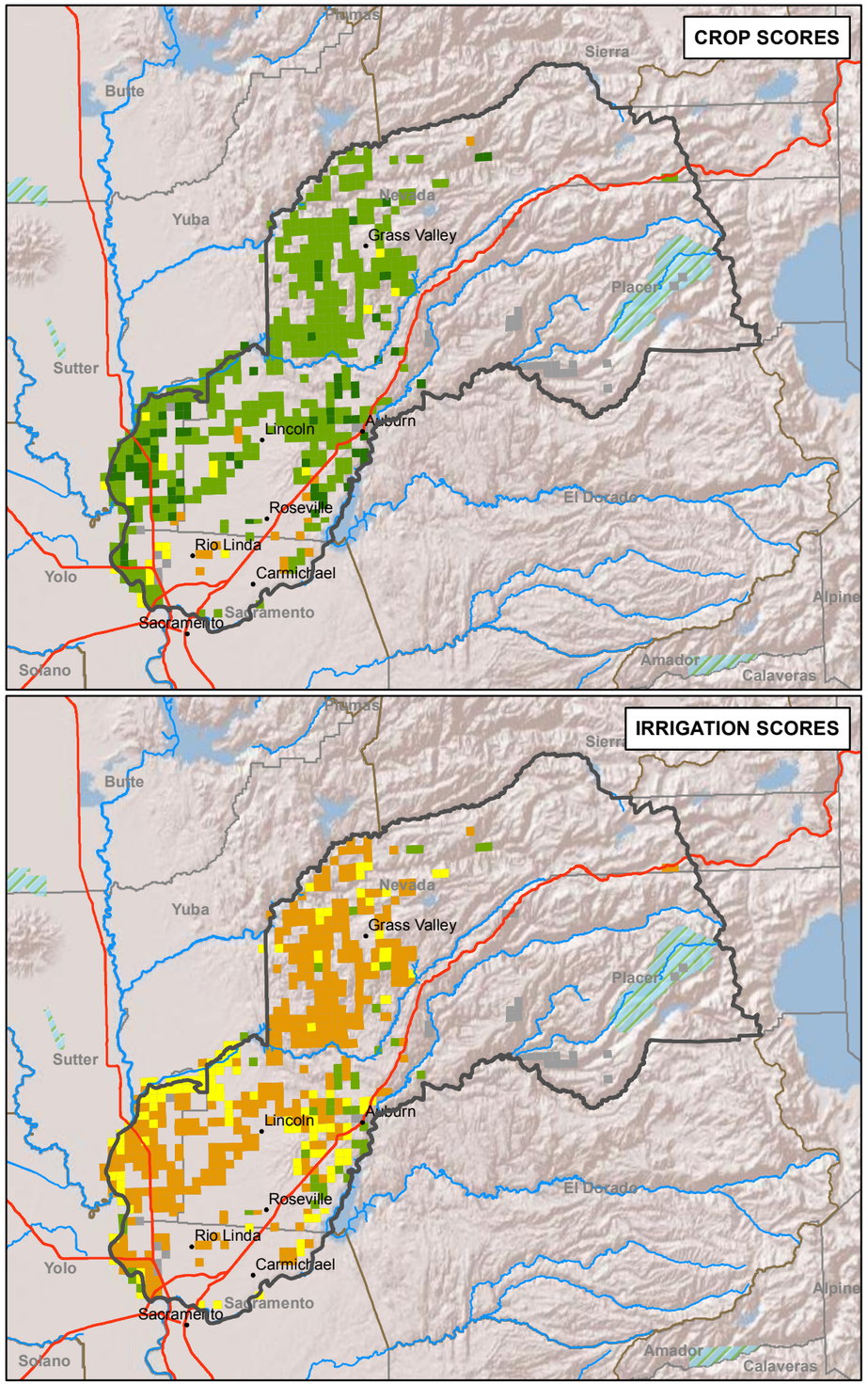
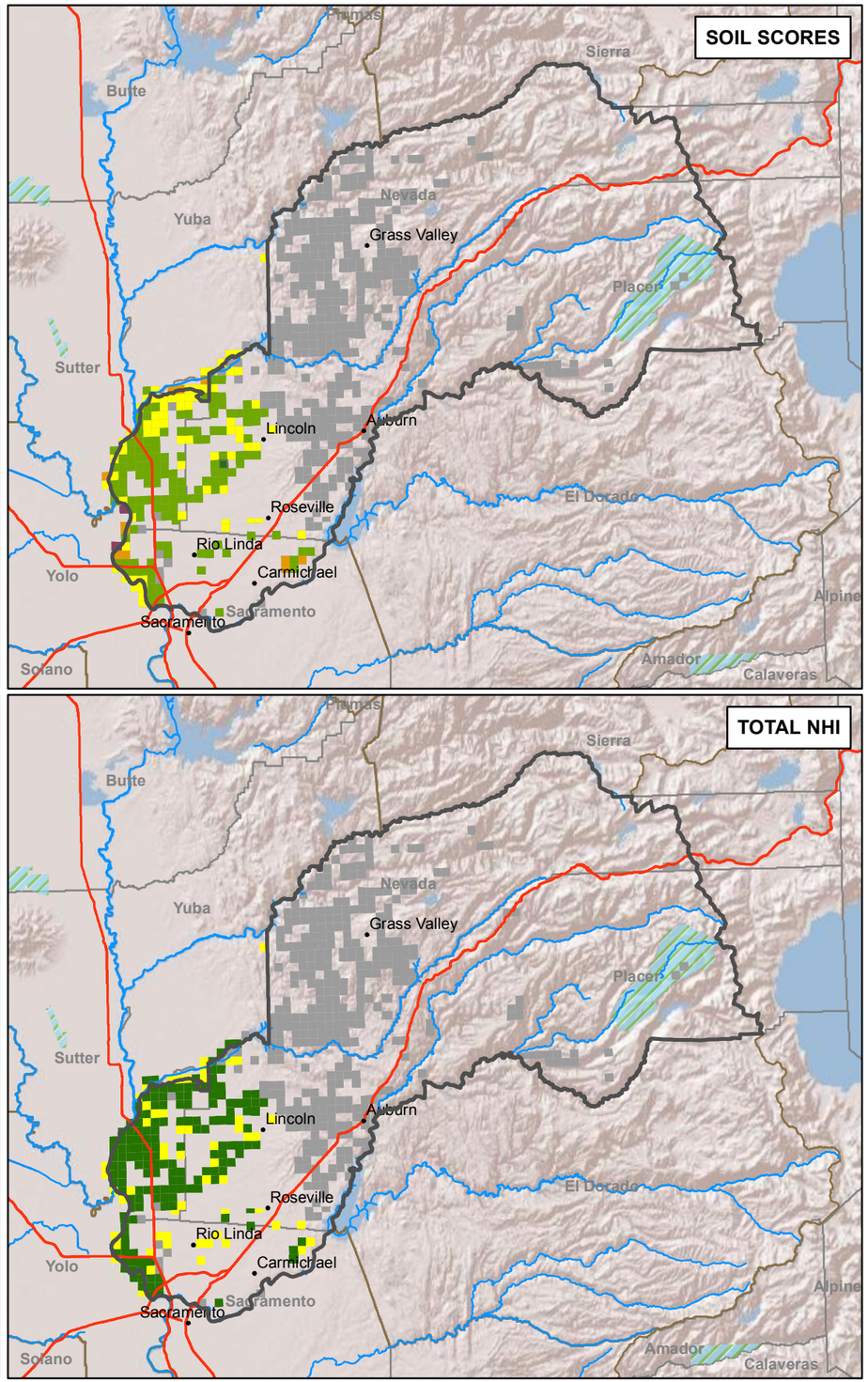
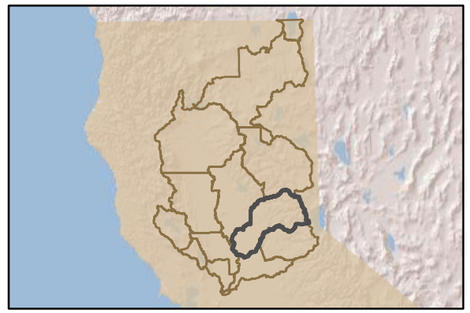




VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

N

0 8 16
Miles

Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 8-7
Section Level NHI Results
Placer-Nevada-S.Sutter-N.Sacramento Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

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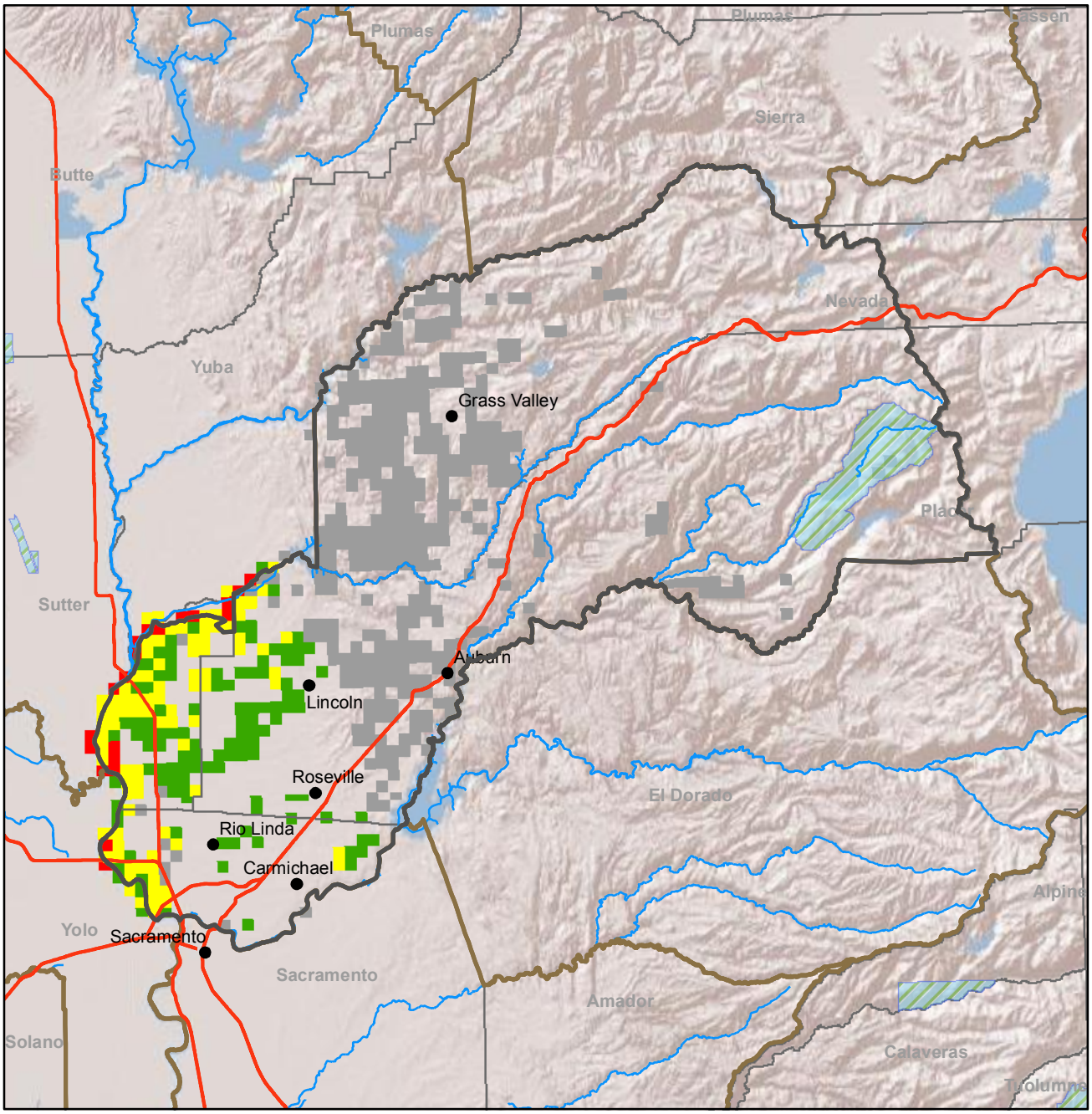

Notes:
SVGB refers to the Sacramento Valley Groundwater Basin

FIGURE 8-8
Vulnerability Designation
Placer-Nevada-S.Sutter-N.Sacramento Subwatershed
Groundwater Quality Assessment Report

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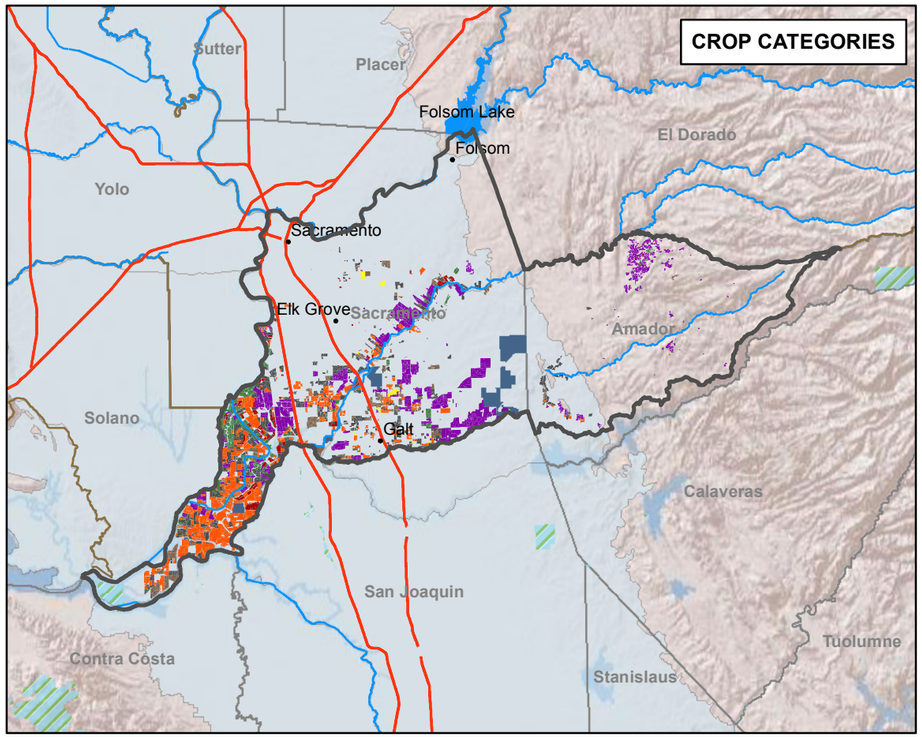
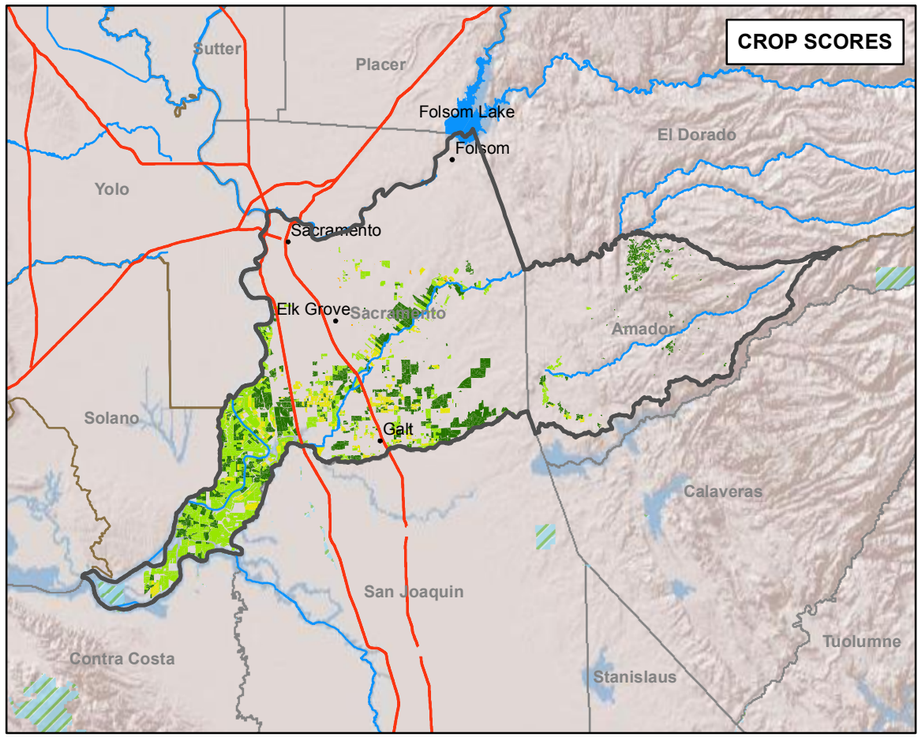
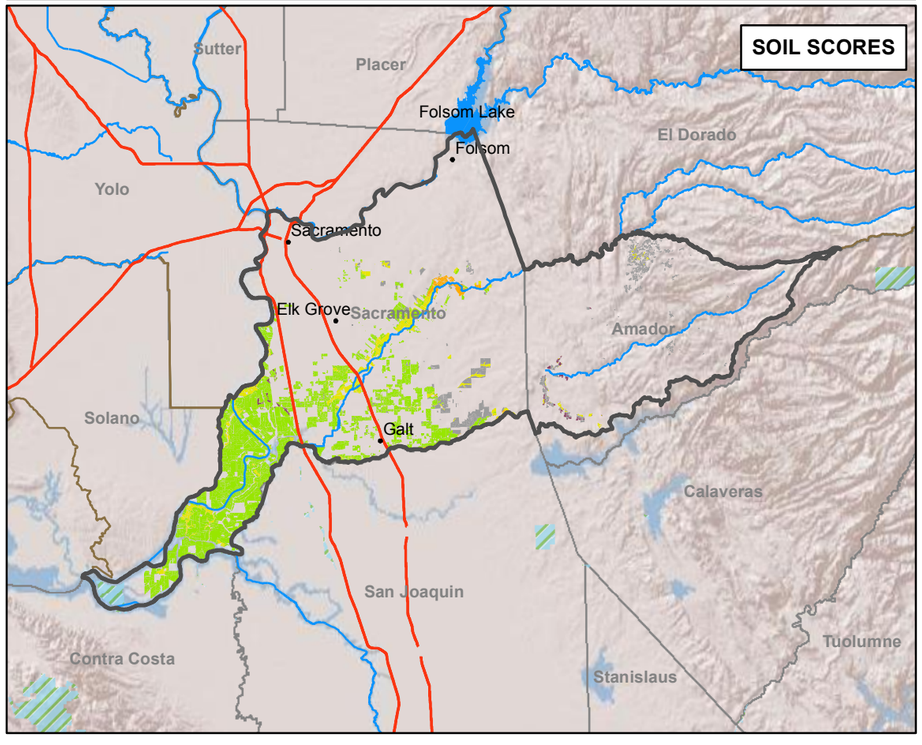
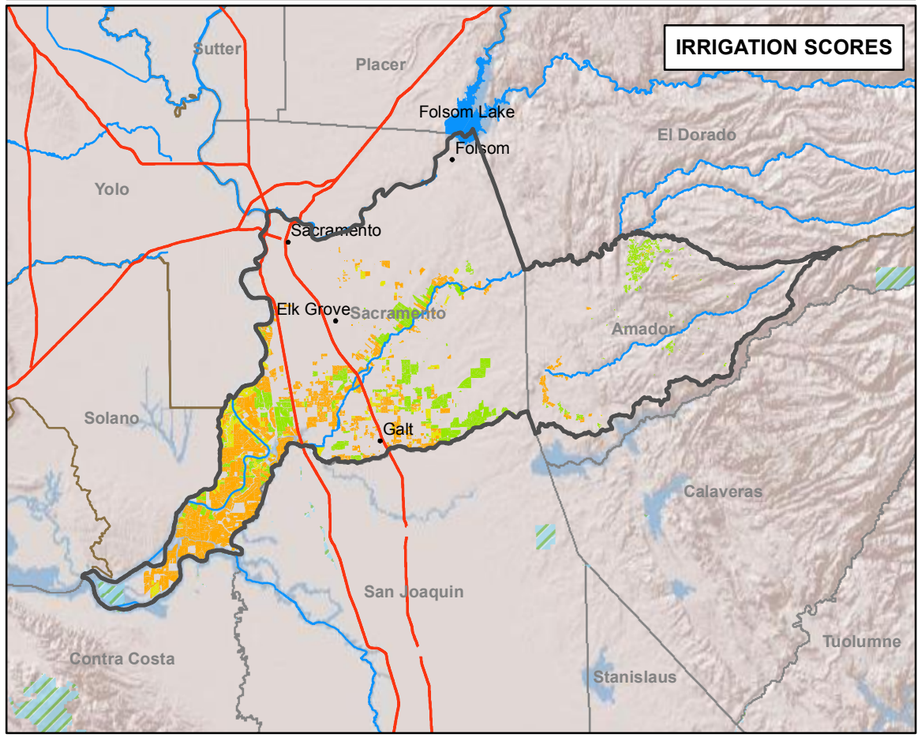








VICINITY MAP

Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 7 14

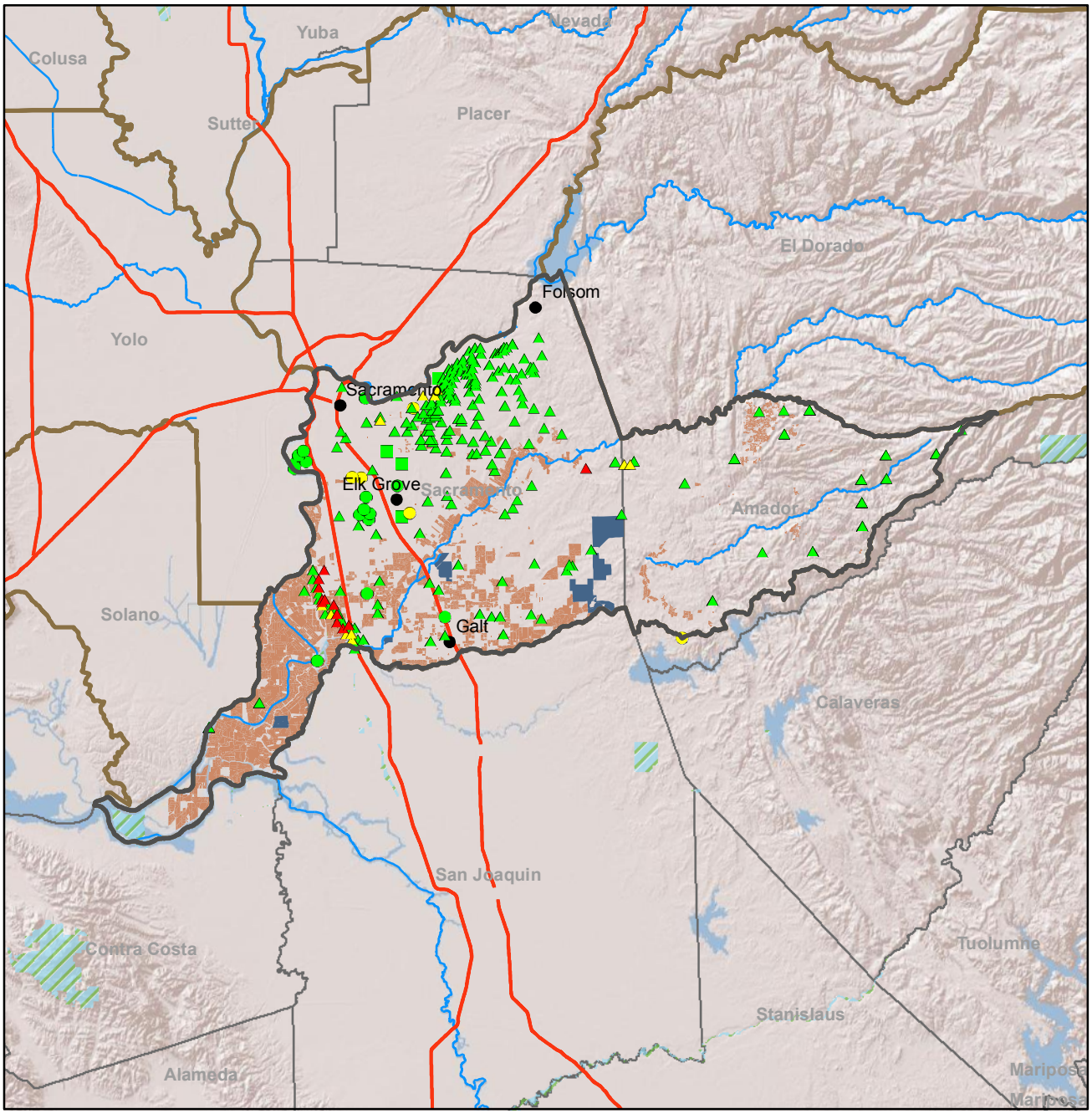
Miles

Notes:

1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 9-1
Field Level NHI Results
Sacramento-Amador Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP

- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

NO3 Concentration(mg/L)

- < 22.5
- 22.5 - 45
- > 45

Well Depth (Feet)

- unknown
- < 250
- > 250

Notes:

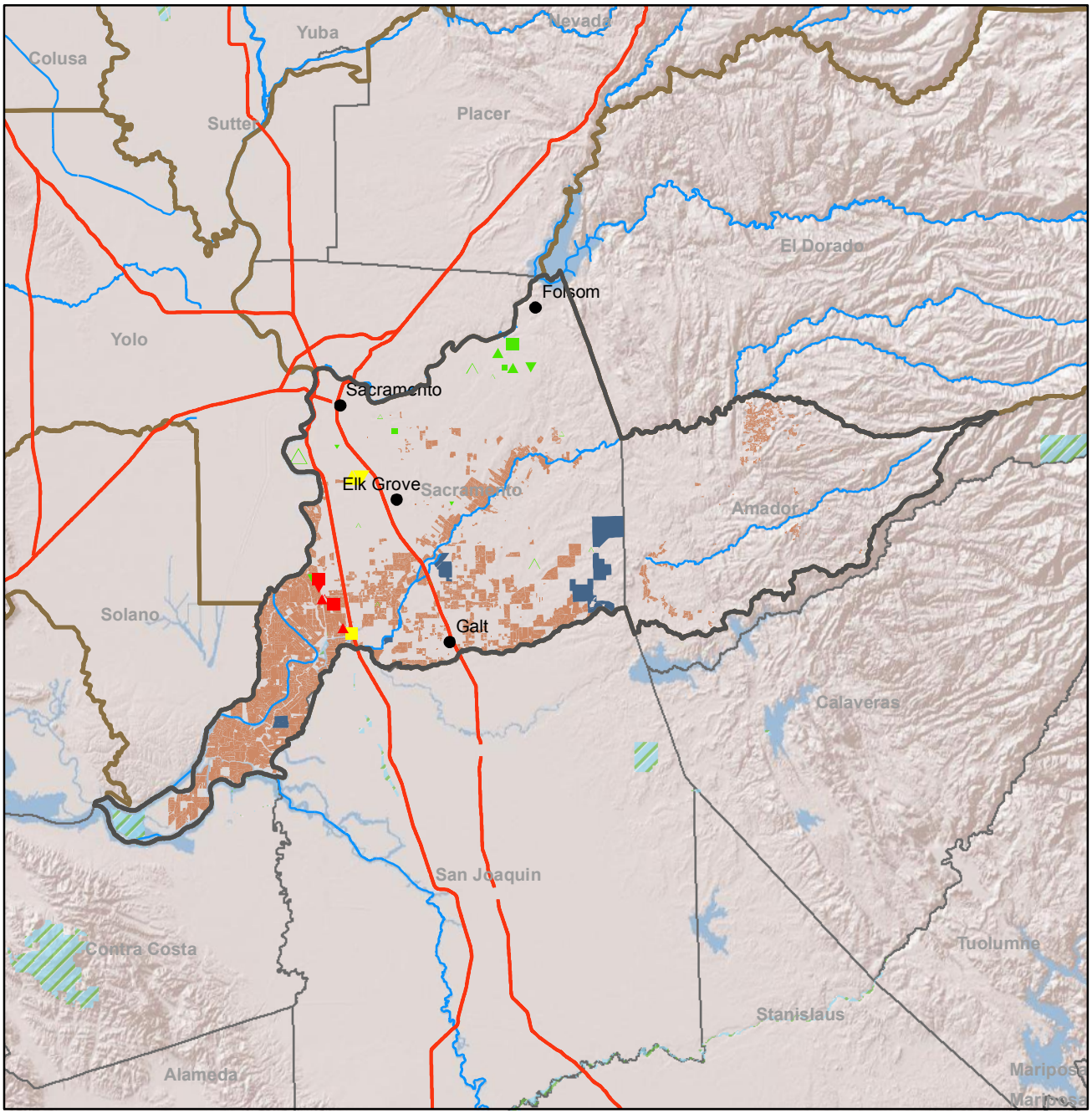
N

0 6 12

Miles

FIGURE 9-2
NO3 Sampling Results
Sacramento-Amador Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP

- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

Notes:

N

0 6 12

Miles

Most Recent NO3 Concentration(mg/L)

- < 22.5
- 22.5 - 45
- > 45

Mann Kendall Trend

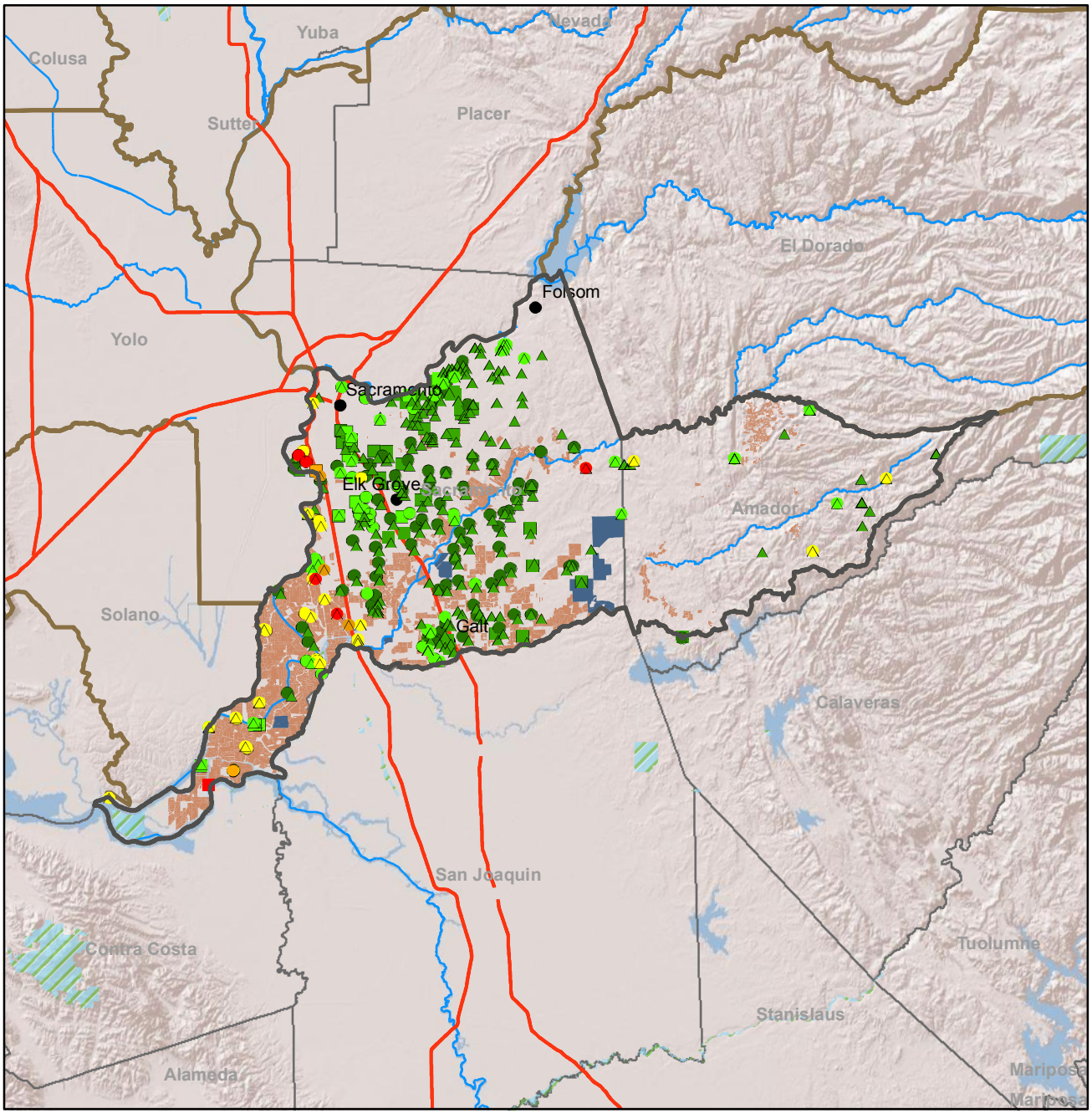
- Decrease
- Increase
- No Trend
- Probable Decrease
- Probable Increase

Decade of Most Recent NO3 Measurement

- Before 1970s
- 1970s
- 1980s
- 1990s
- 2000s

FIGURE 9-3
NO3 Concentration Trend
Sacramento-Amador Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP

Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

TDS Concentration(mg/L)

< 250
251 - 500
501 - 1000
1001 - 1500
> 1500

Well Depth (Feet)

unknown
< 250
> 250

Notes:

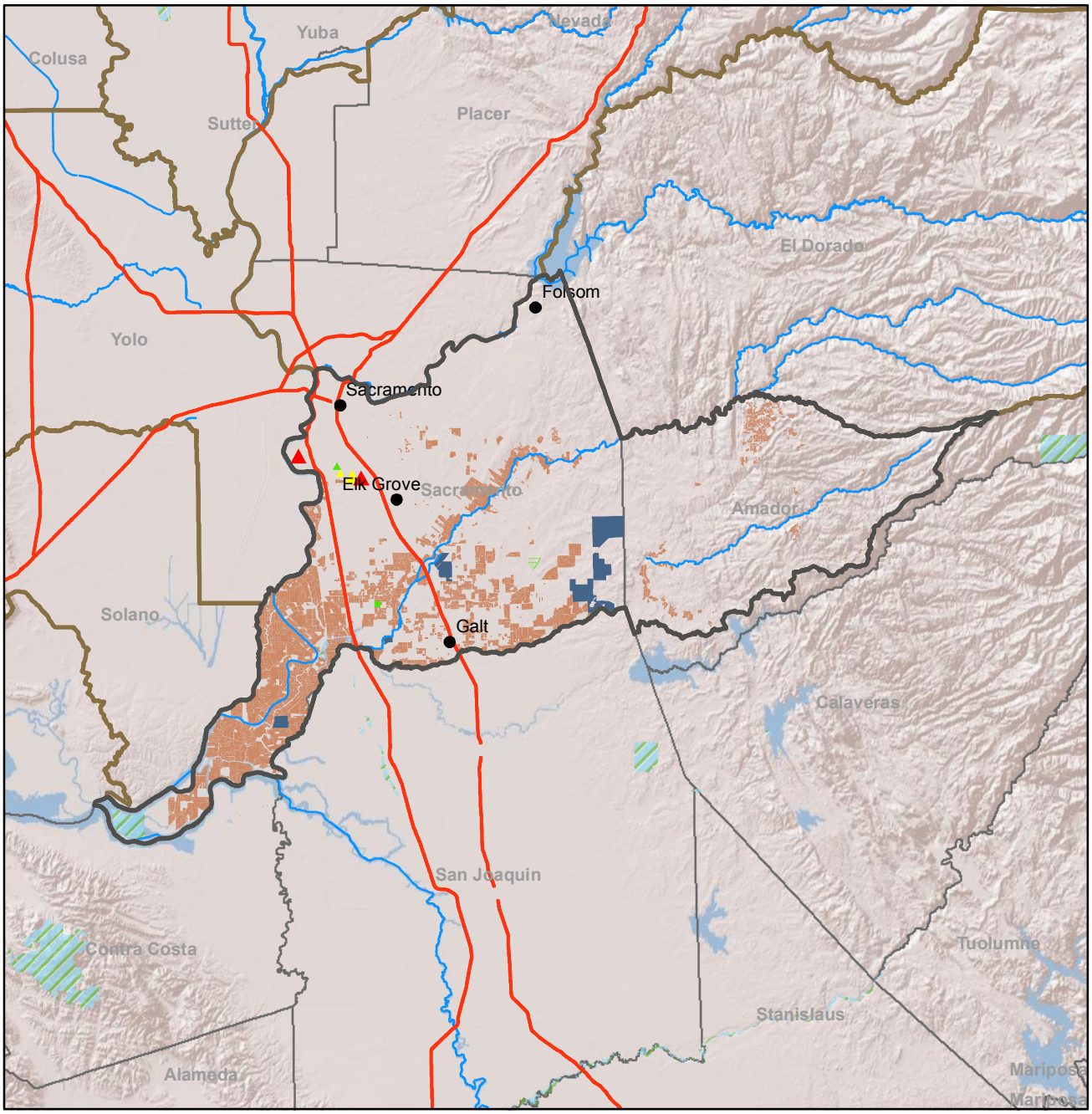
N

0 6 12

Miles

FIGURE 9-4
TDS Sampling Results
Sacramento-Amador Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP

- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

Most Recent TDS Concentration(mg/L)
- < 250
- 250 - 500
- > 500

Mann Kendall Trend
- Decrease
- Increase
- No Trend
- Probable Decrease
- Probable Increase

Decade of Most Recent TDS Measurement
- Before 1970s
- 1970s
- 1980s
- 1990s
- 2000s

Notes:

N

0 6 12

Miles

FIGURE 9-5
TDS Concentration Trend
Sacramento-Amador Subwatershed
Groundwater Quality Assessment Report

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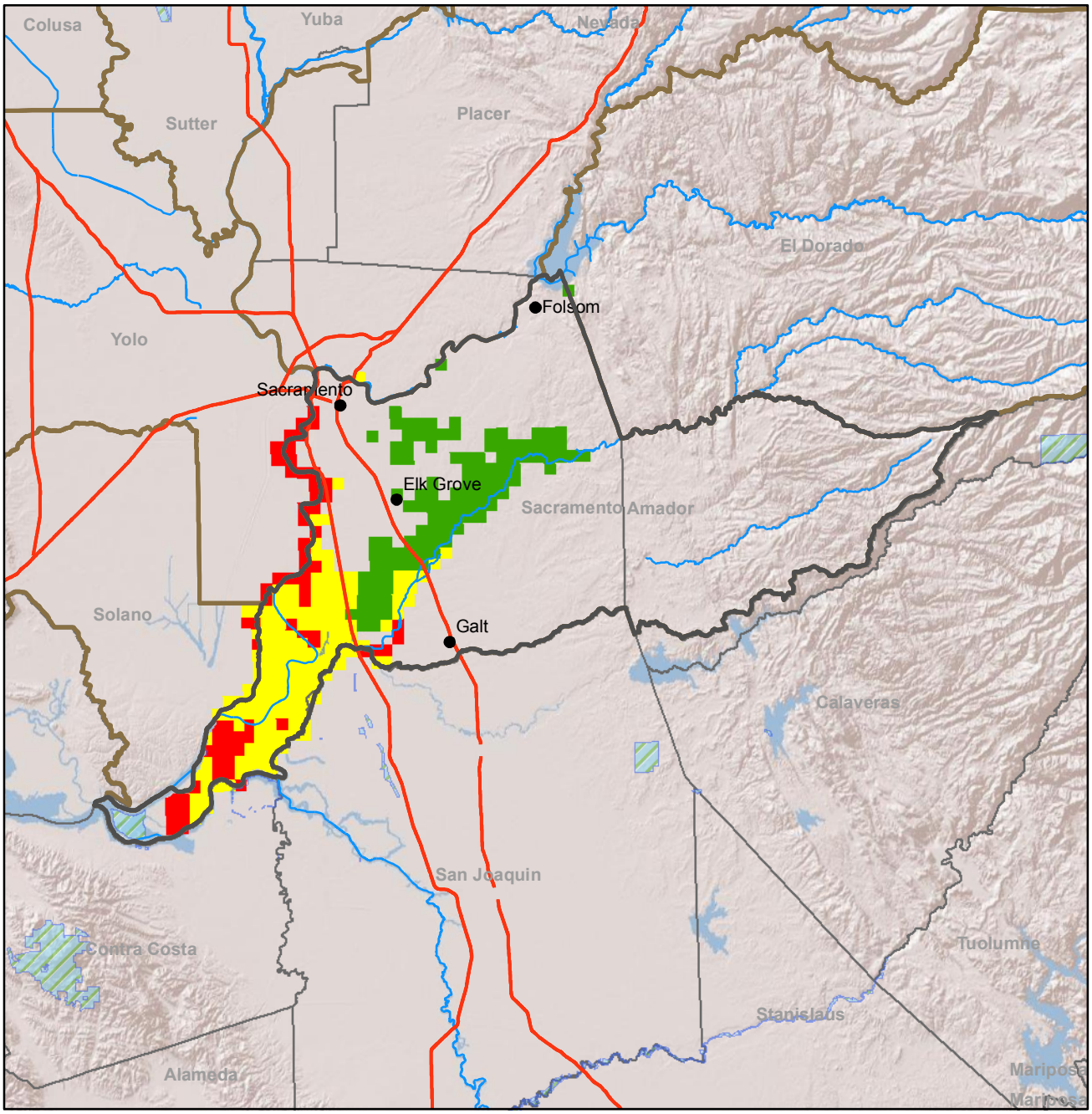
UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_TDSTREND.MXD THATCH 6/19/2014

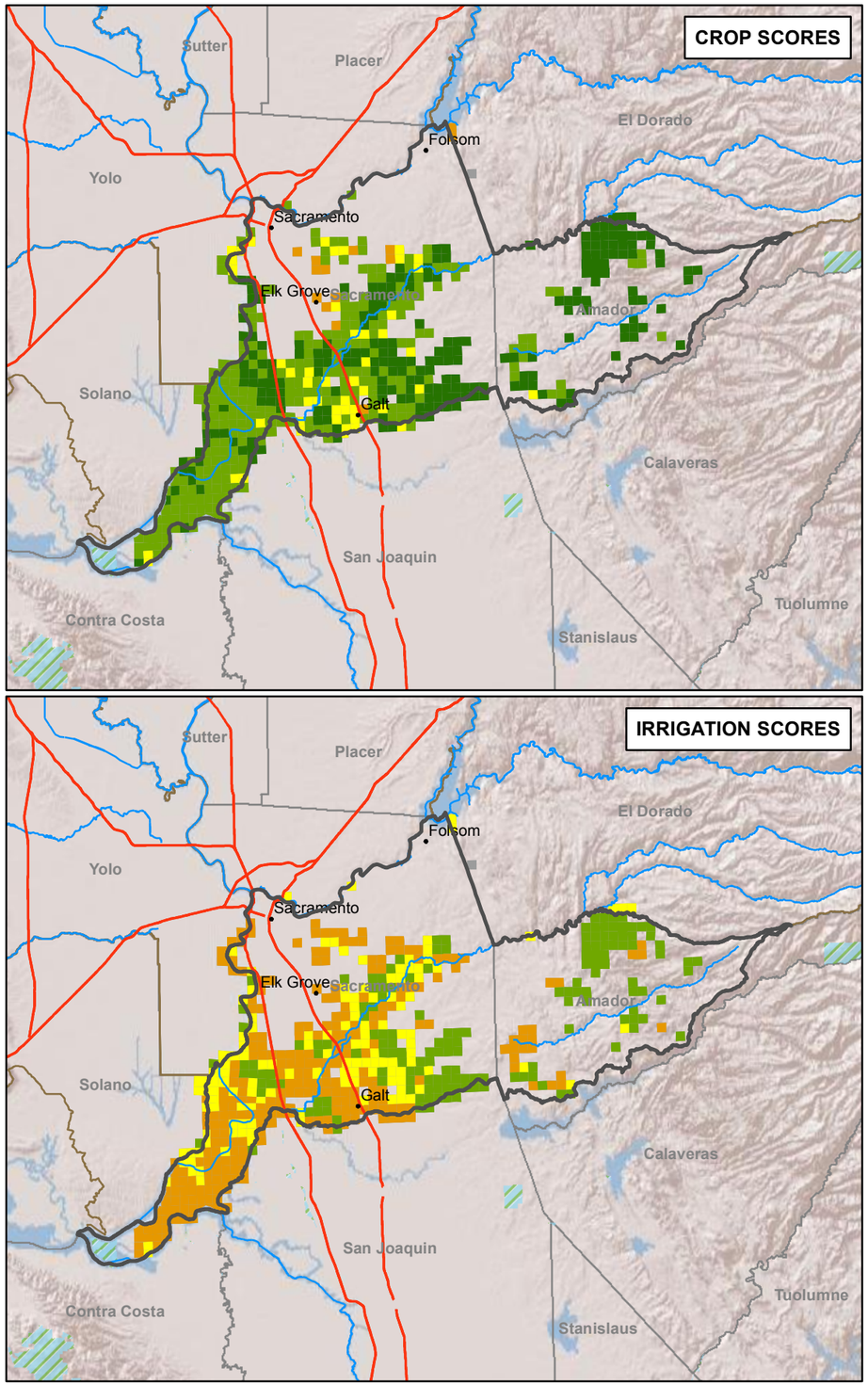


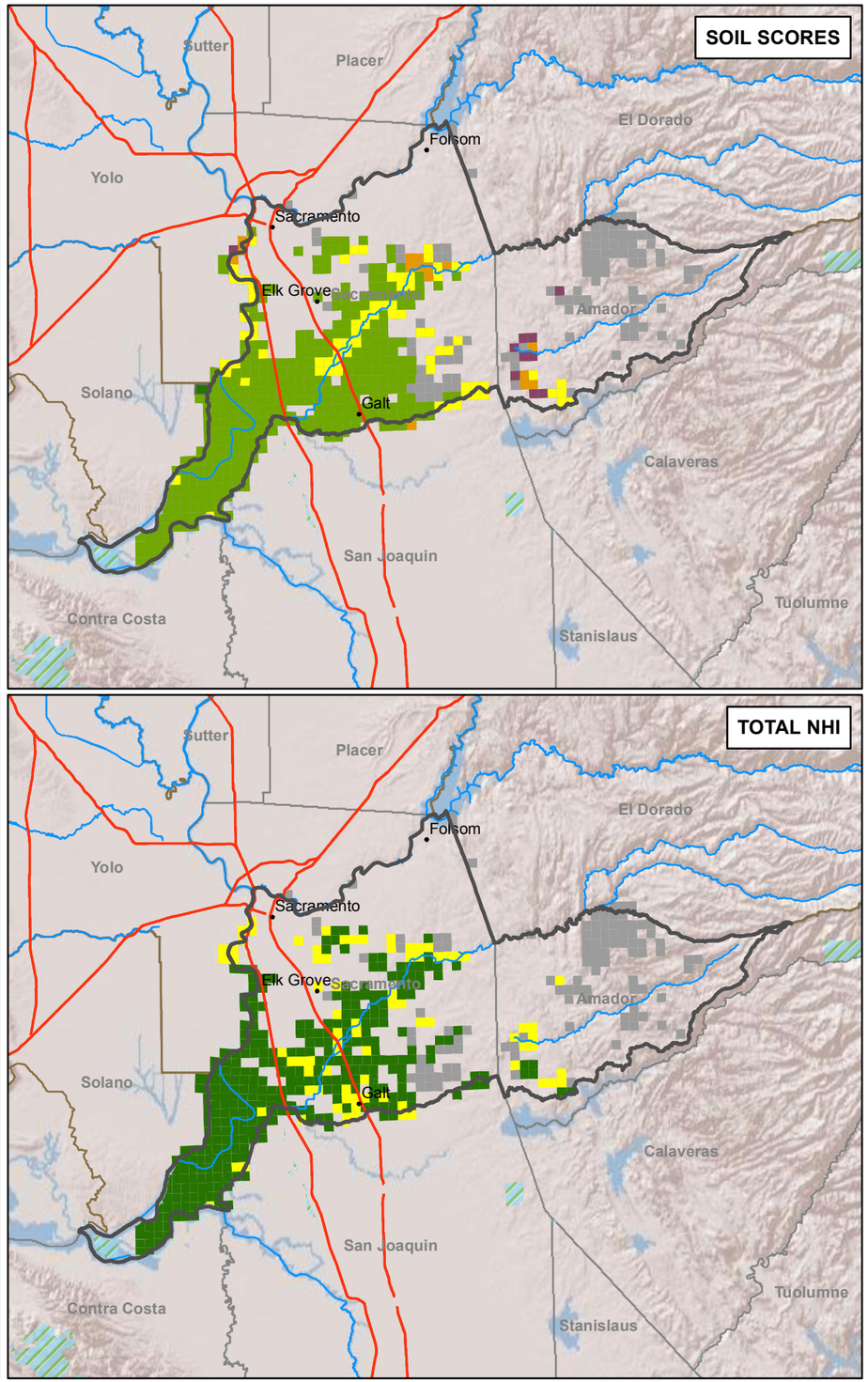
Notes:

FIGURE 9-6
Hydrogeology Susceptibility
Sacramento-Amador Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_HYDROGEOLOGY.MXD THATCH 6/24/2014





VICINITY MAP

Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

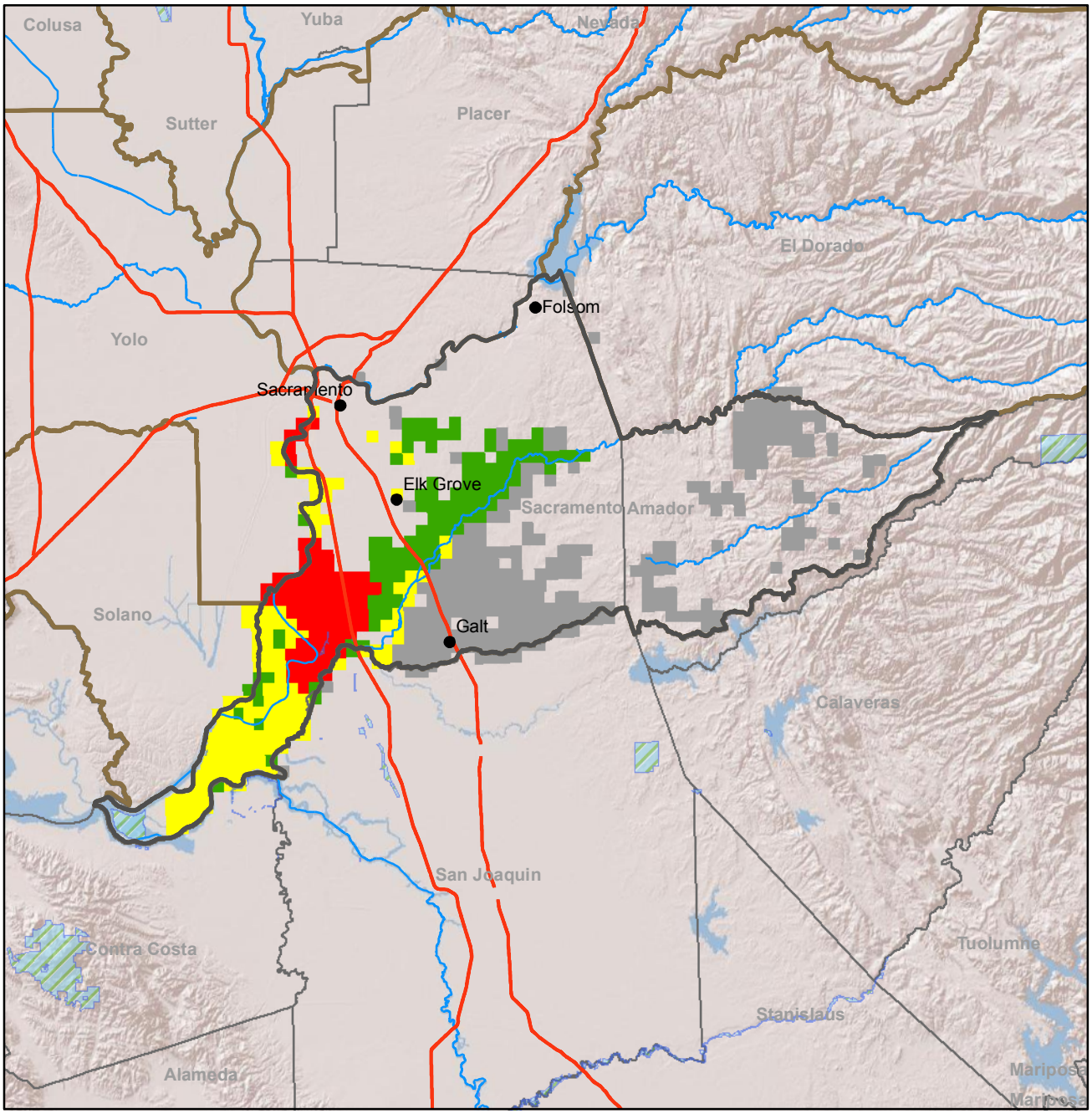
N

0 7 14
Miles

Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

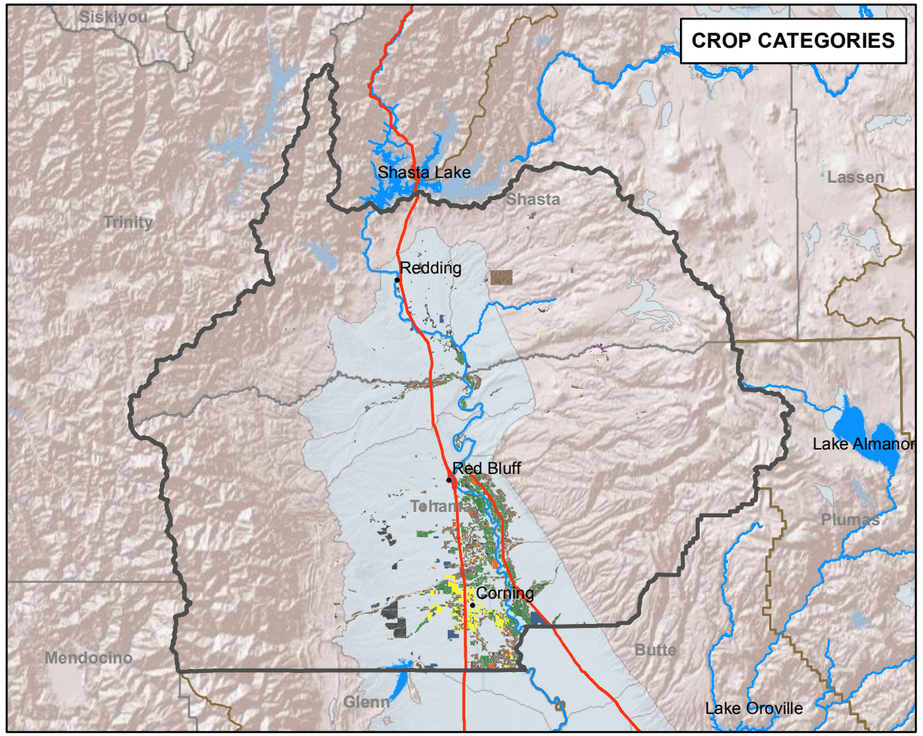
FIGURE 9-7
Section Level NHI Results
Sacramento-Amador Subwatershed
Groundwater Quality Assessment Report

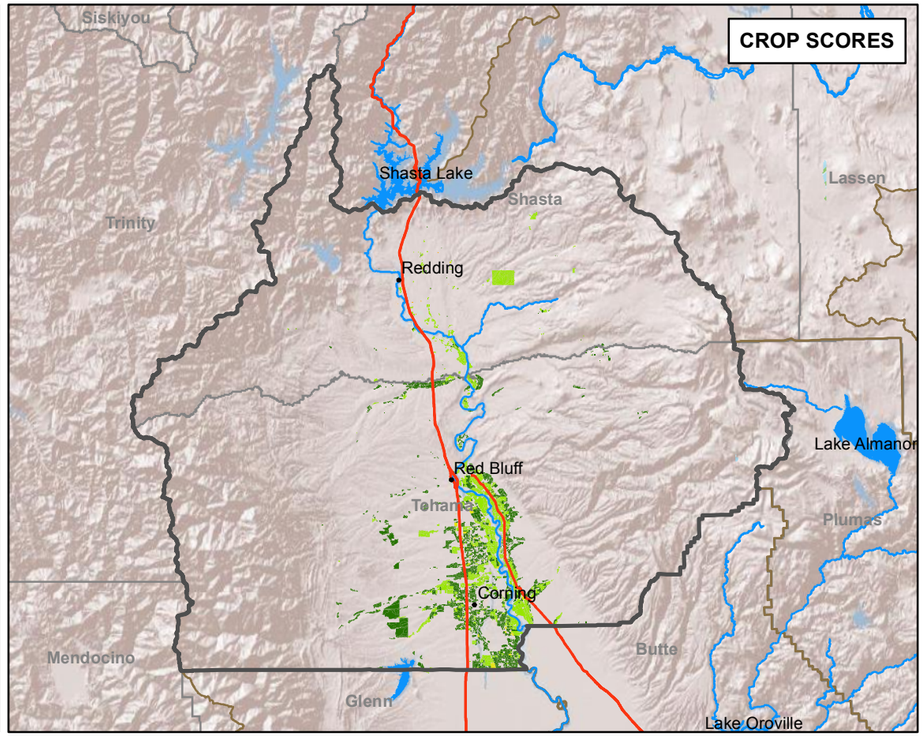
CH2MHILL

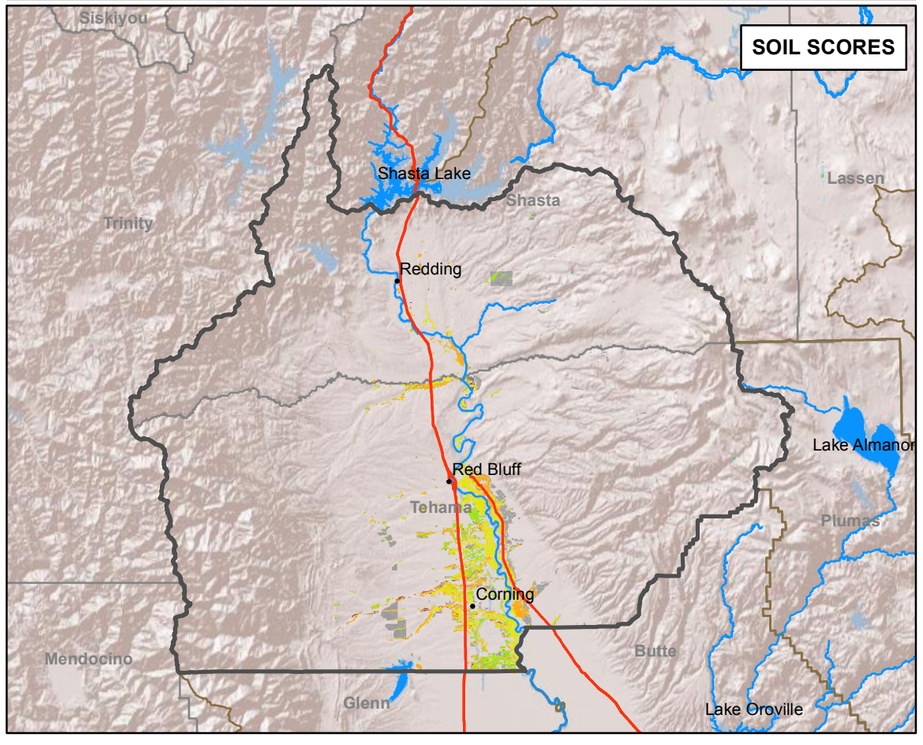


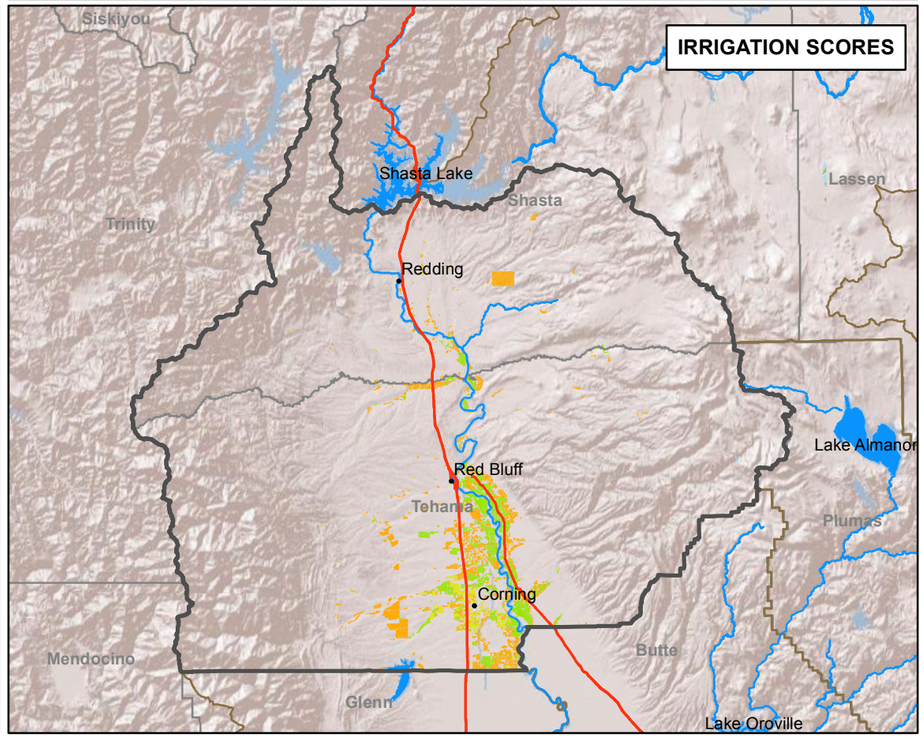
Notes:
SVGB refers to the Sacramento Valley Groundwater Basin

FIGURE 9-8
Vulnerability Designation
Sacramento-Amador Subwatershed
Groundwater Quality Assessment Report

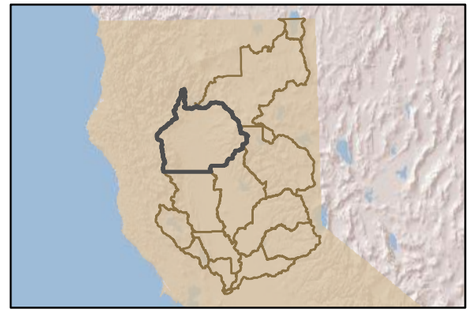








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 9.5 19

Miles

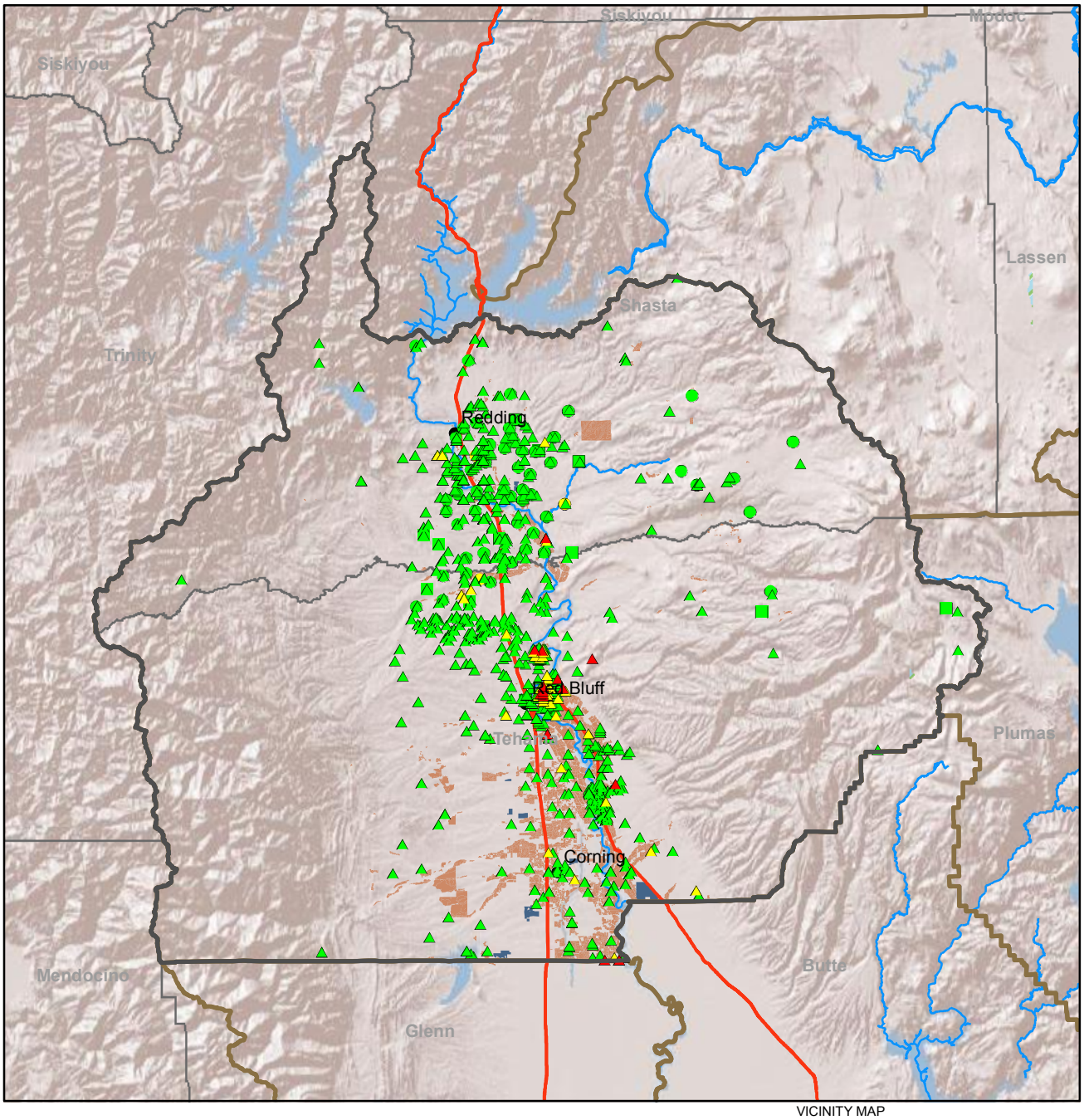
Notes:

1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

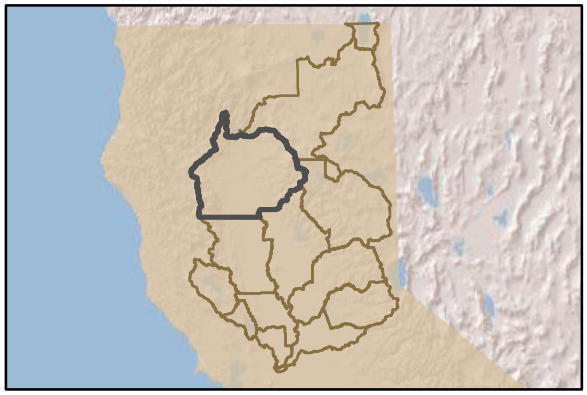
FIGURE 10-1
Field Level NHI Results
Shasta-Tehama Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NHIFIELD.MXD THATCH 6/19/2014



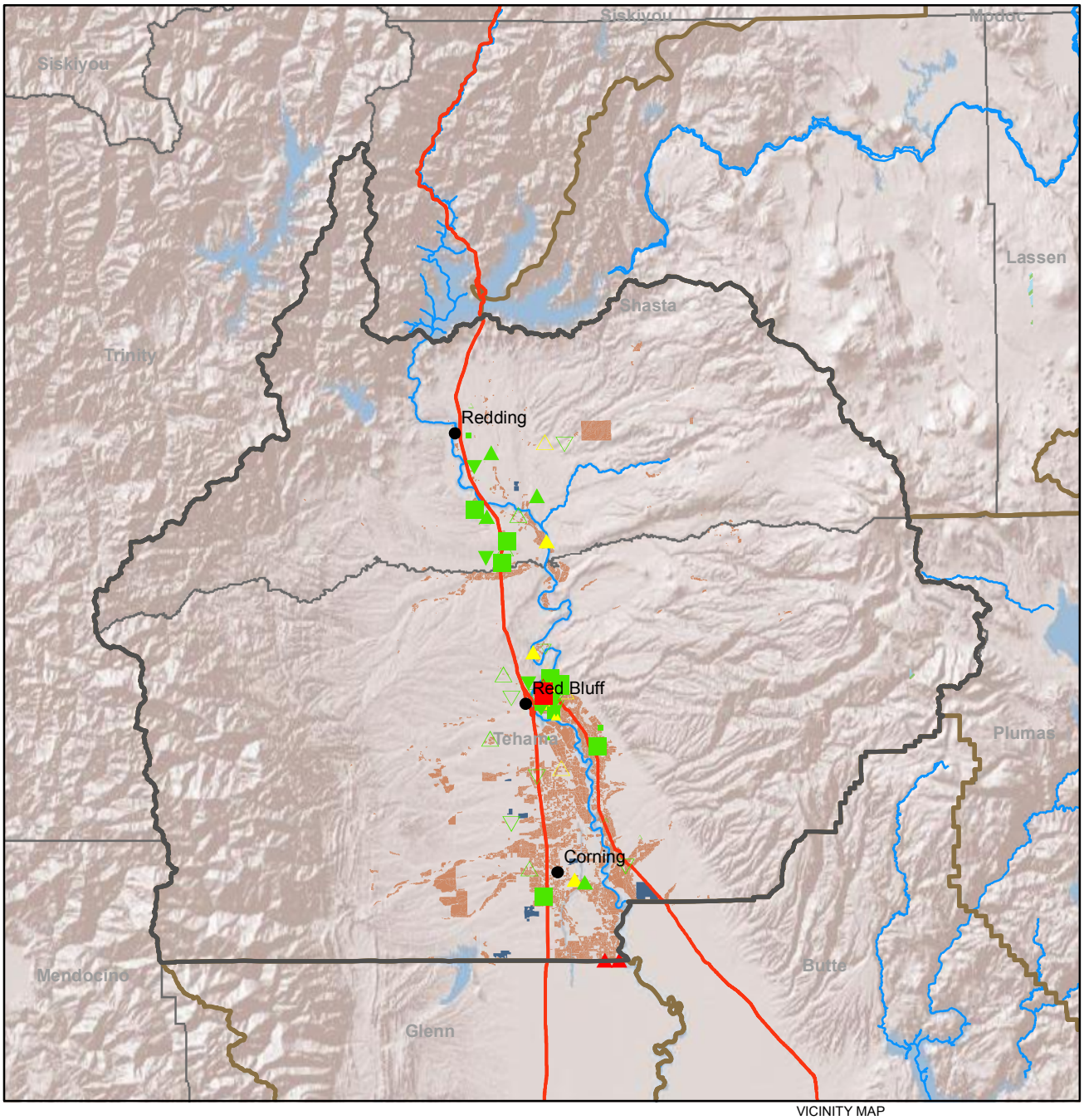
VICINITY MAP



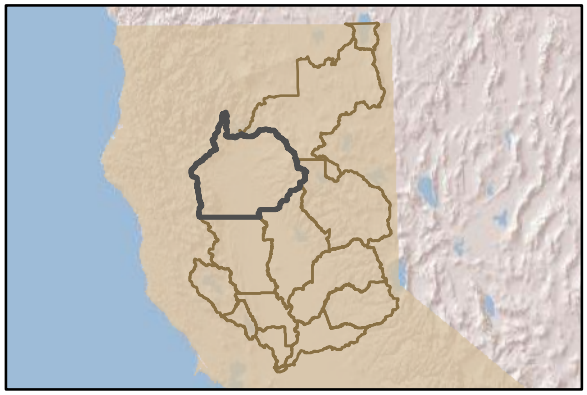
Notes:

FIGURE 10-2
NO3 Sampling Results
Shasta-Tehama Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP



- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

Most Recent NO3 Concentration(mg/L)
- < 22.5
- 22.5 - 45
- > 45

Mann Kendall Trend
- Decrease
- Increase
- No Trend
- Probable Decrease
- Probable Increase

Decade of Most Recent NO3 Measurement
- Before 1970s
- 1970s
- 1980s
- 1990s
- 2000s

Notes:

N

0 7.5 15

Miles

FIGURE 10-3
NO3 Concentration Trend
Shasta-Tehama Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

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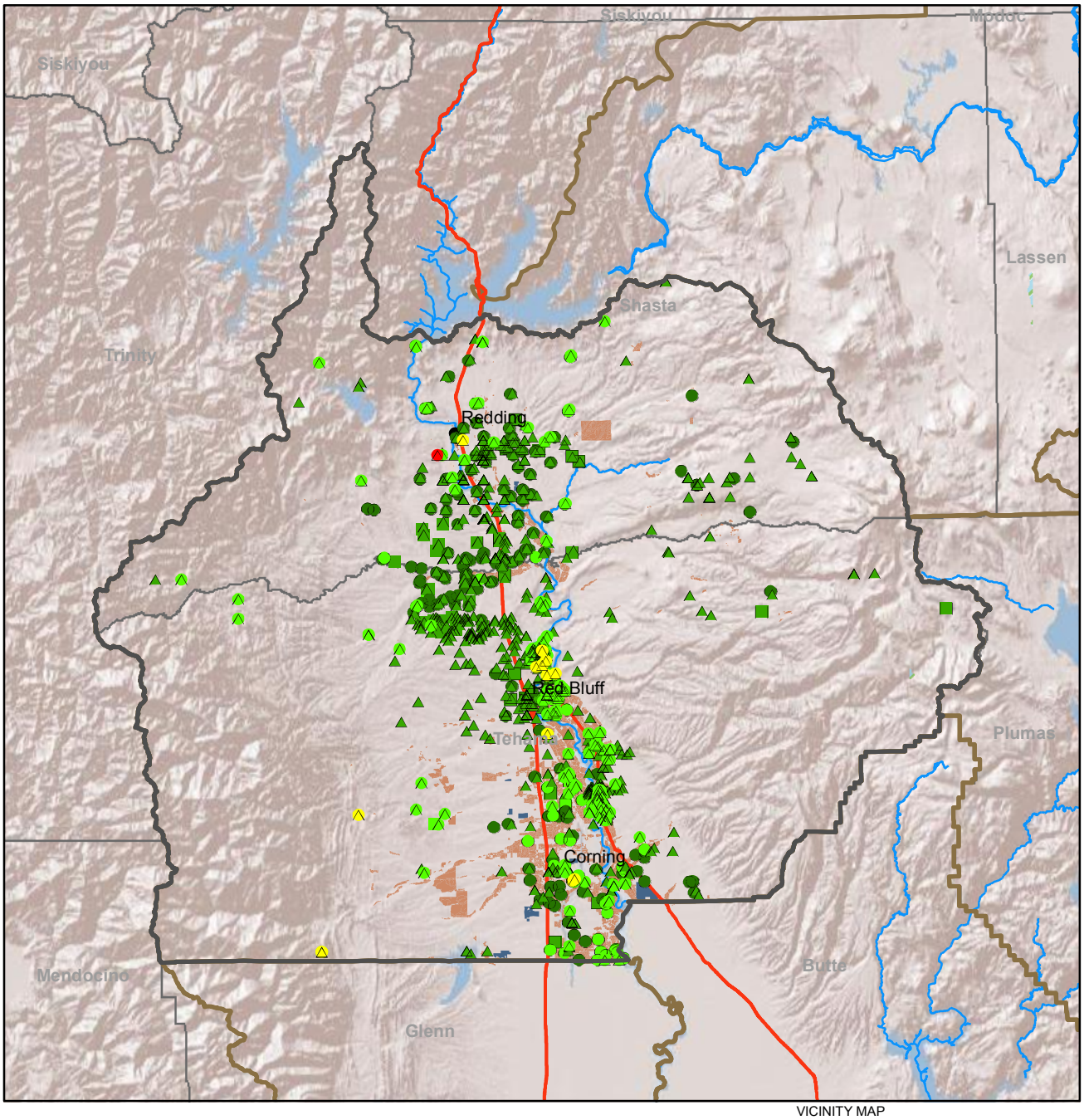


Notes:

VICINITY MAP

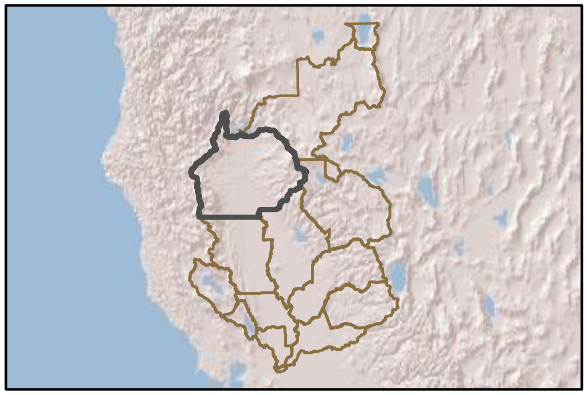
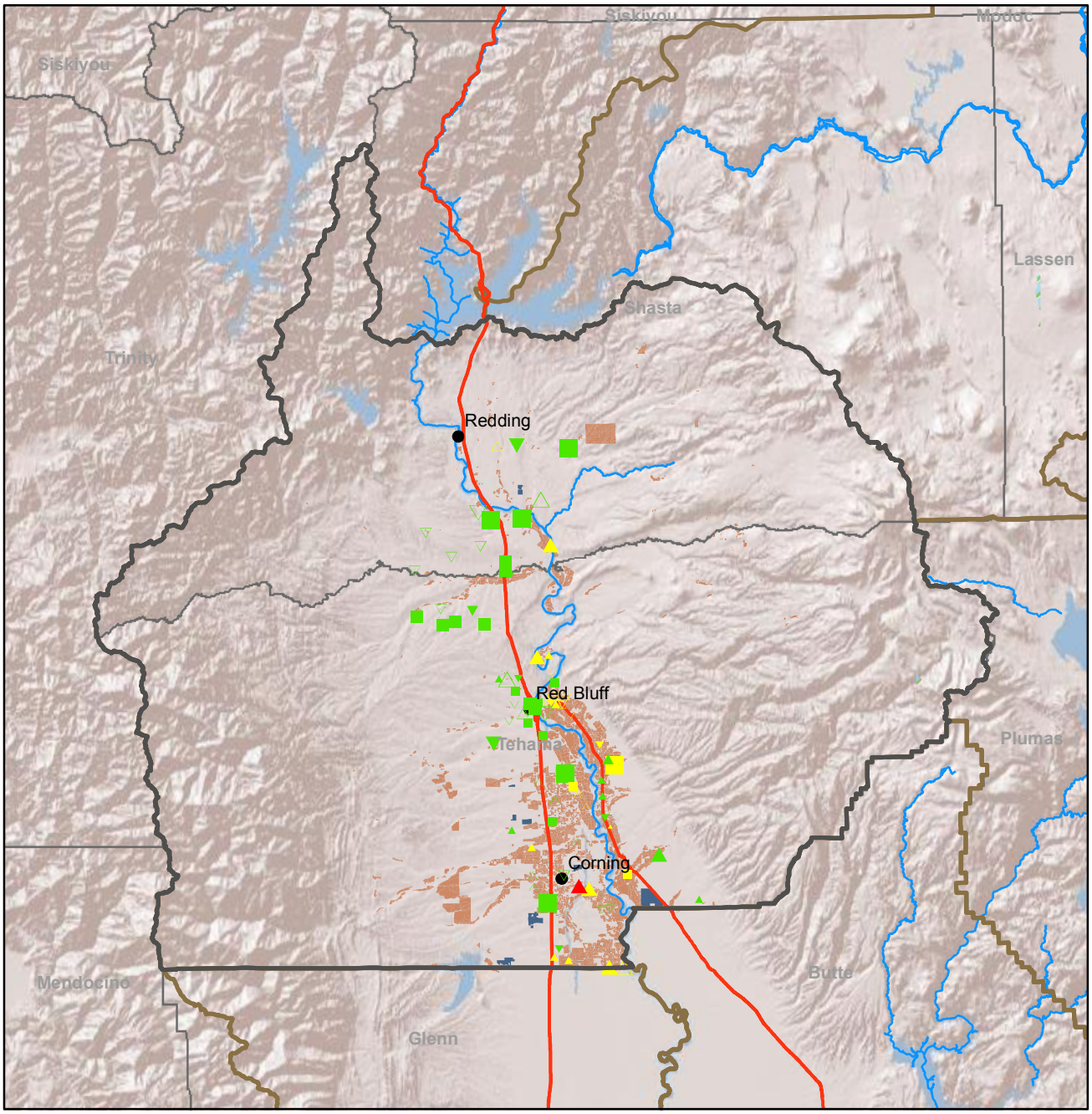


FIGURE 10-4
TDS Sampling Results
Shasta-Tehama Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



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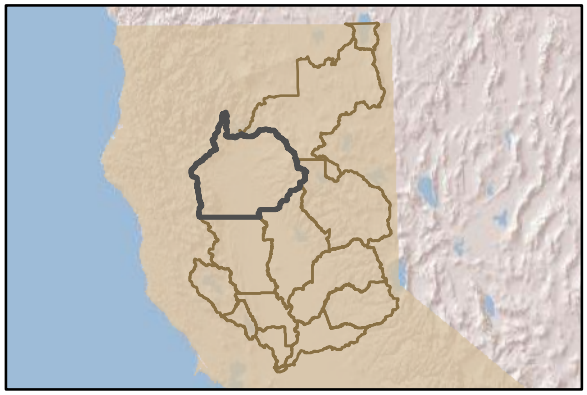
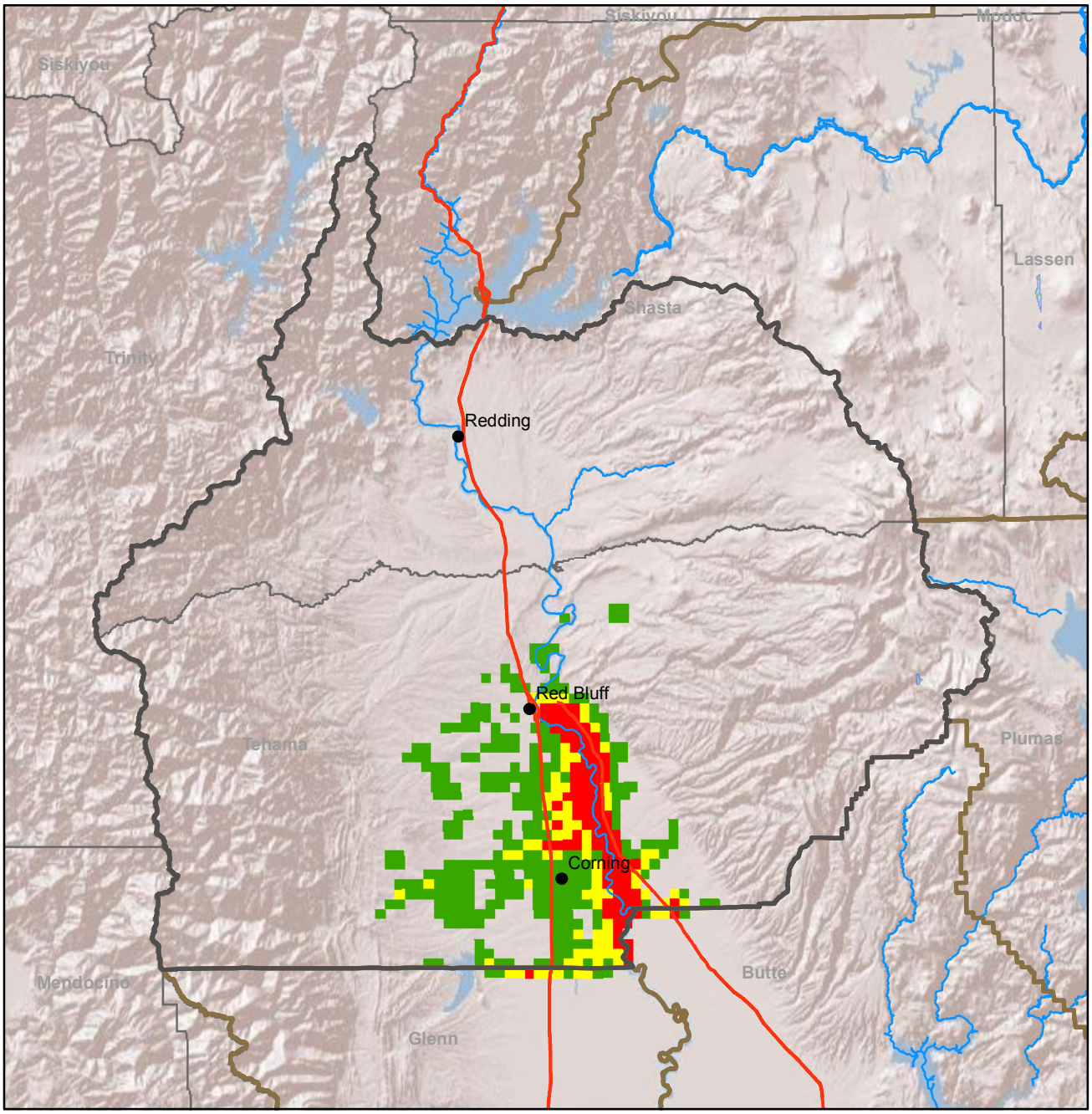


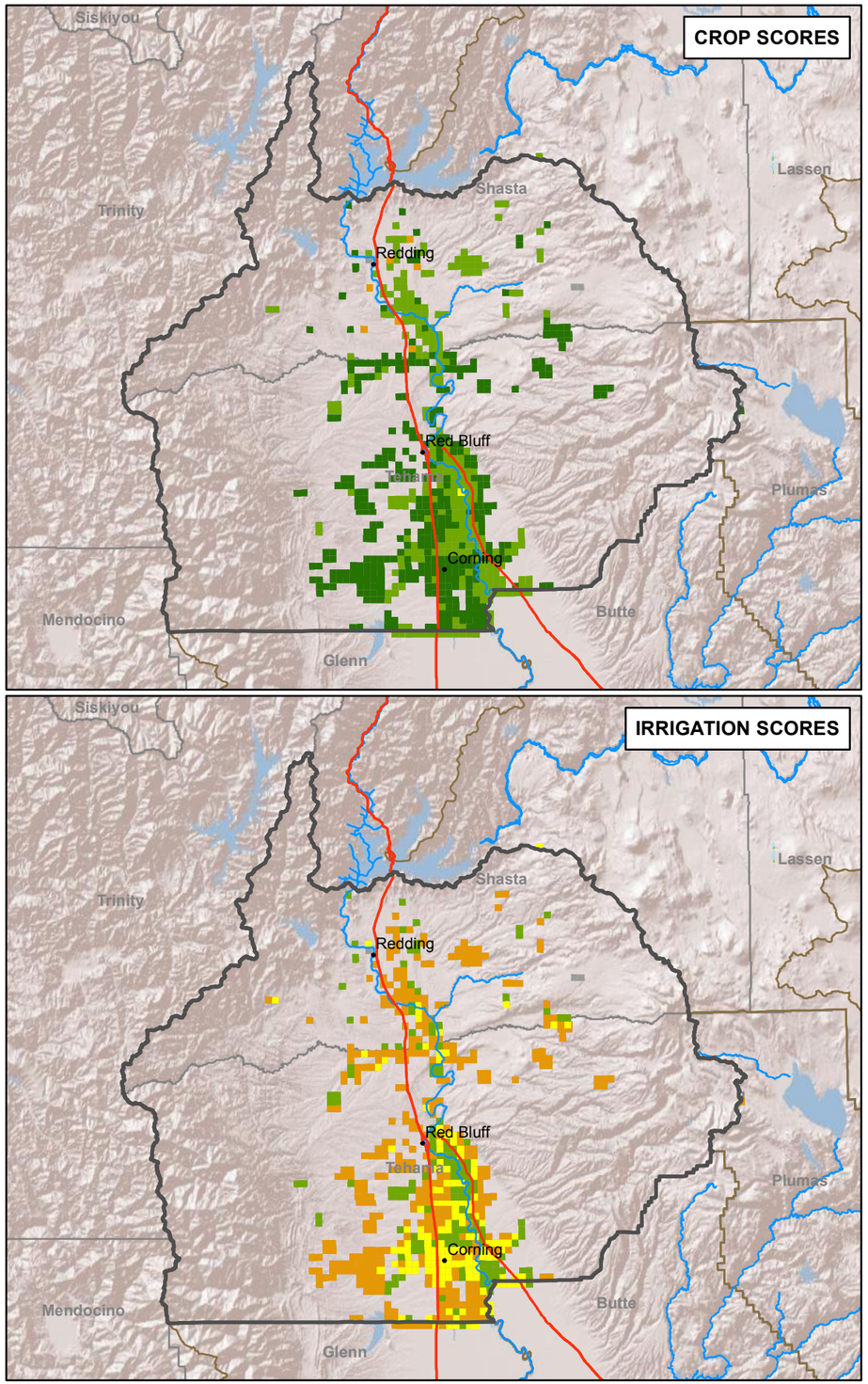
FIGURE 10-5
TDS Concentration Trend
Shasta-Tehama Subwatershed
Groundwater Quality Assessment Report

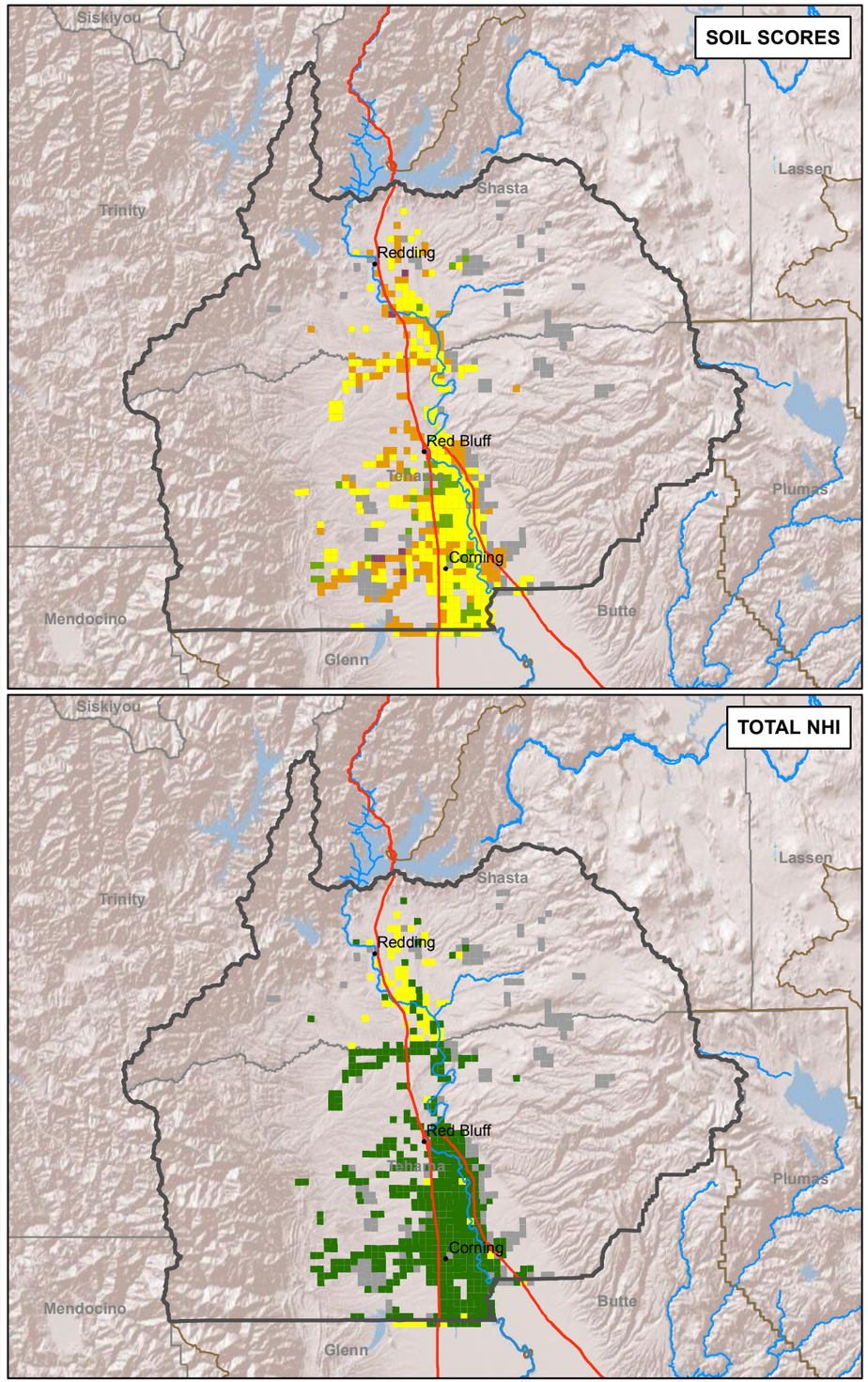
CH2MHILL



Notes:

FIGURE 10-6
Hydrogeology Susceptibility
Shasta-Tehama Subwatershed
Groundwater Quality Assessment Report





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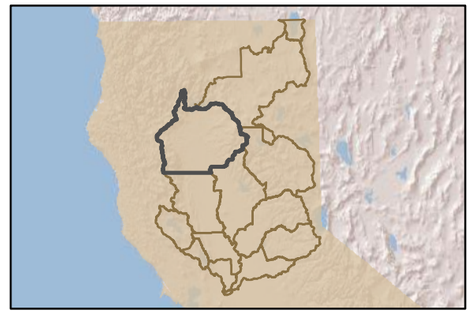


Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

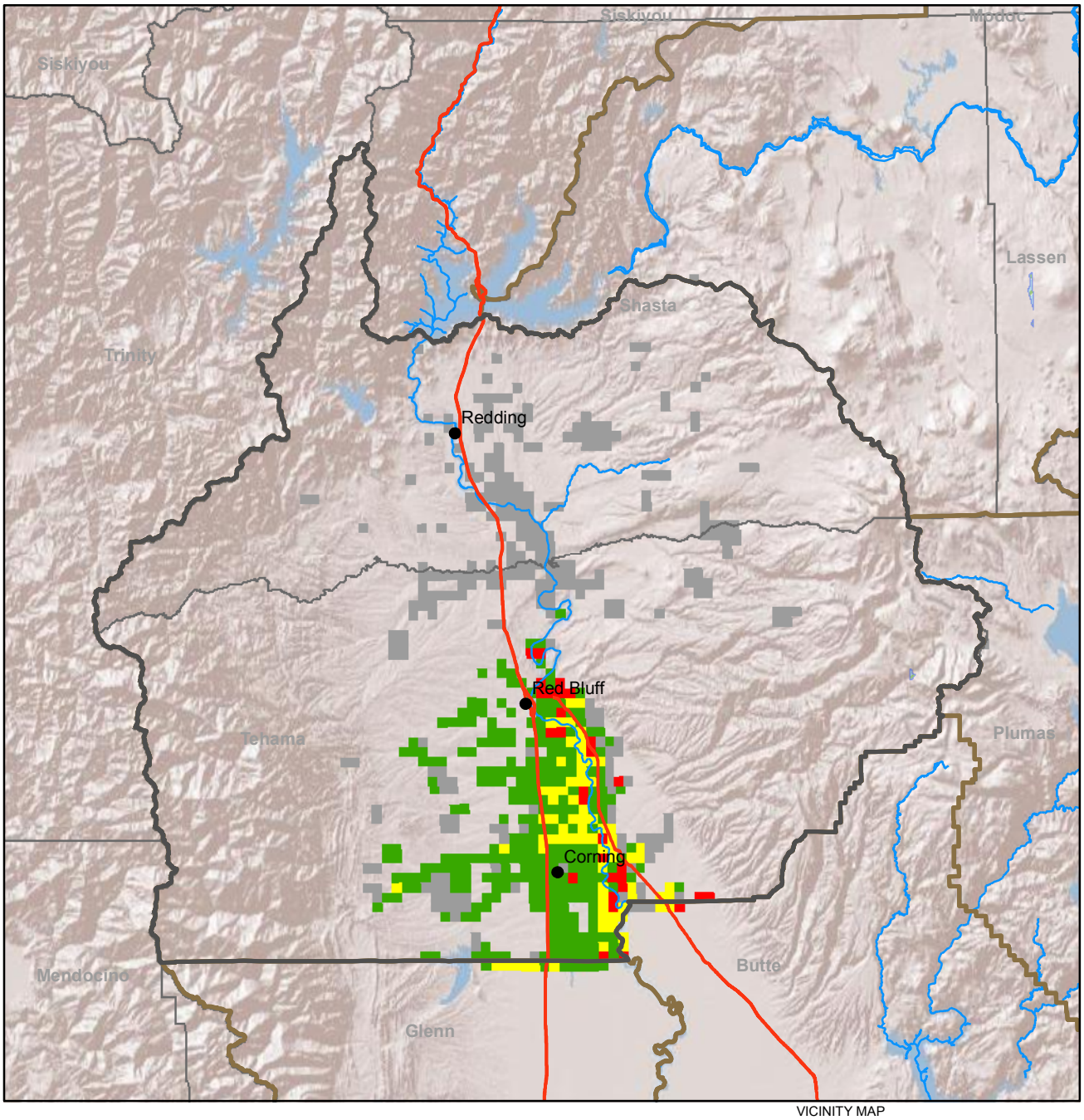
N

0 10 20
Miles

Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 10-7
Section Level NHI Results
Shasta-Tehama Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



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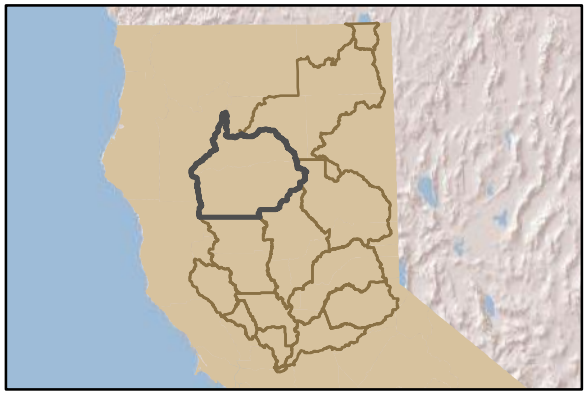


- Cities
- Highways
- Subwatersheds
- Rivers
- National Wildlife Refuges
- Counties

Vulnerability

- High
- Moderate
- Low
- data gap or outside SVGB boundary

Notes:
SVGB refers to the Sacramento Valley Groundwater Basin

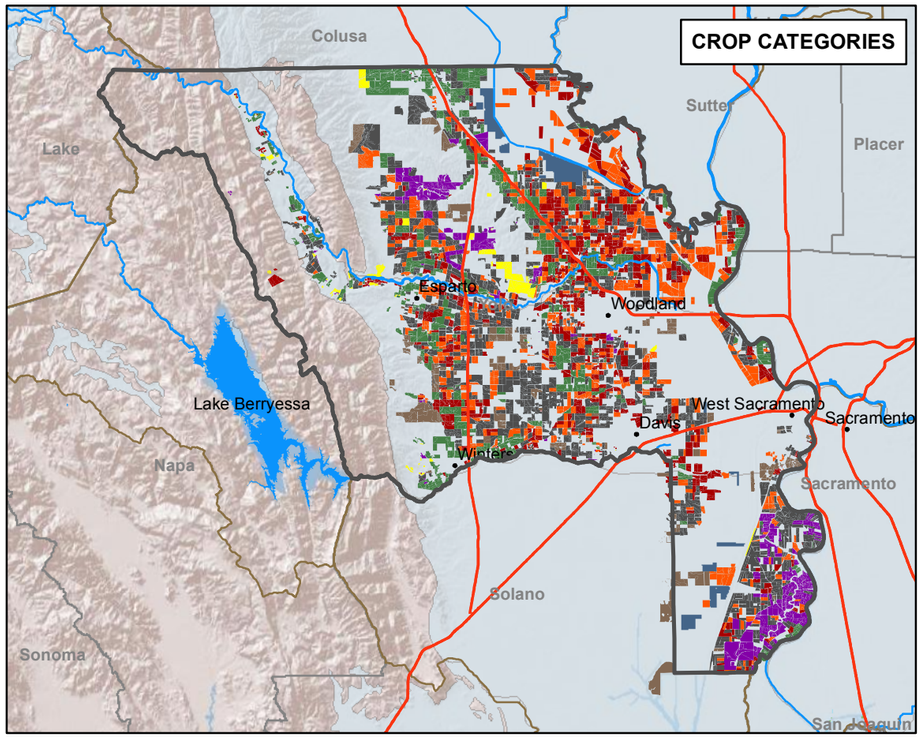
N

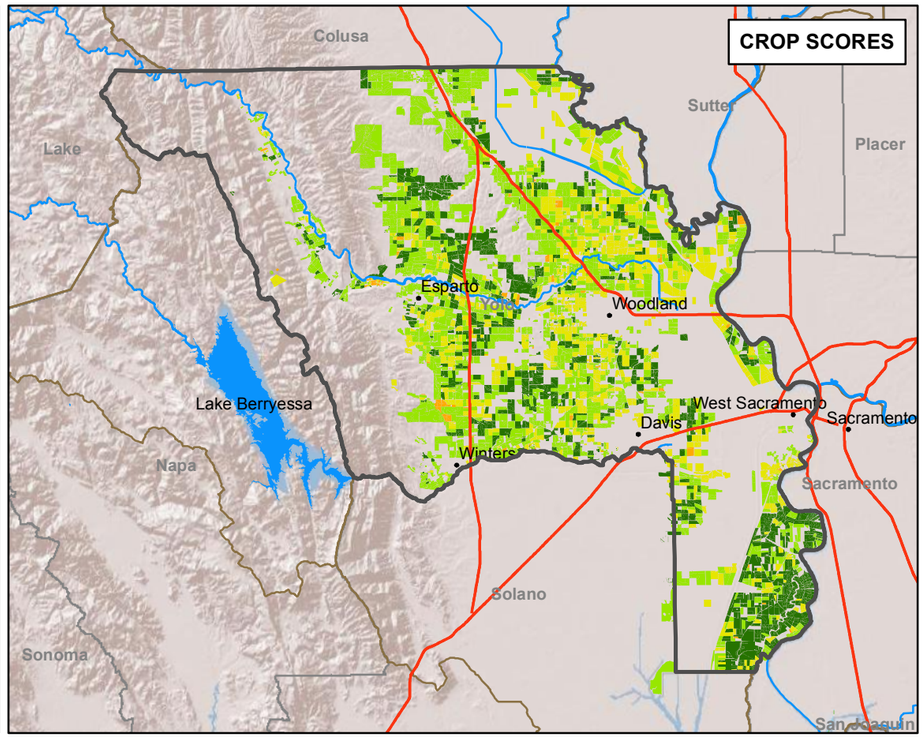
0 7.5 15

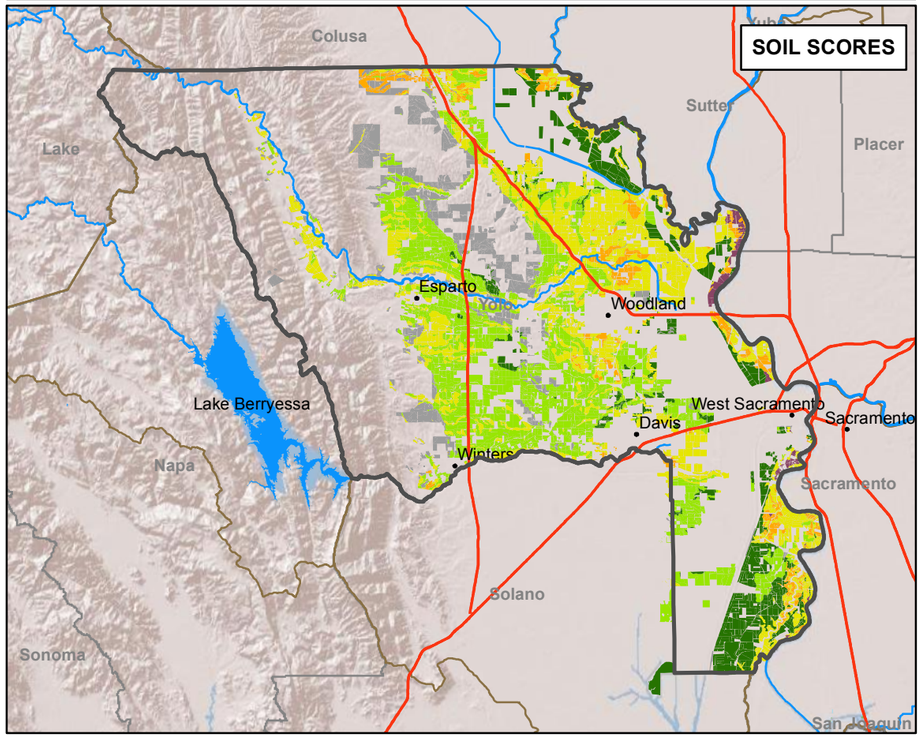
Miles

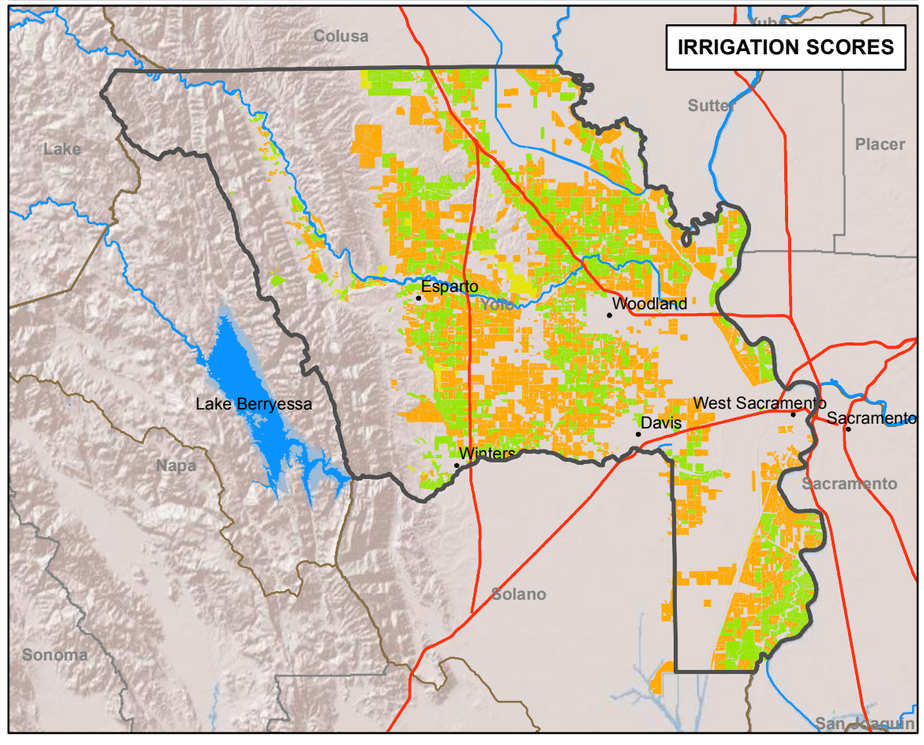
FIGURE 10-8
Vulnerability Designation
Shasta-Tehama Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

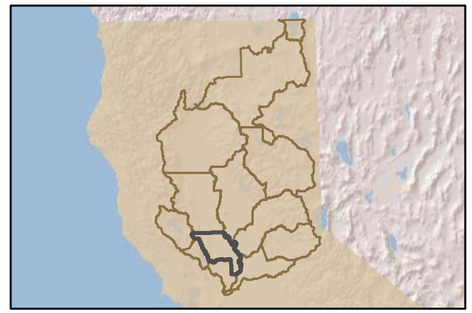








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 4.5 9

Miles

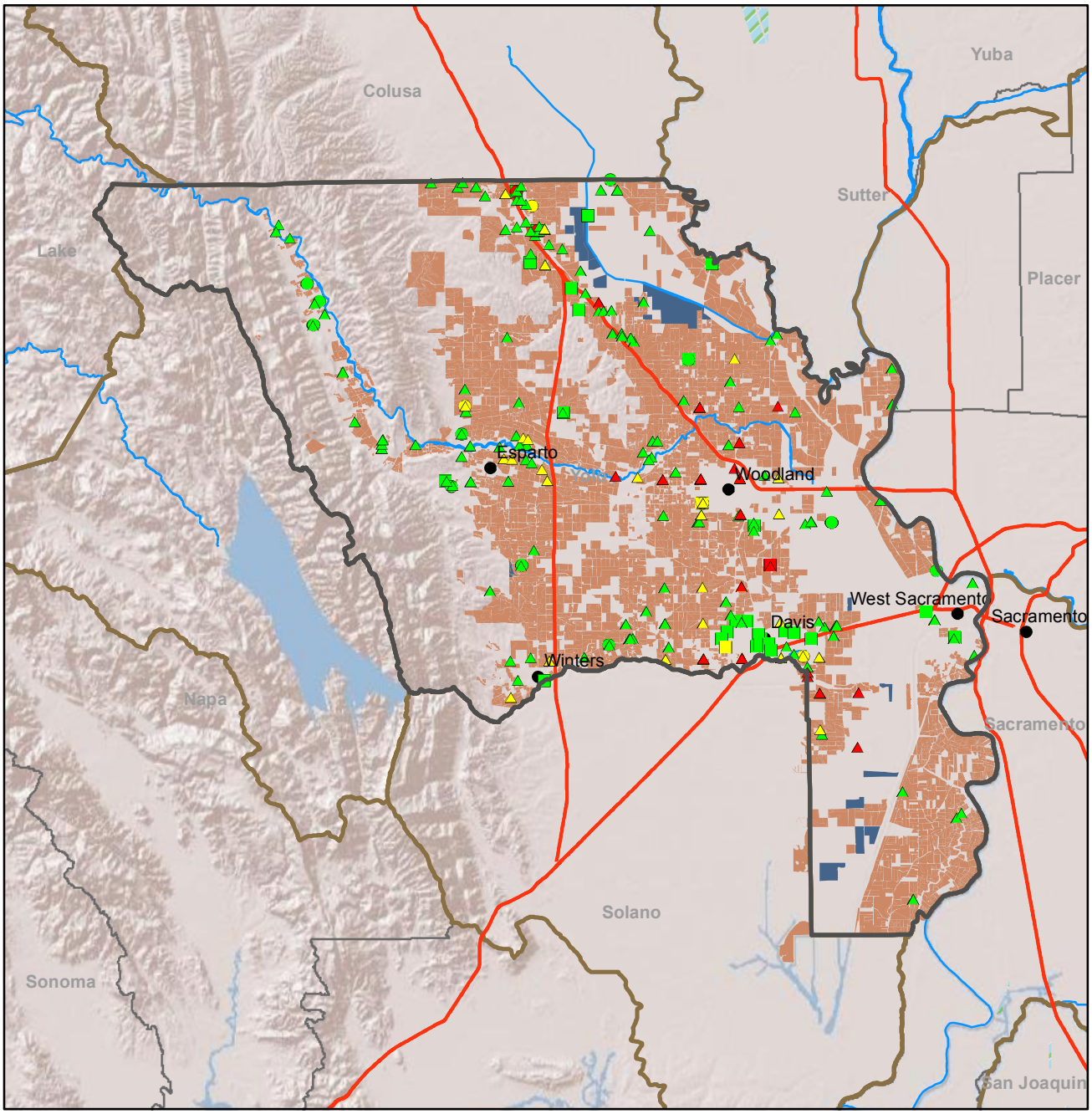
Notes:

1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

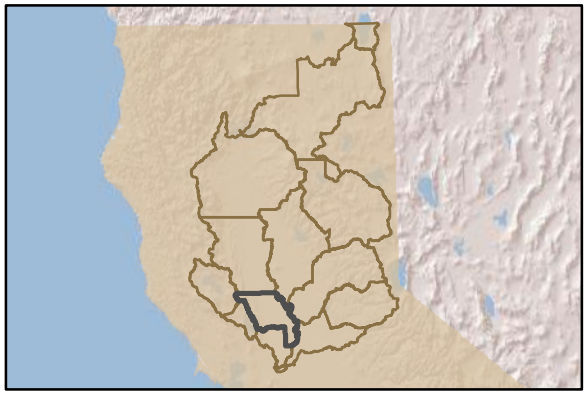
FIGURE 11-1
Field Level NHI Results
Yolo Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NHIFIELD.MXD THATCH 6/19/2014



VICINITY MAP



- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

NO3 Concentration(mg/L)

- < 22.5
- 22.5 - 45
- > 45

Well Depth (Feet)

- unknown
- < 250
- > 250

N

0 4 8

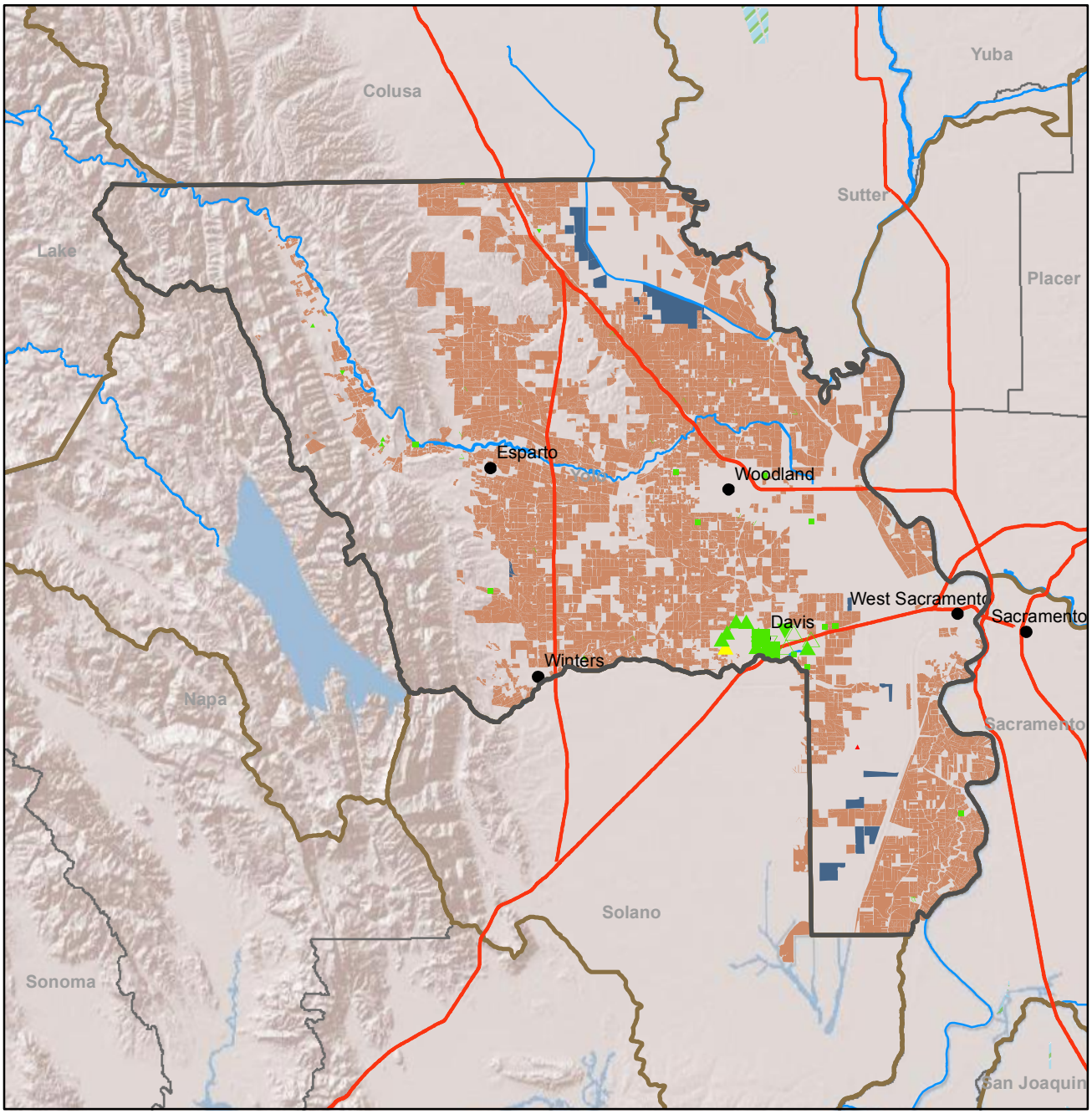
Miles

Notes:

FIGURE 11-2
NO3 Sampling Results
Yolo Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NO3.MXD THATCH 5/14/2014



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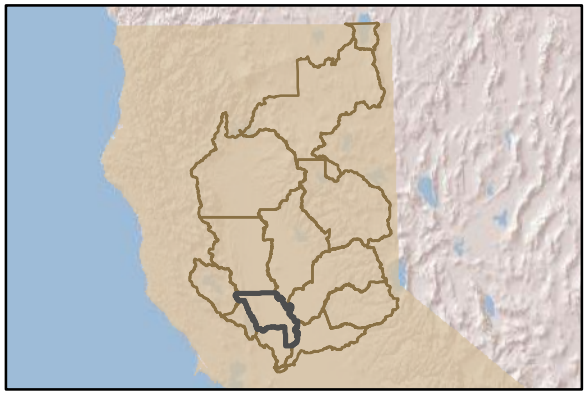


- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

Notes:

N

0 4 8

Miles

Most Recent NO3 Concentration(mg/L)

- < 22.5
- 22.5 - 45
- > 45

Mann Kendall Trend

- Decrease
- Increase
- No Trend
- Probable Decrease
- Probable Increase

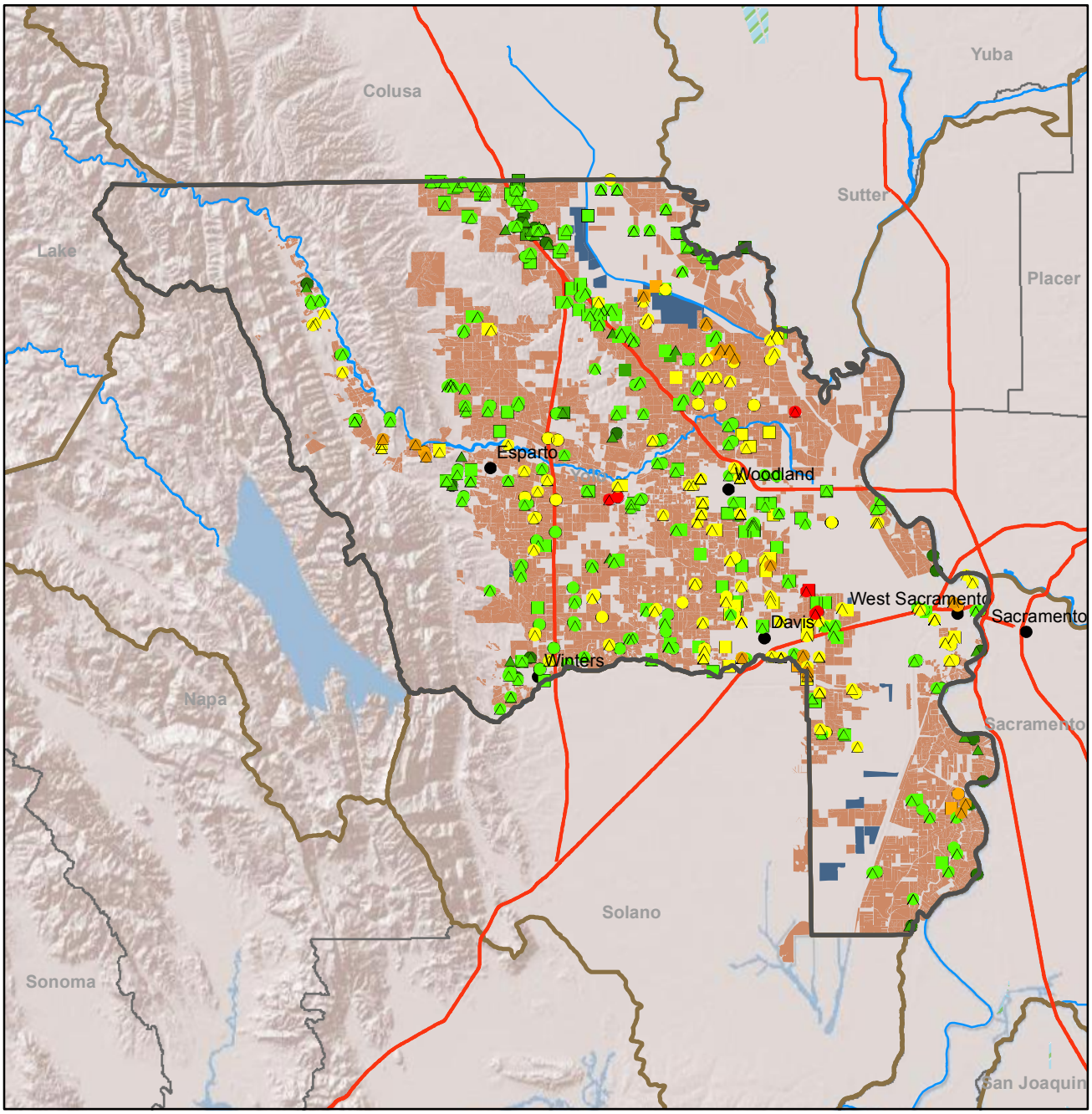
Decade of Most Recent NO3 Measurement

- Before 1970s
- 1970s
- 1980s
- 1990s
- 2000s

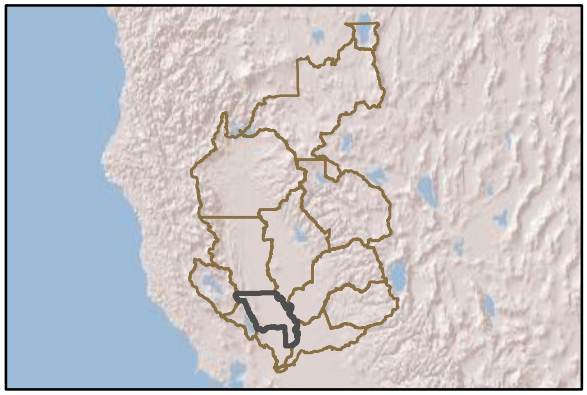
FIGURE 11-3
NO3 Concentration Trend
Yolo Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NO3TREND.MXD THATCH 6/19/2014



VICINITY MAP



- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

TDS Concentration(mg/L)

- < 250
- 251 - 500
- 501 - 1000
- 1001 - 1500
- > 1500

Well Depth (Feet)

- unknown
- < 250
- > 250

Notes:

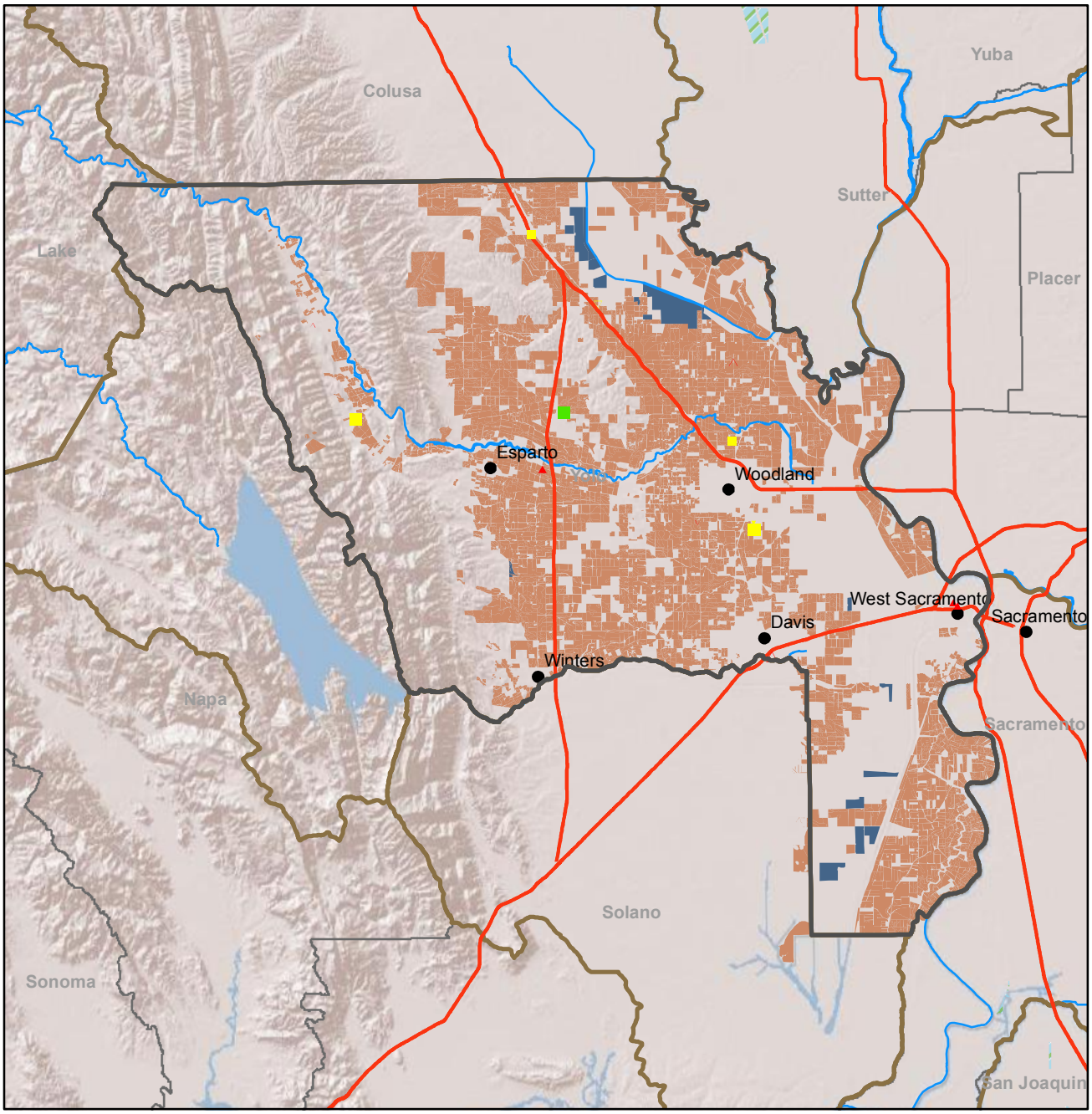
N

0 4 8

Miles

FIGURE 11-4
TDS Sampling Results
Yolo Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



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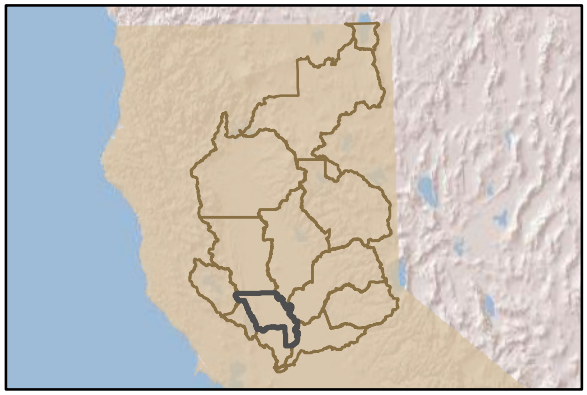


- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

Notes:

N

0 4 8

Miles

Most Recent TDS Concentration(mg/L)

- < 250
- 250 - 500
- > 500

Mann Kendall Trend

- Decrease
- Increase
- No Trend
- Probable Decrease
- Probable Increase

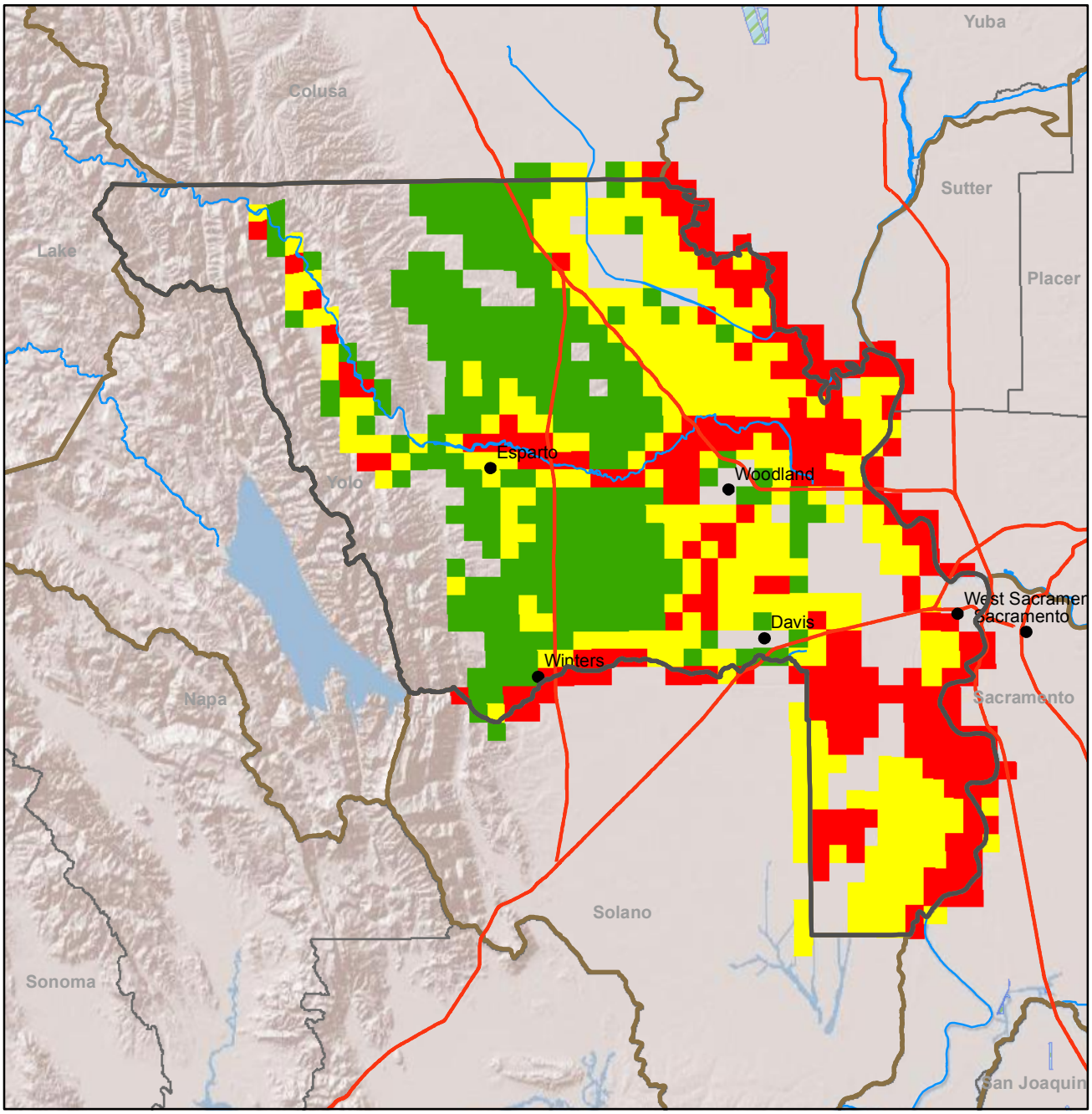
Decade of Most Recent TDS Measurement

- Before 1970s
- 1970s
- 1980s
- 1990s
- 2000s

FIGURE 11-5
TDS Concentration Trend
Yolo Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_TDSTREND.MXD THATCH 6/19/2014



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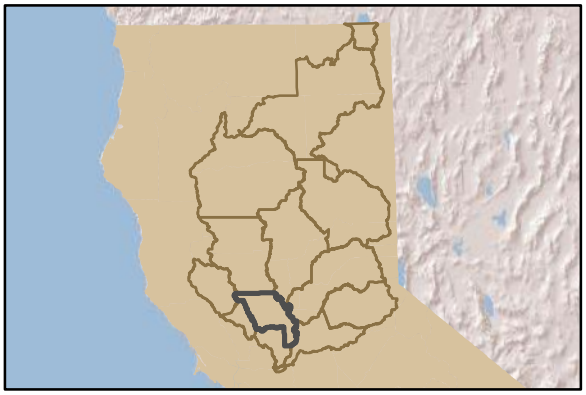


- Cities
- Highways
- Subwatersheds
- Rivers
- National Wildlife Refuges
- Counties

Hydrogeology Susceptibility

- 28 - 82
- 82 - 101
- 101 - 140

Notes:

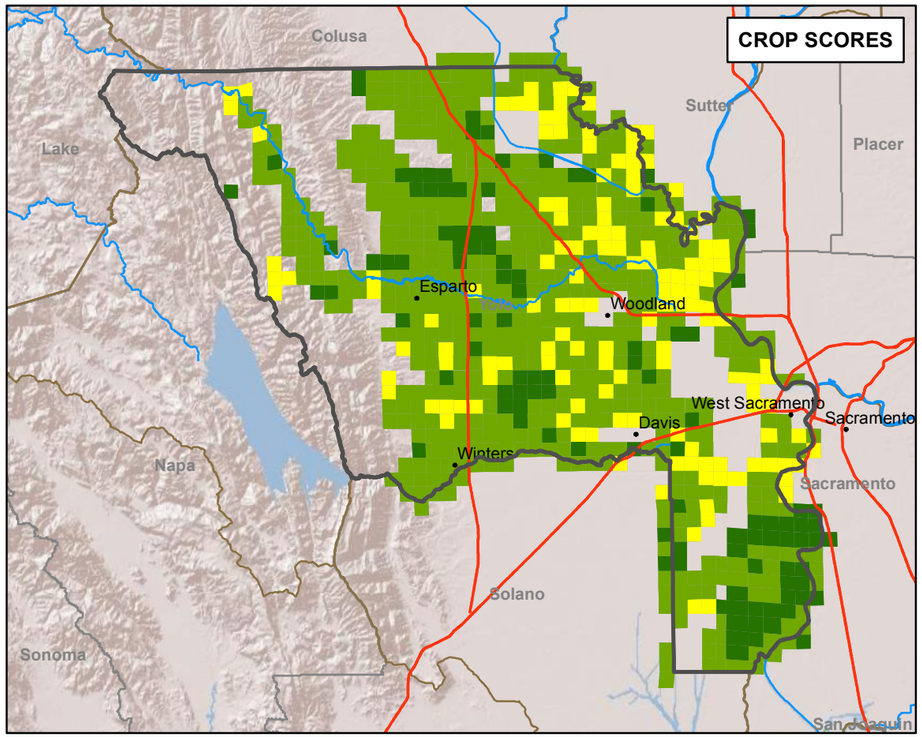
N

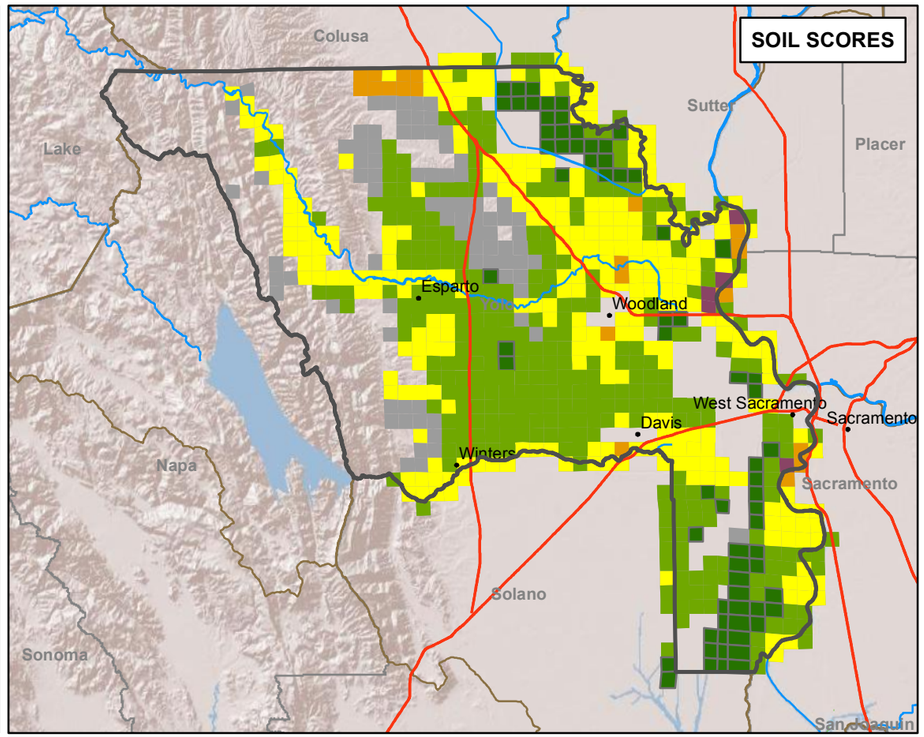
0 4 8

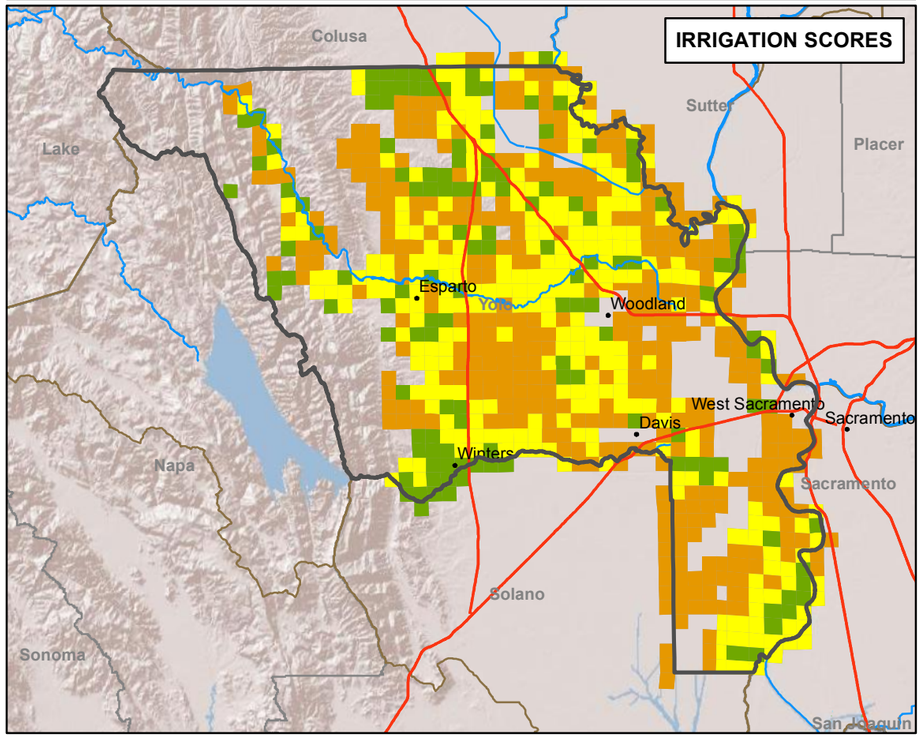
Miles

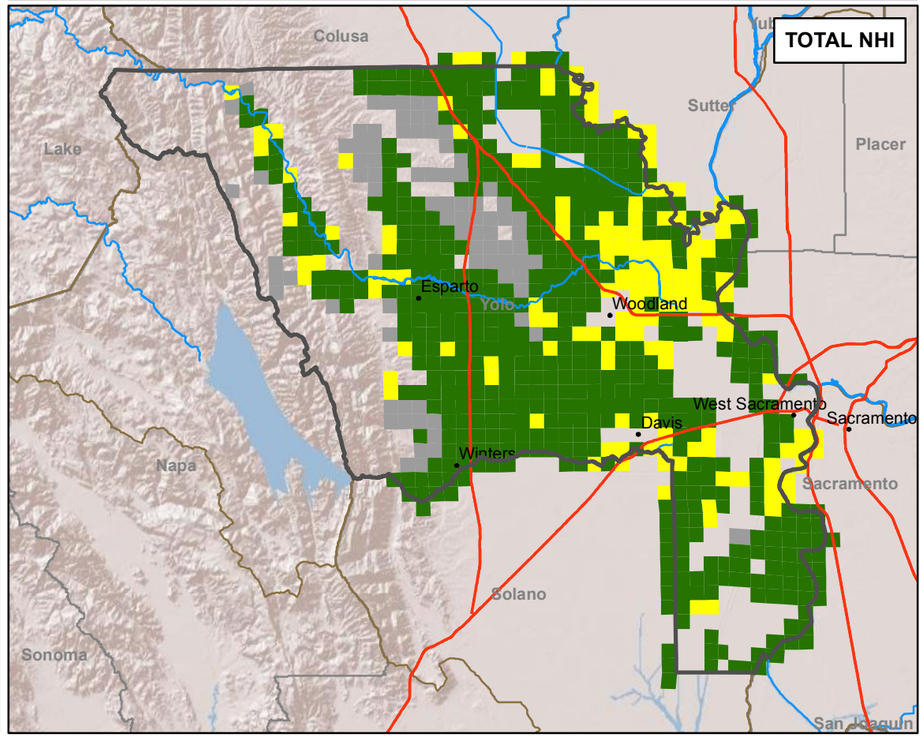
FIGURE 11-6
Hydrogeology Susceptibility
Yolo Subwatershed
Groundwater Quality Assessment Report

CH2MHILL









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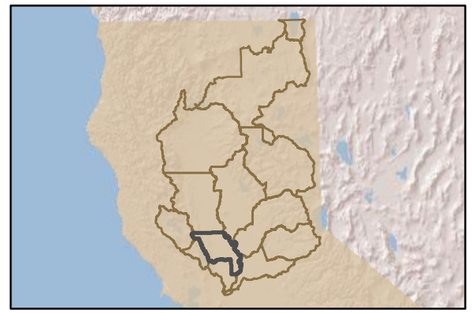


Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

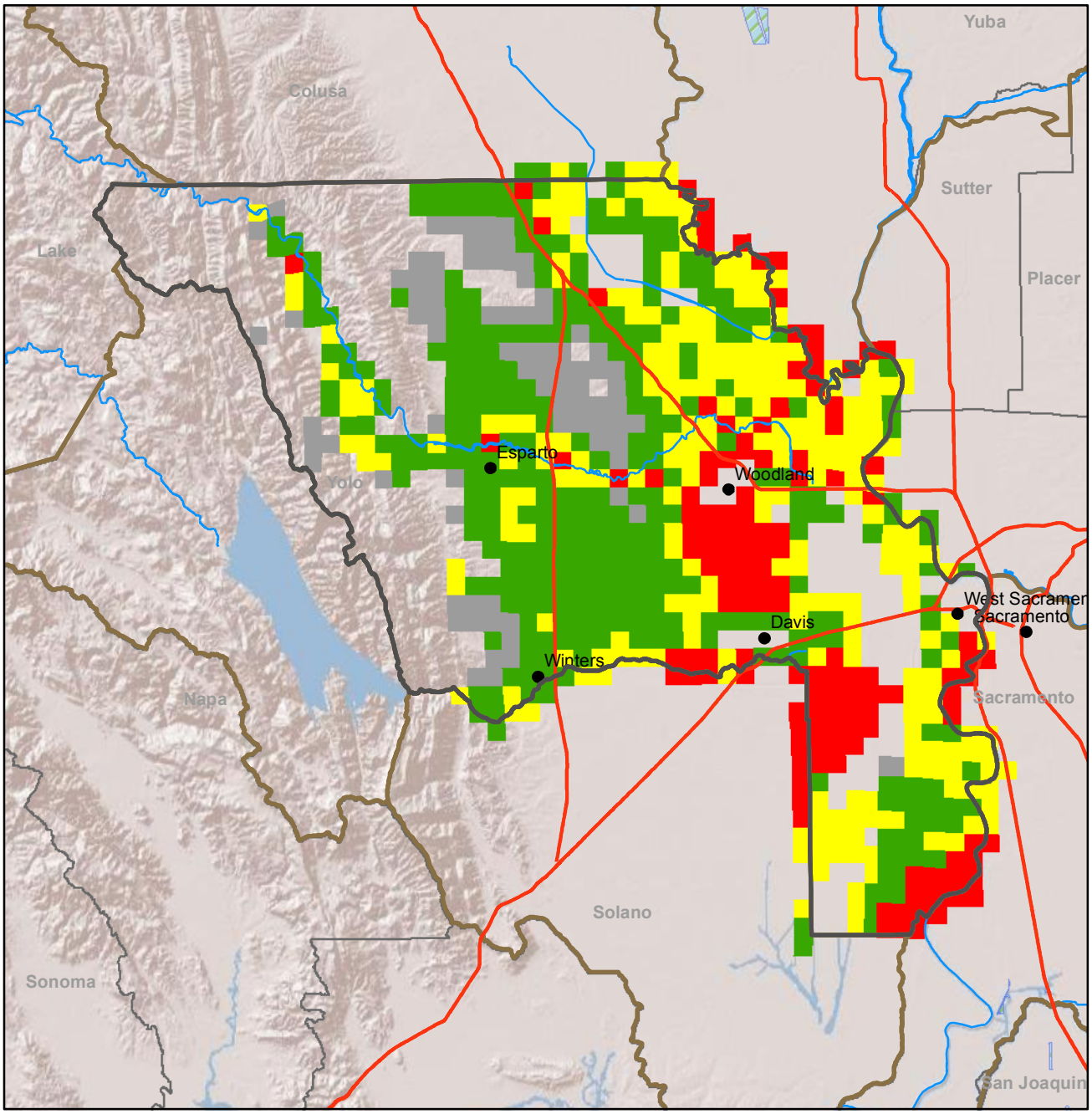
N

0 5 10
Miles

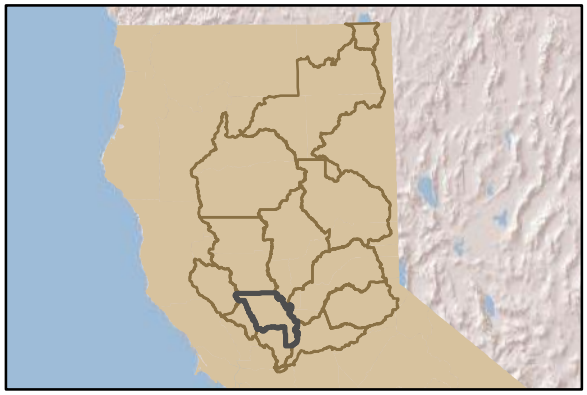
Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 11-7
Section Level NHI Results
Yolo Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP



Cities
Highways
Subwatersheds
Rivers
National Wildlife Refuges
Counties

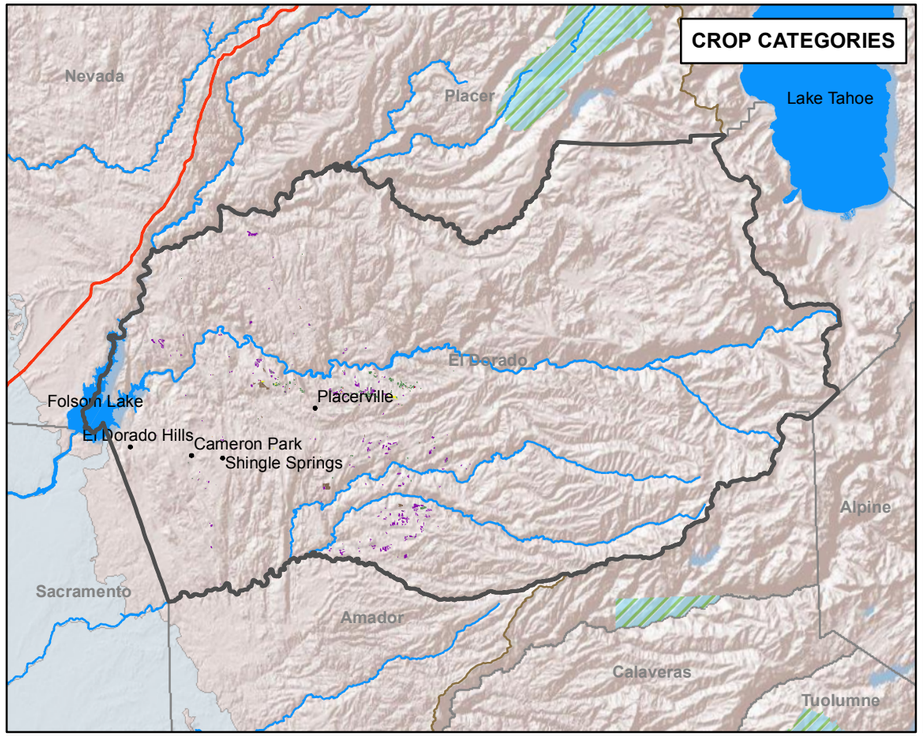
Vulnerability
High
Moderate
Low
data gap or outside SVGB boundary

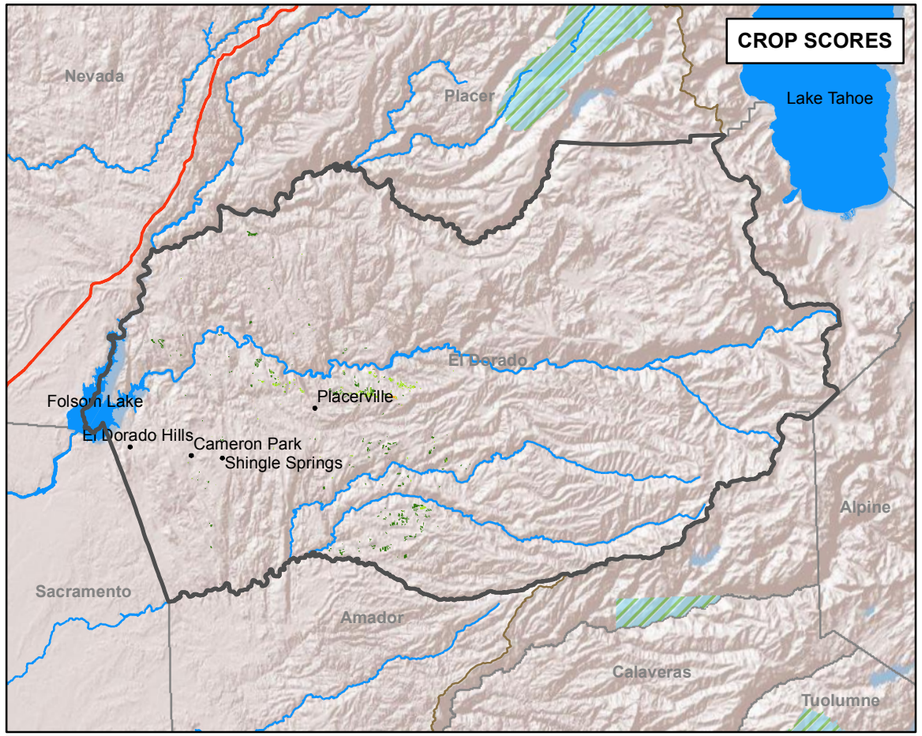
Notes:
SVGB refers to the Sacramento Valley Groundwater Basin

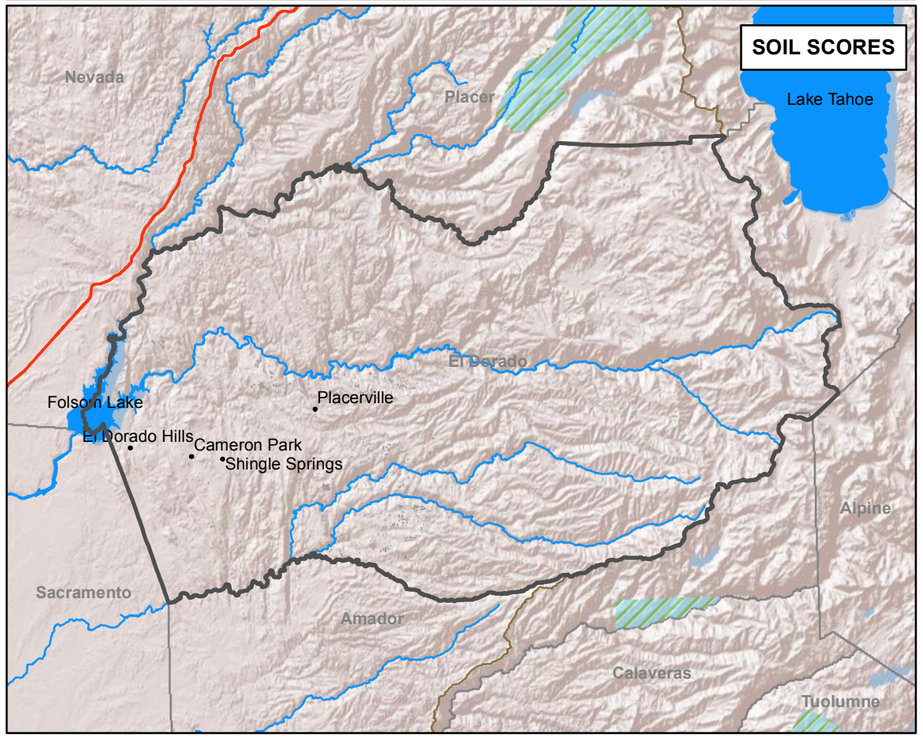
N
0 4 8
Miles

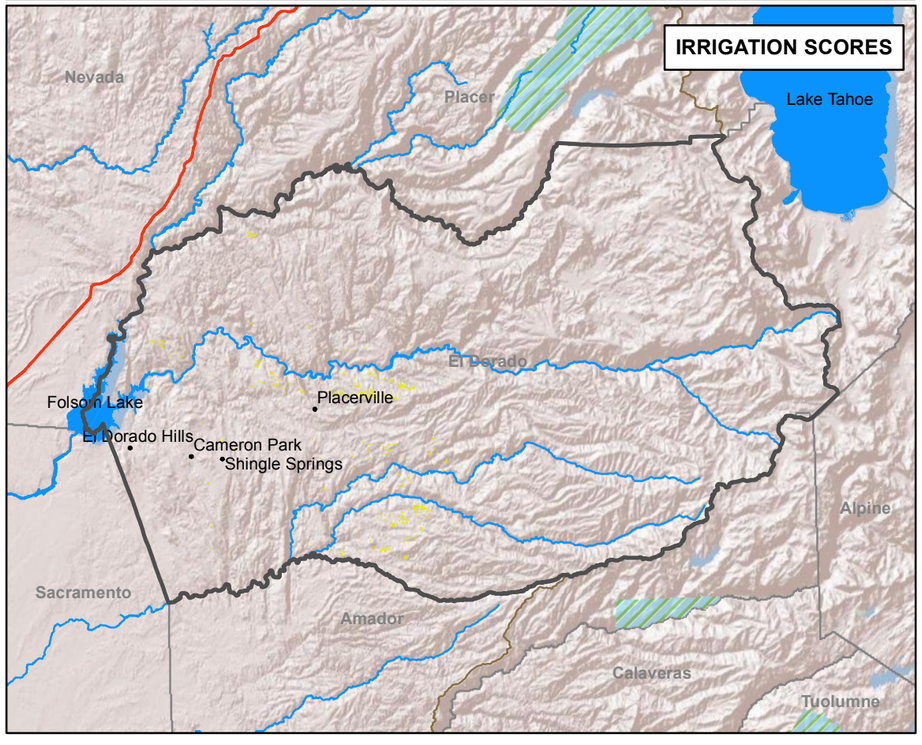
FIGURE 11-8
Vulnerability Designation
Yolo Subwatershed
Groundwater Quality Assessment Report

CH2MHILL









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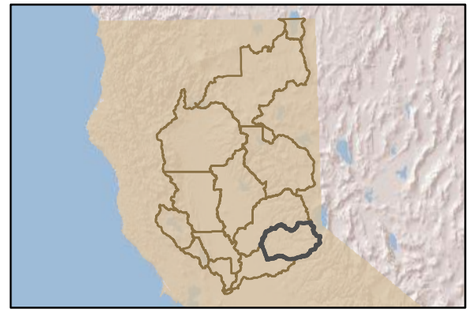


Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 5.5 11

Miles

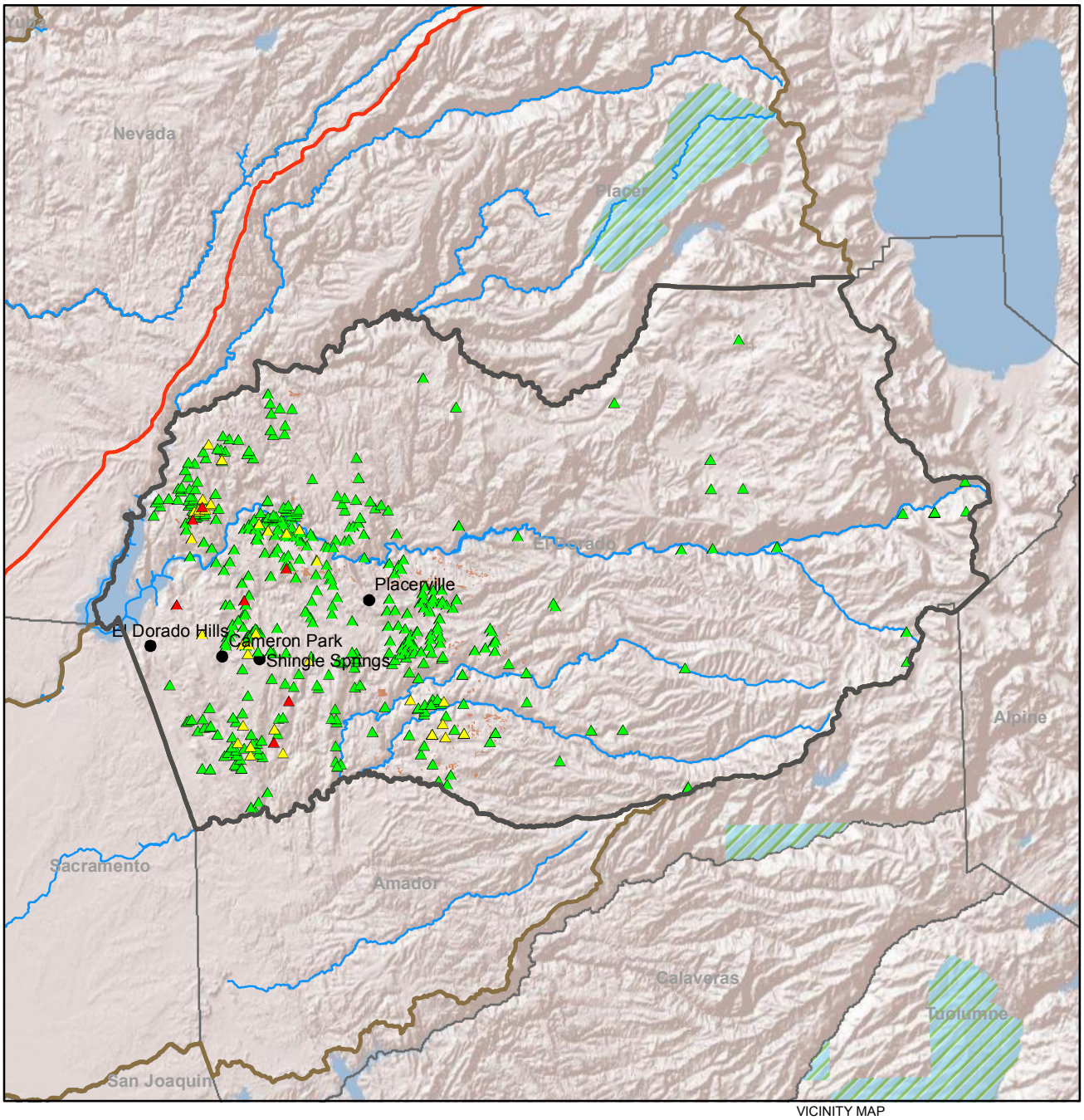
Notes:

1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

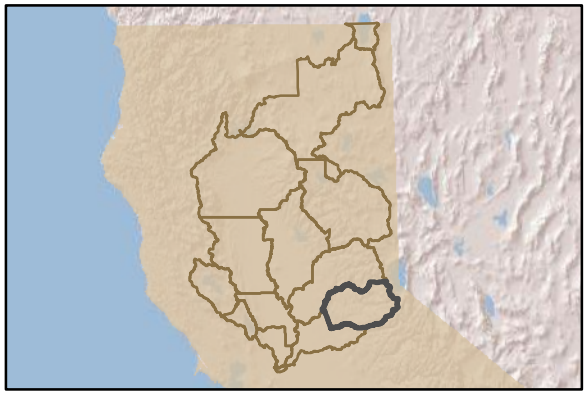
FIGURE 12-1
Field Level NHI Results
El Dorado Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NHIFIELD.MXD THATCH 6/19/2014



VICINITY MAP



Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

NO3 Concentration(mg/L)

< 22.5
22.5 - 45
> 45

Well Depth (Feet)

unknown
< 250
> 250

Notes:

N

0 5 10
Miles

FIGURE 12-2
NO3 Sampling Results
El Dorado Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

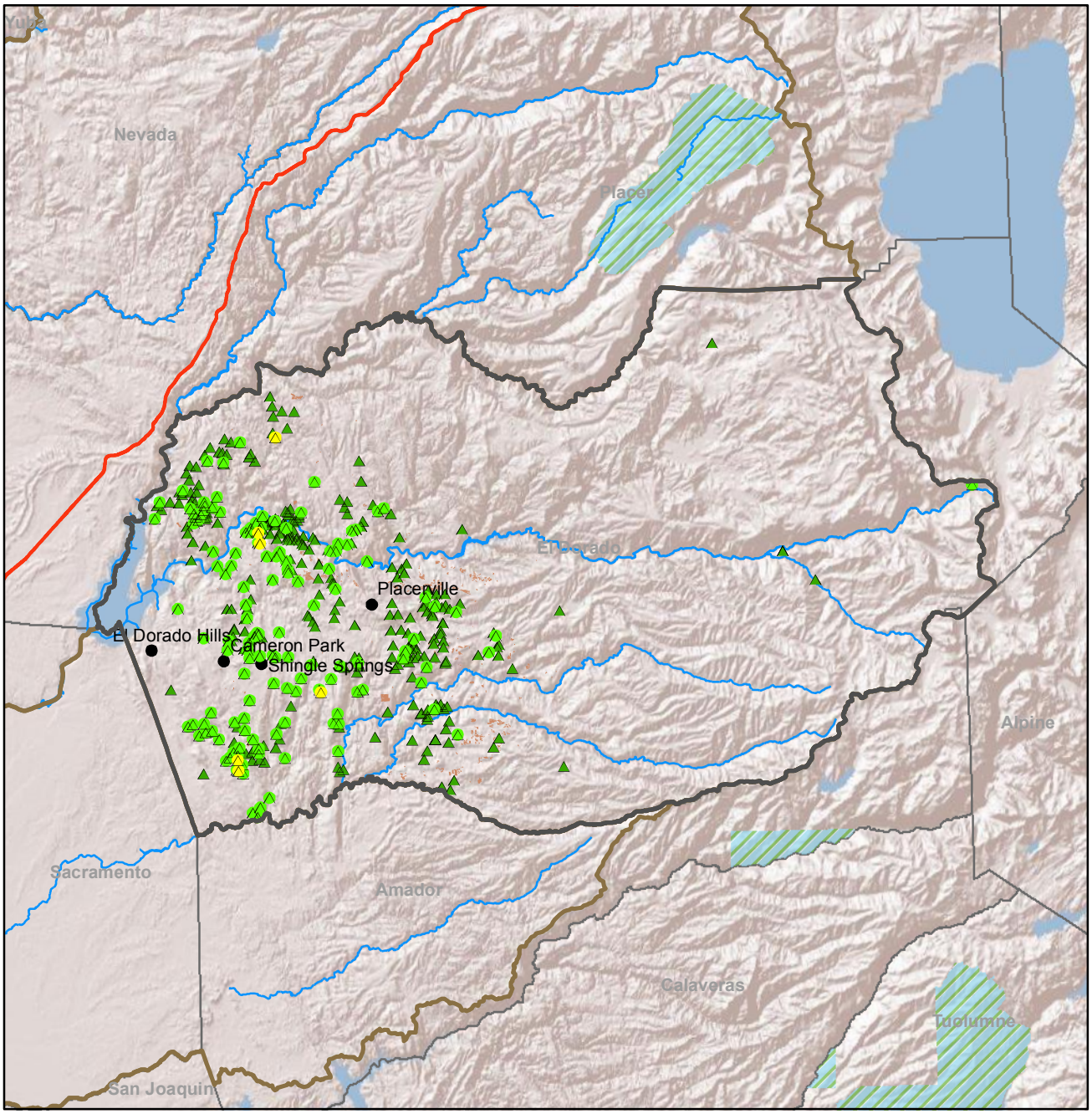
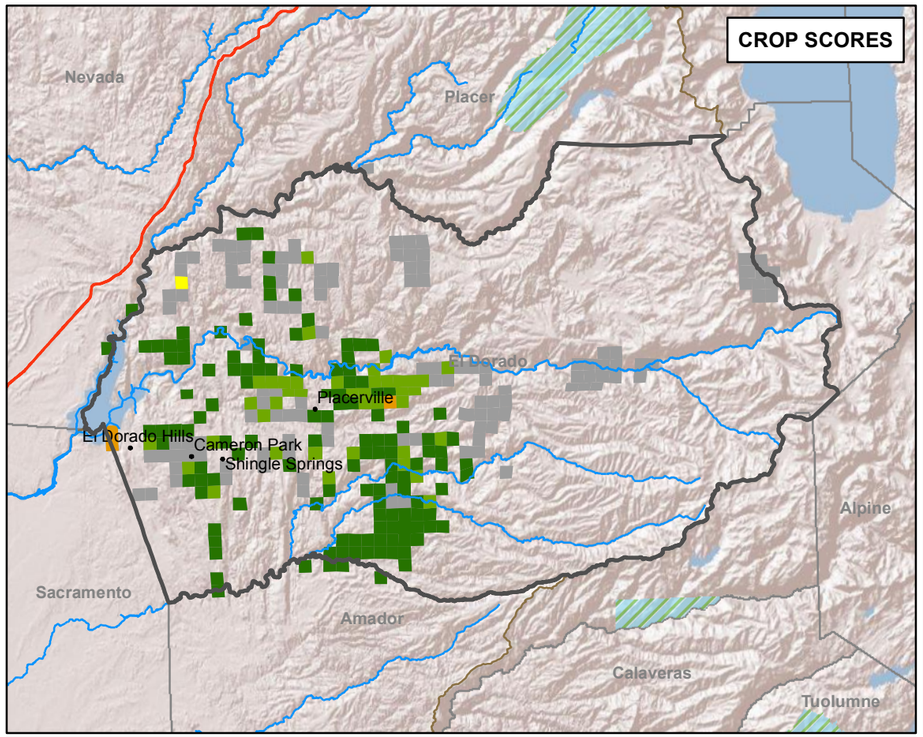
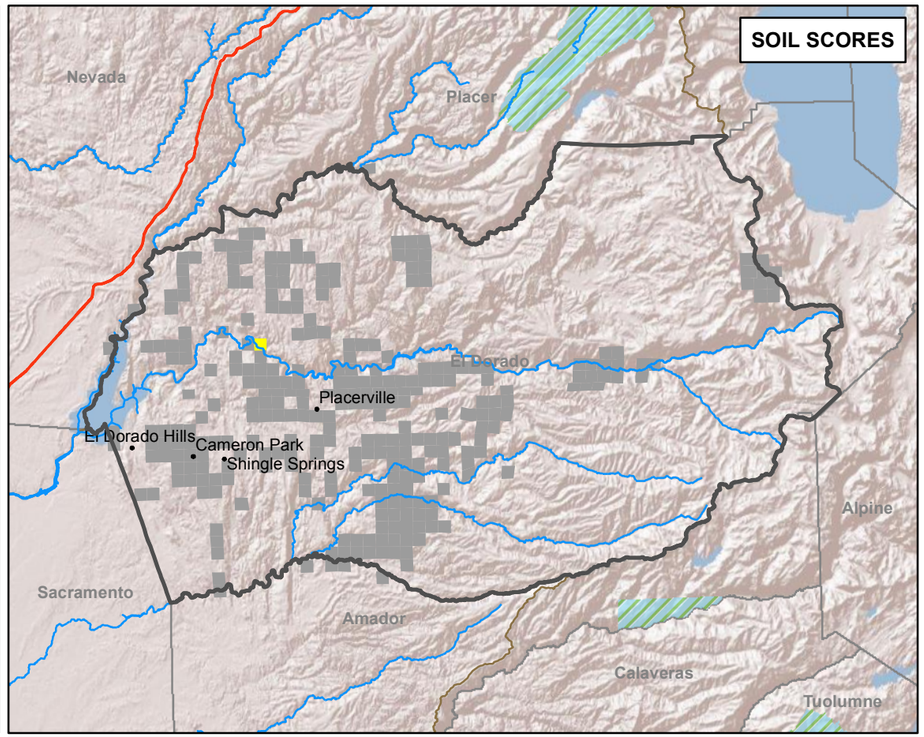
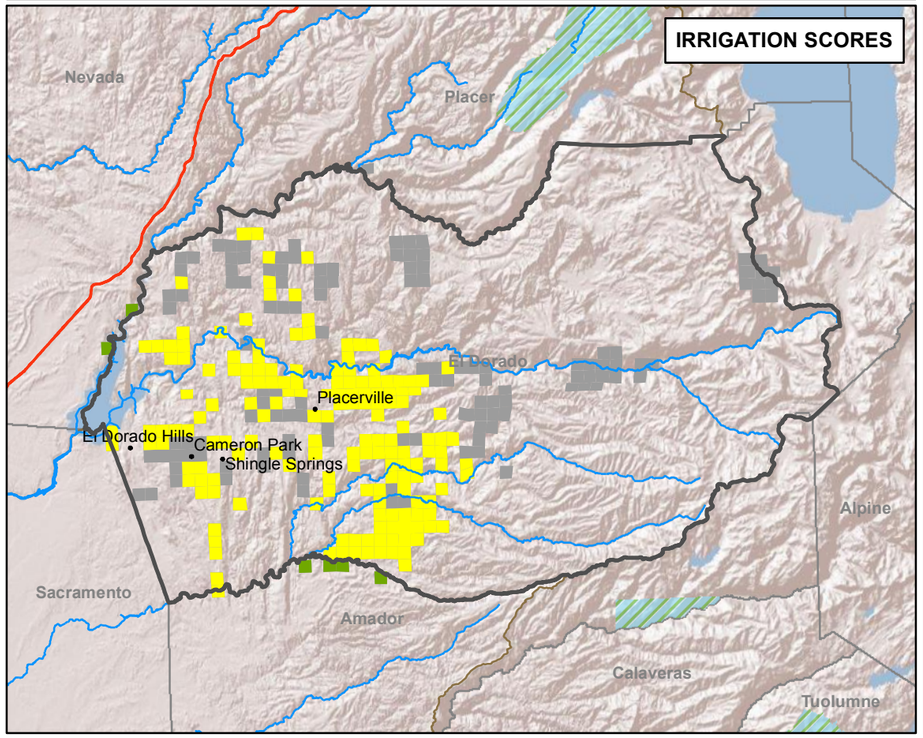
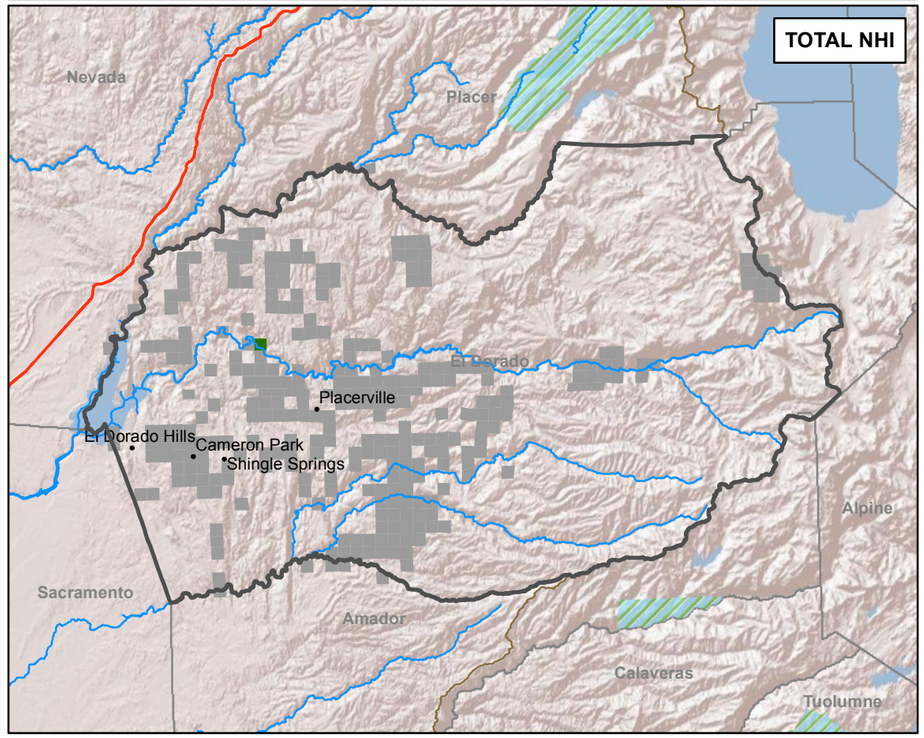


FIGURE 12-3
TDS Sampling Results
El Dorado Subwatershed
Groundwater Quality Assessment Report

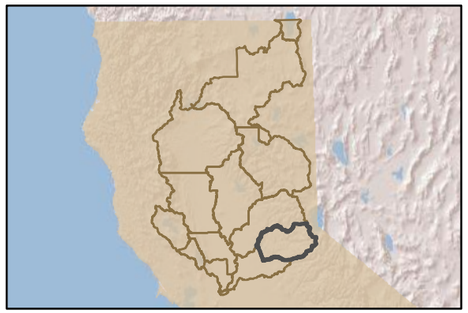








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

N

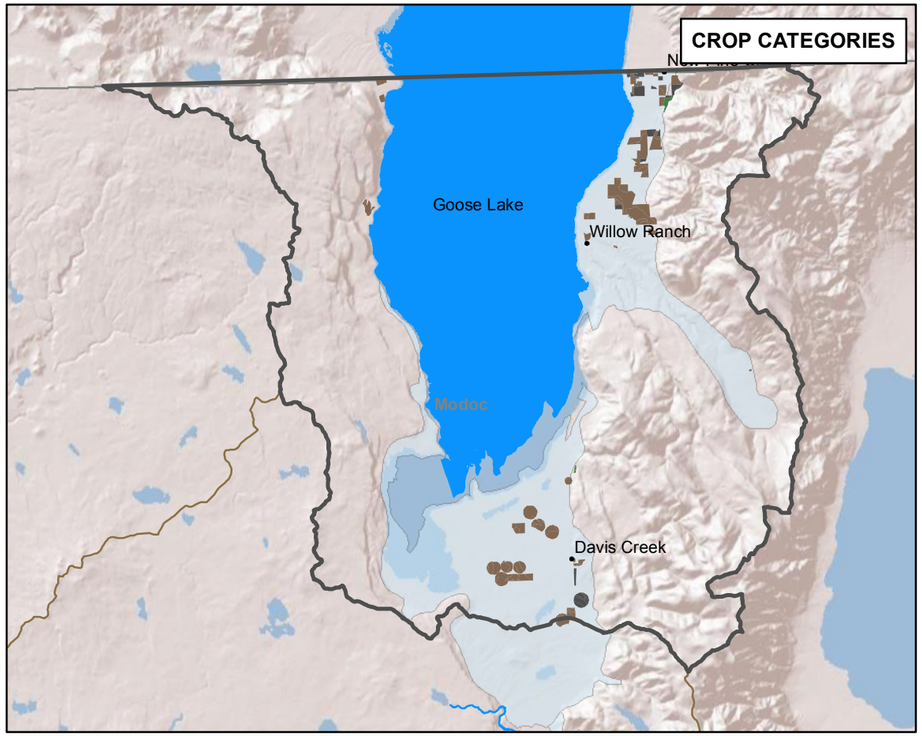
0 5.5 11
Miles

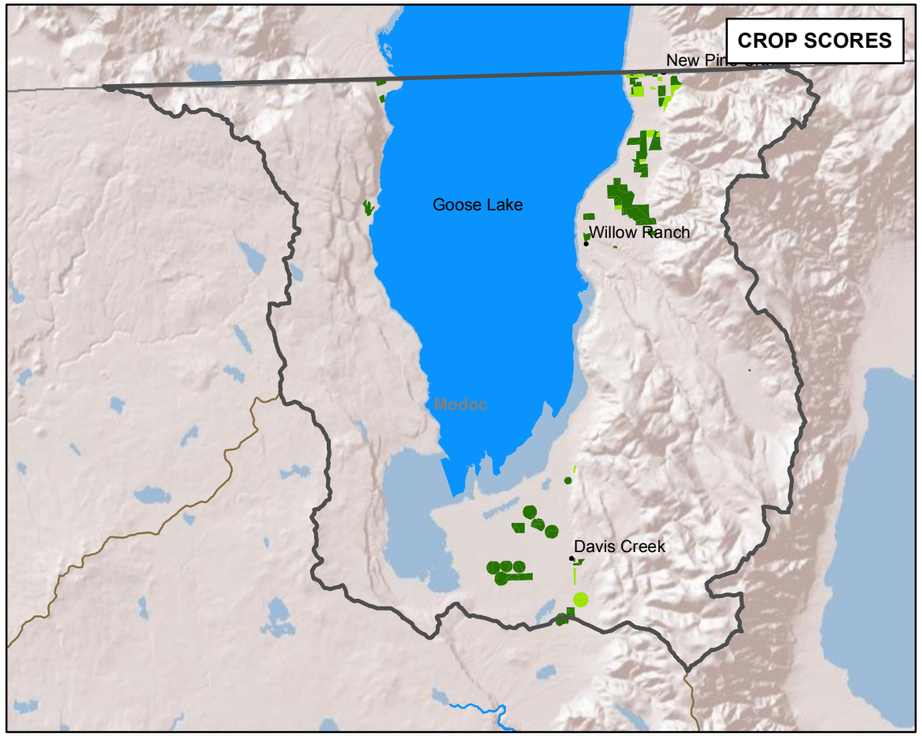
Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

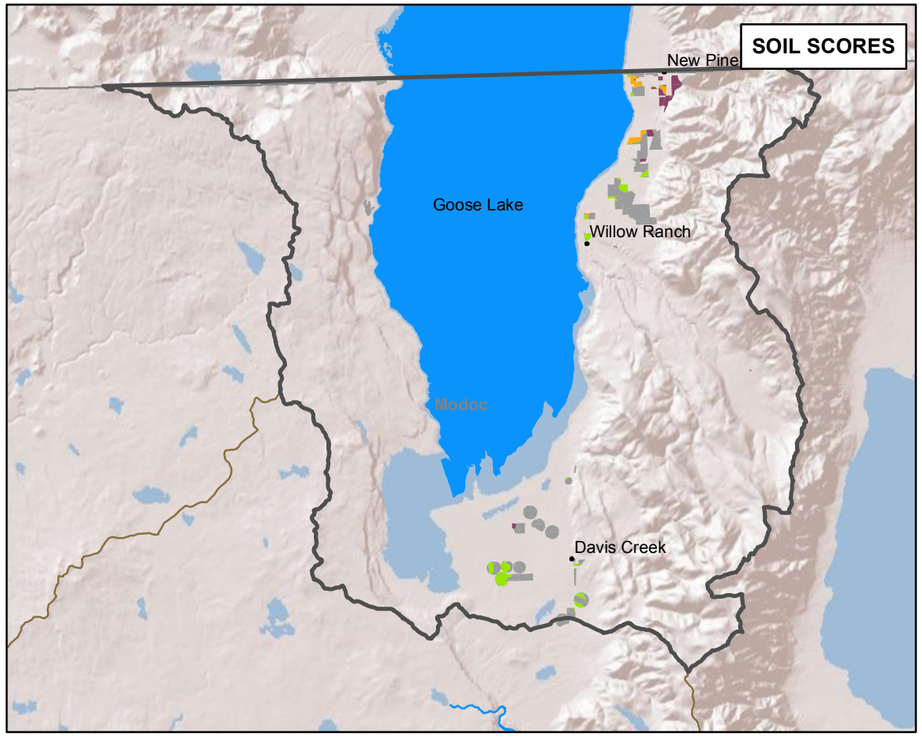
FIGURE 12-4
Section Level NHI Results
El Dorado Subwatershed
Groundwater Quality Assessment Report

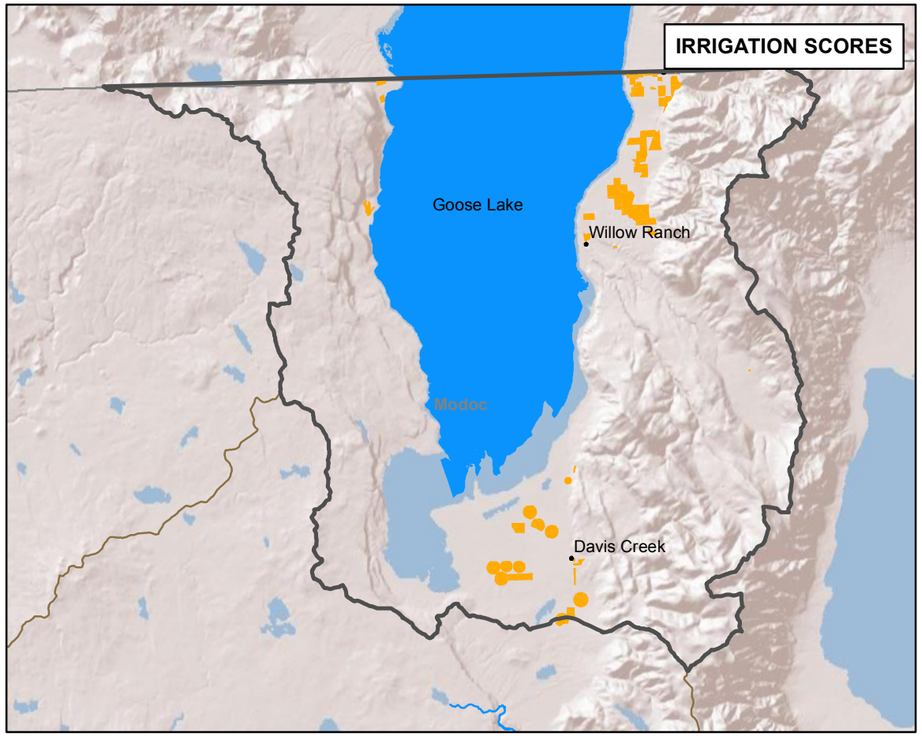
CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NHISECTION.MXD THATCH 5/14/2014









VICINITY MAP

Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 2.5 5

Miles

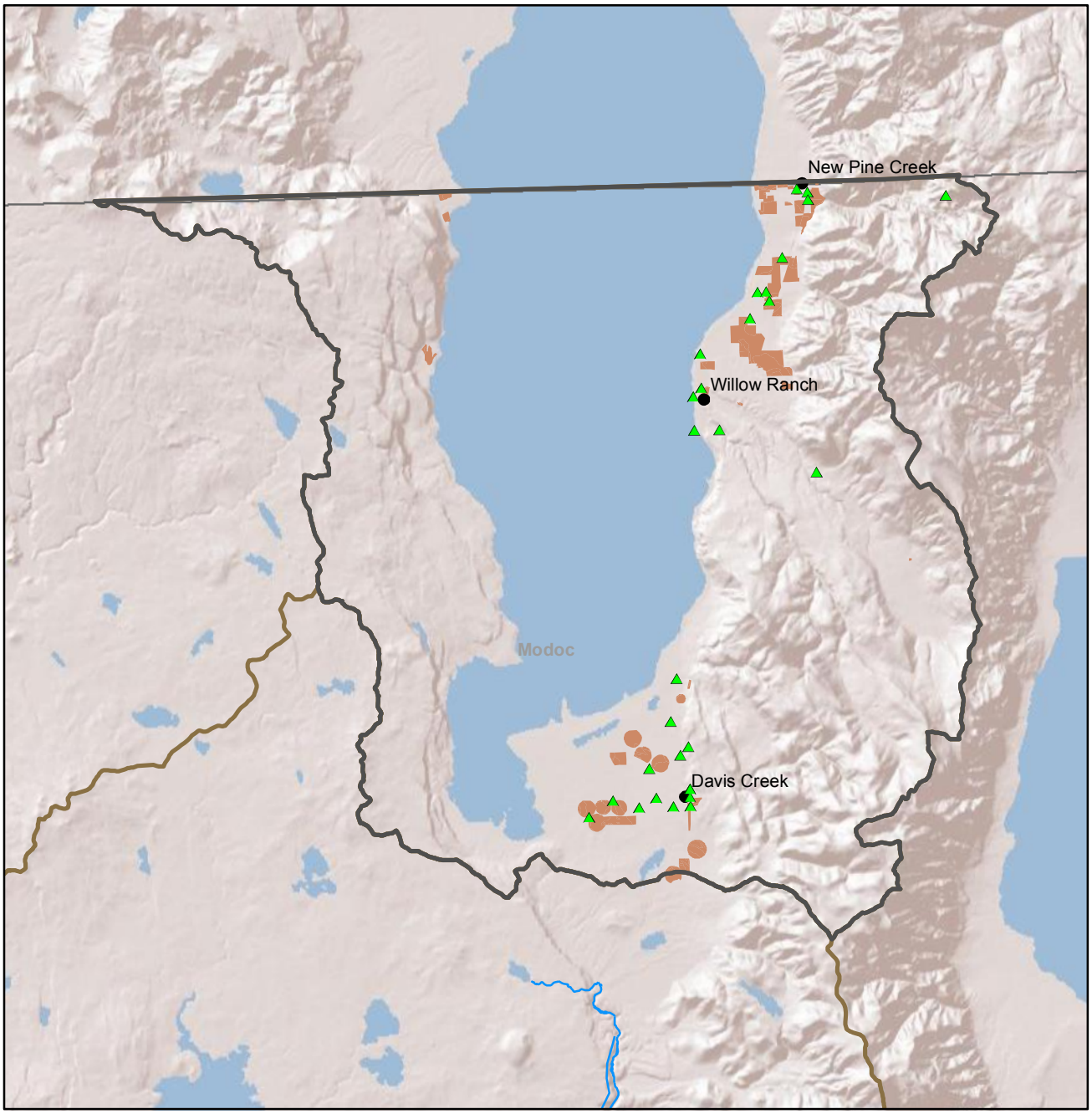
Notes:

1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 13-1
Field Level NHI Results
Goose Lake Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NHIFIELD.MXD THATCH 6/19/2014



VICINITY MAP

- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

NO3 Concentration(mg/L)

- < 22.5
- 22.5 - 45
- > 45

Well Depth (Feet)

- unknown
- < 250
- > 250

Notes:

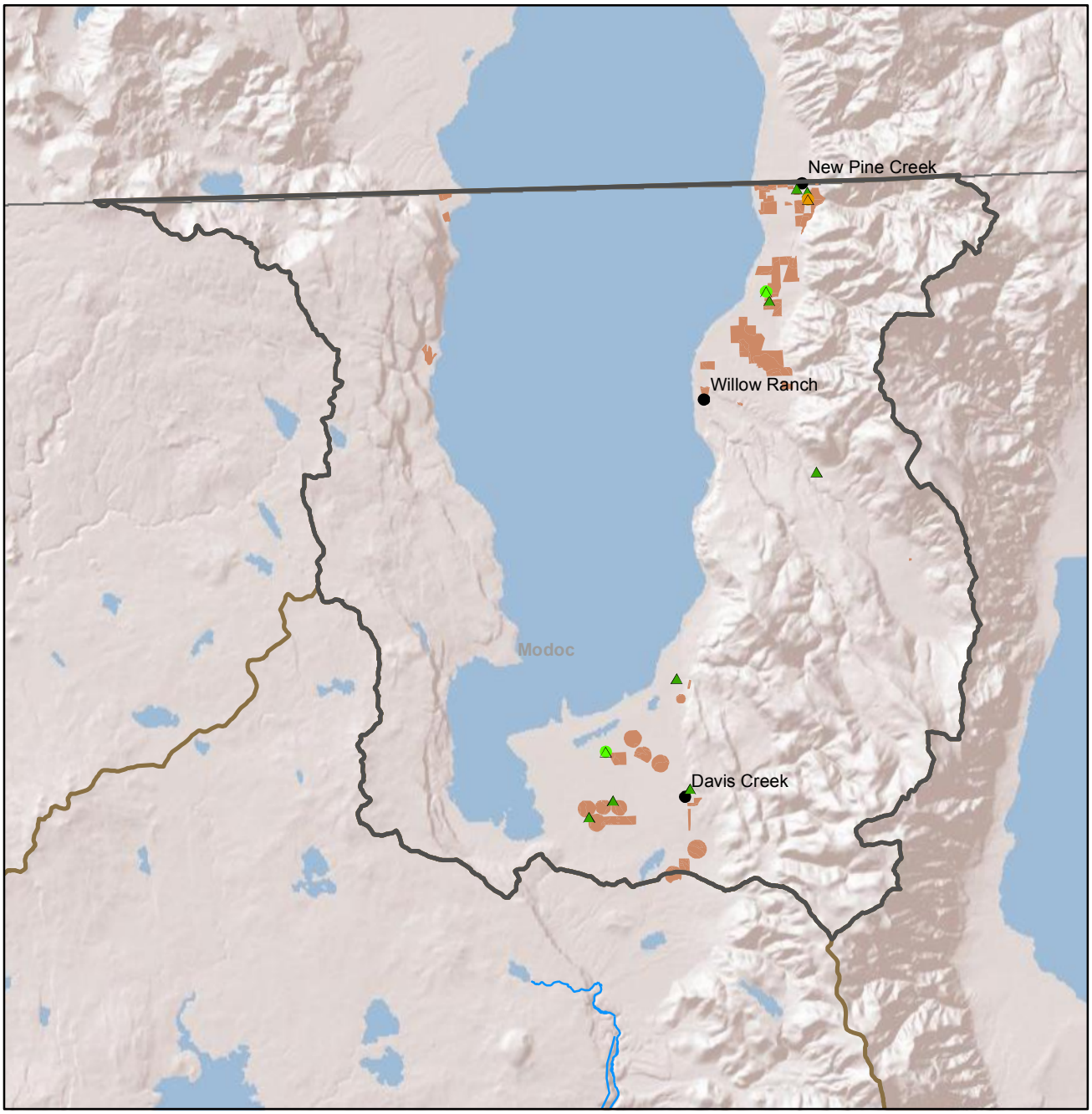
N

0 2 4

Miles

FIGURE 13-2
NO3 Sampling Results
Goose Lake Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP

Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

TDS Concentration(mg/L)

< 250
251 - 500
501 - 1000
1001 - 1500
> 1500

Well Depth (Feet)

unknown
< 250
> 250

Notes:

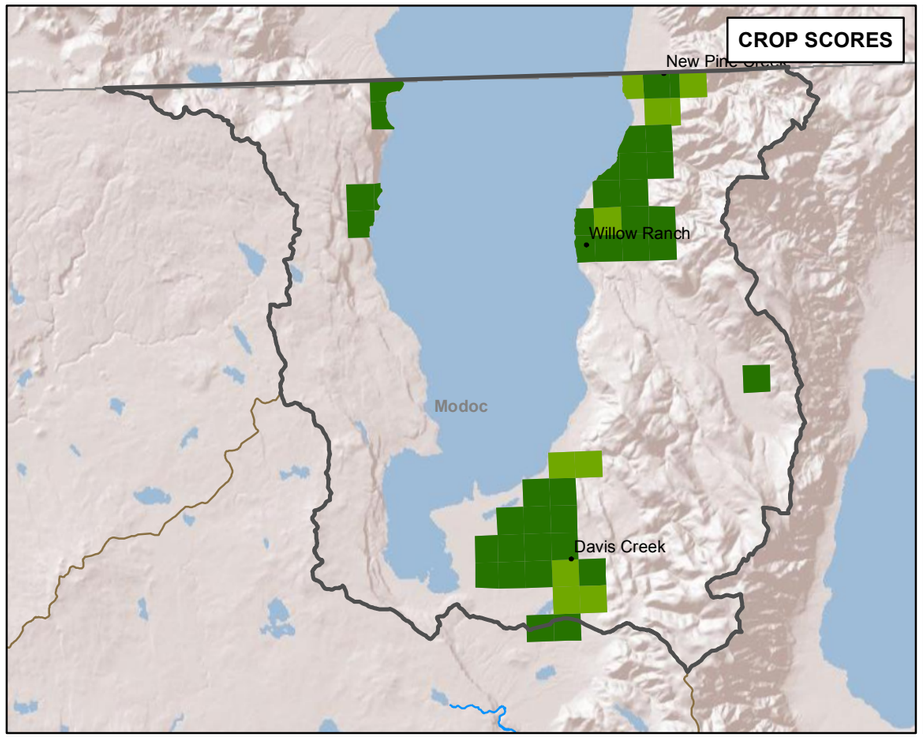
N

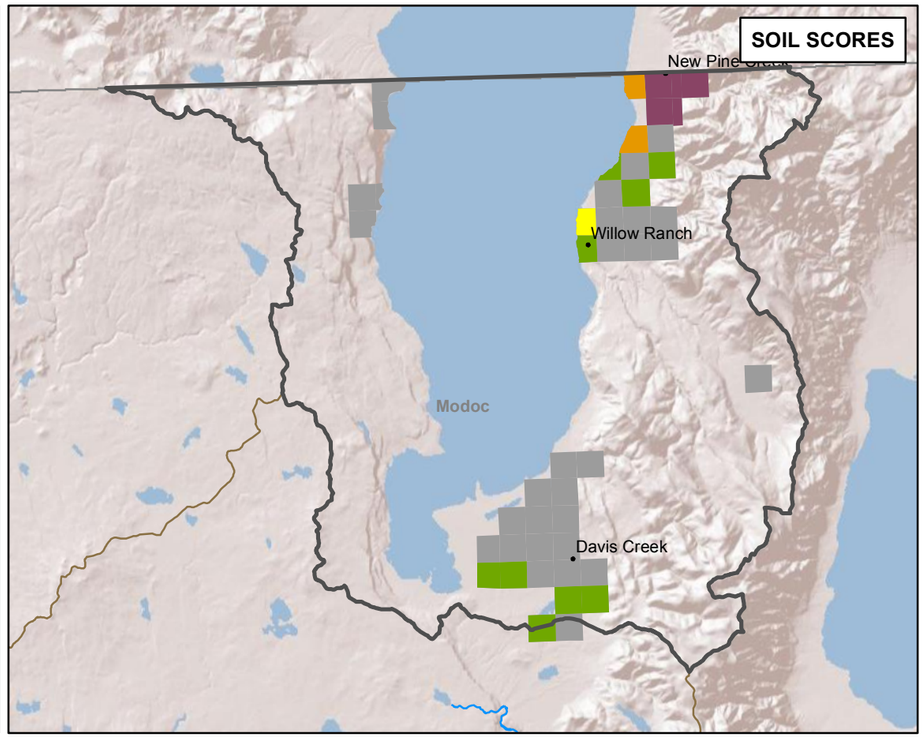
0 2 4

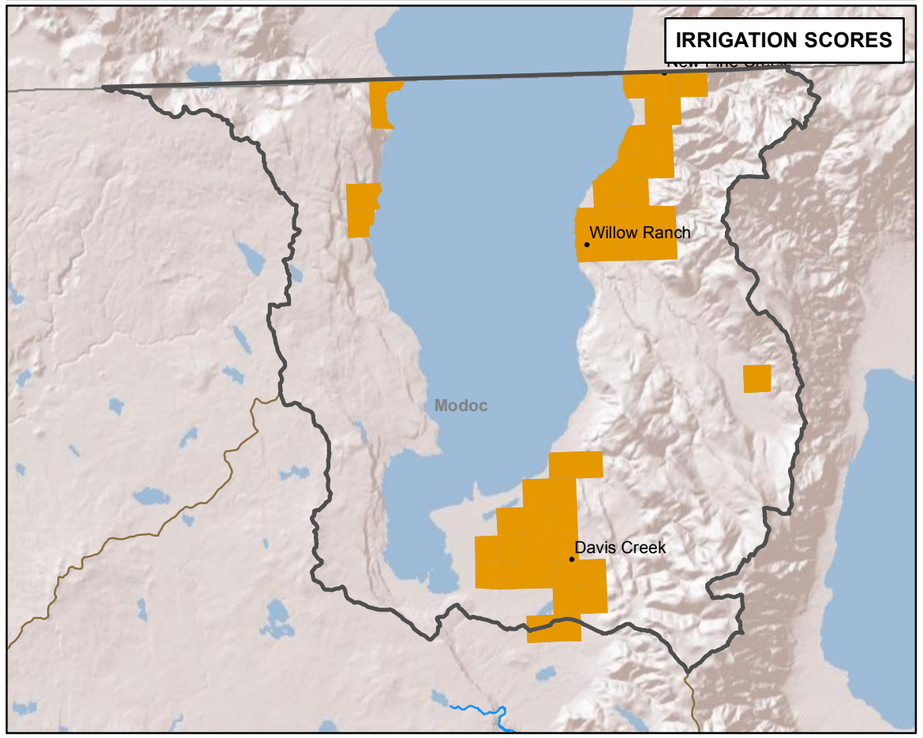
Miles

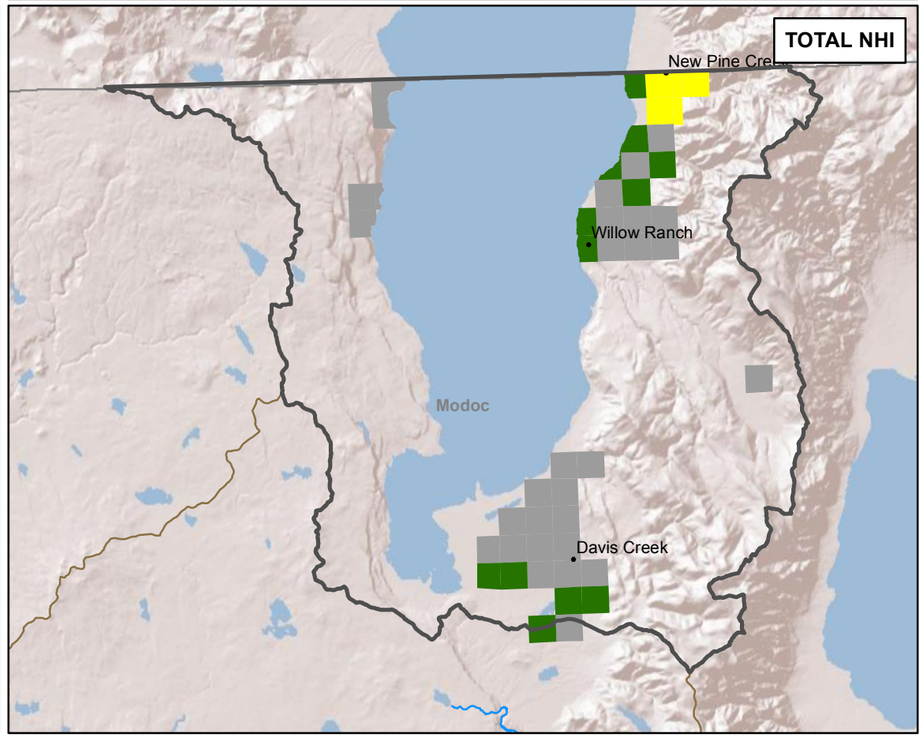
FIGURE 13-3
TDS Sampling Results
Goose Lake Subwatershed
Groundwater Quality Assessment Report

CH2MHILL









VICINITY MAP

Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

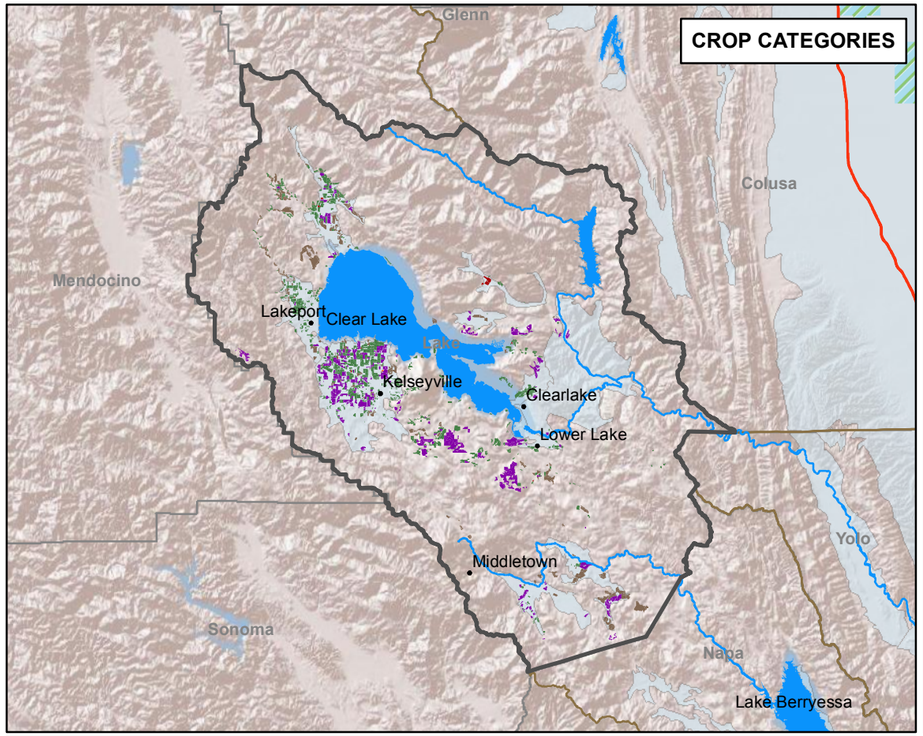
N

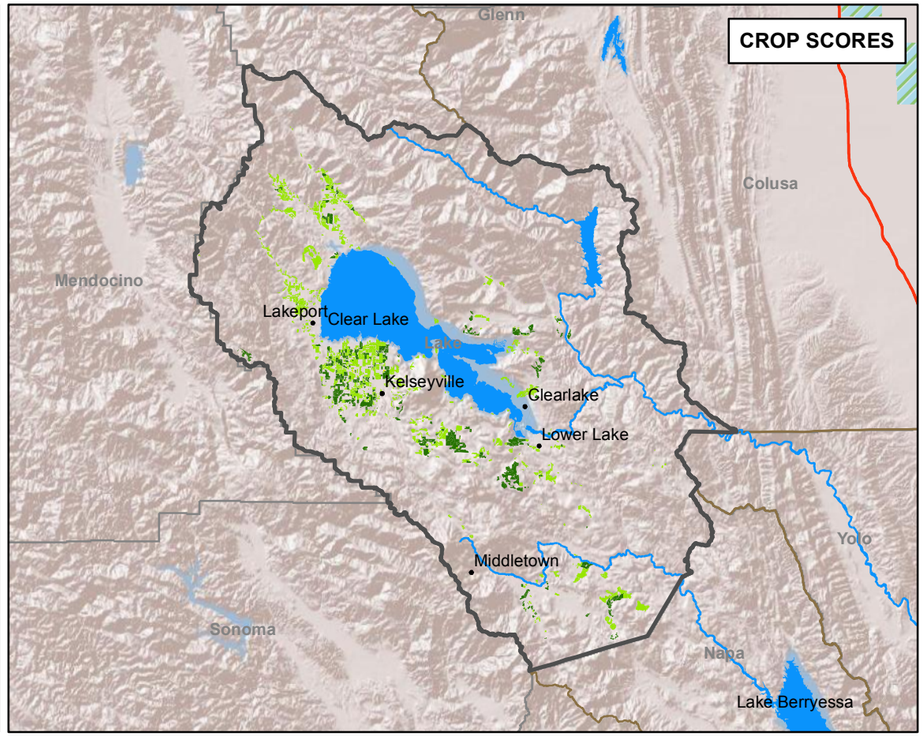
0 2.5 5
Miles

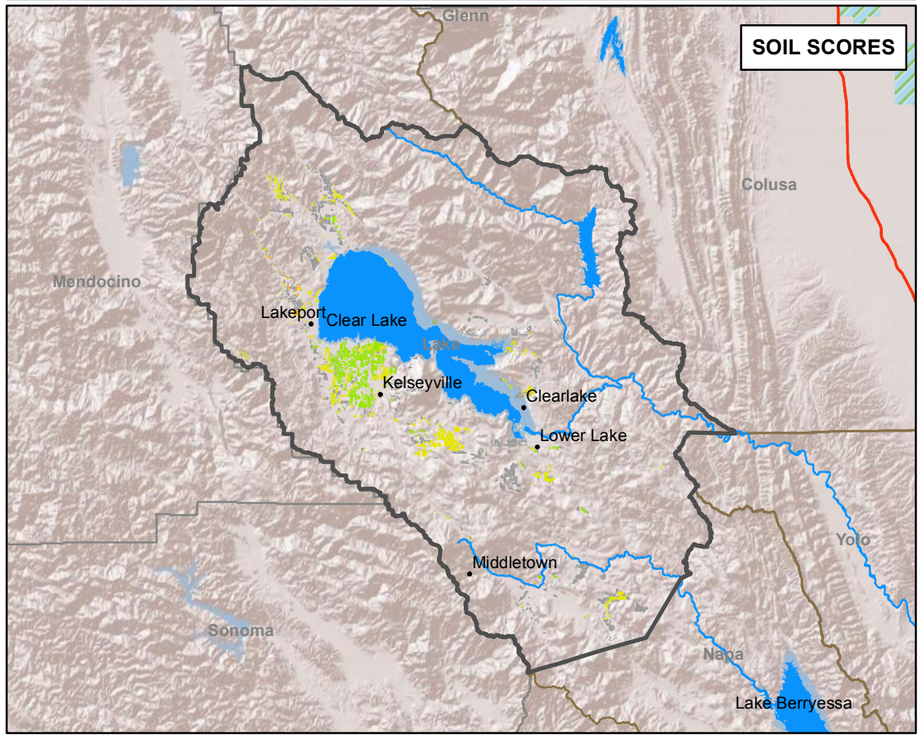
Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

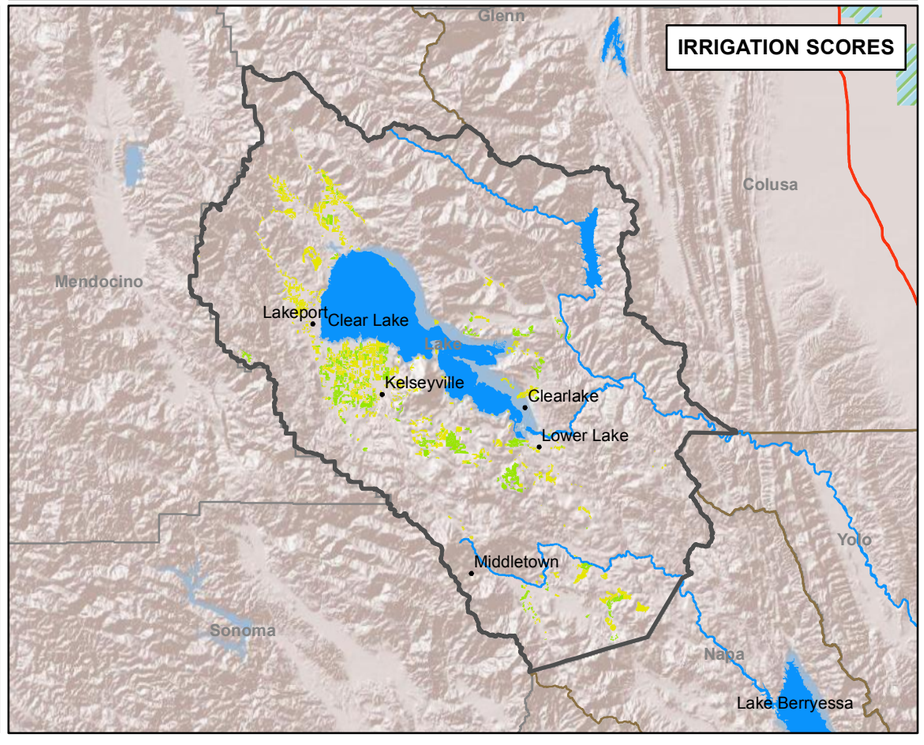
FIGURE 13-4
Section Level NHI Results
Goose Lake Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

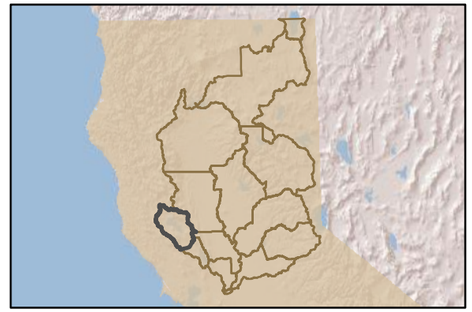








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 5 10

Miles

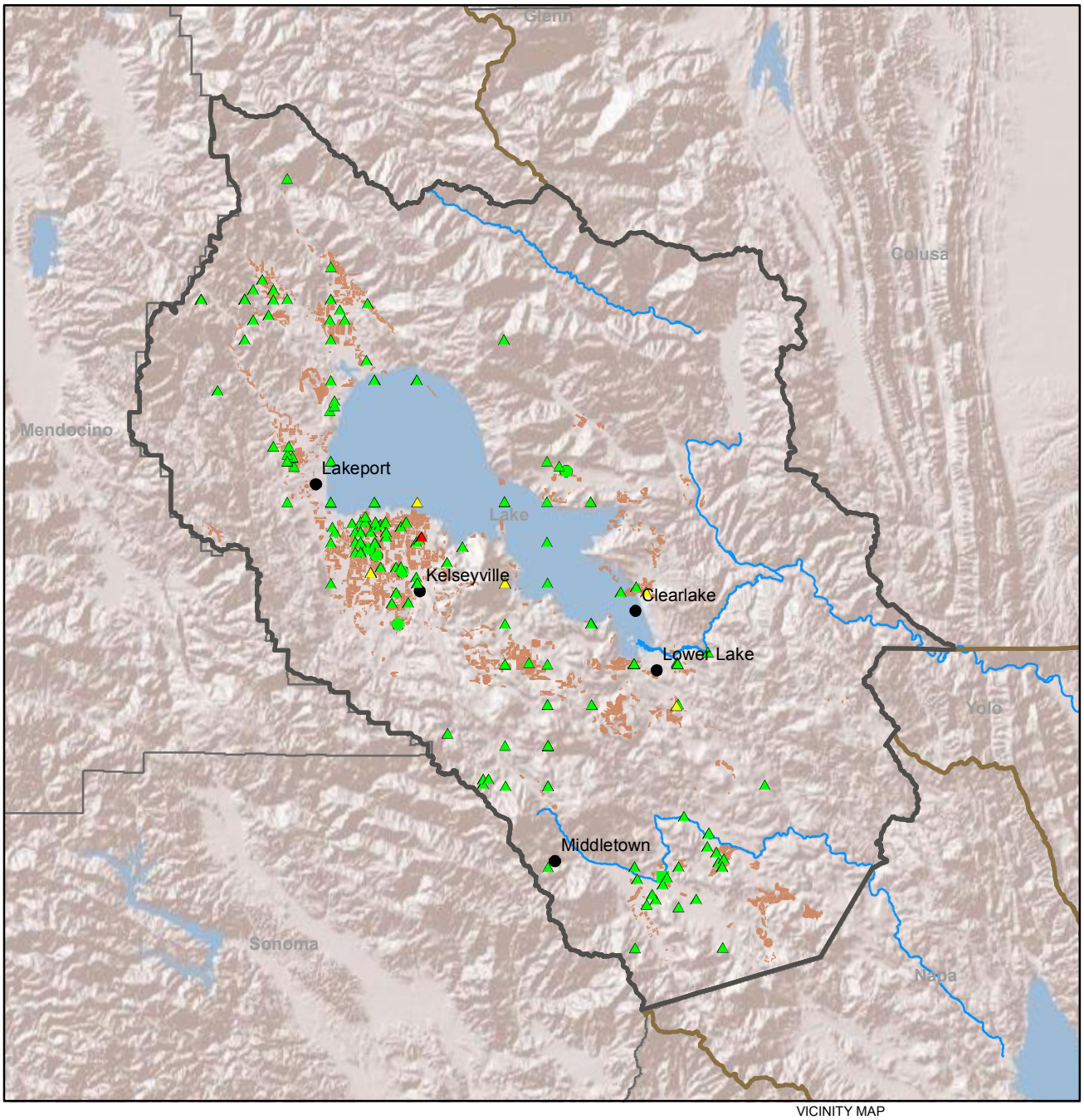
Notes:

1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

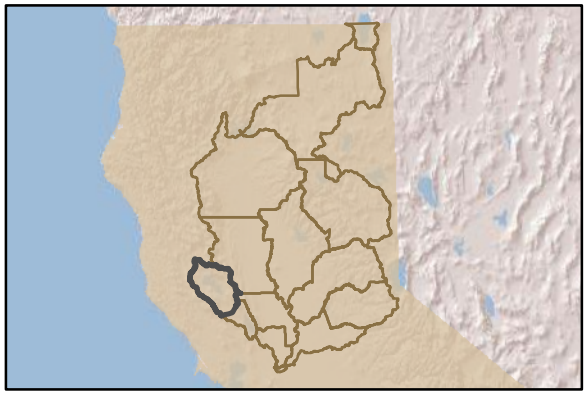
FIGURE 14-1
Field Level NHI Results
Lake Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NHIFIELD.MXD THATCH 6/19/2014



VICINITY MAP



Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

NO3 Concentration(mg/L)

< 22.5
22.5 - 45
> 45

Well Depth (Feet)

unknown
< 250
> 250

N

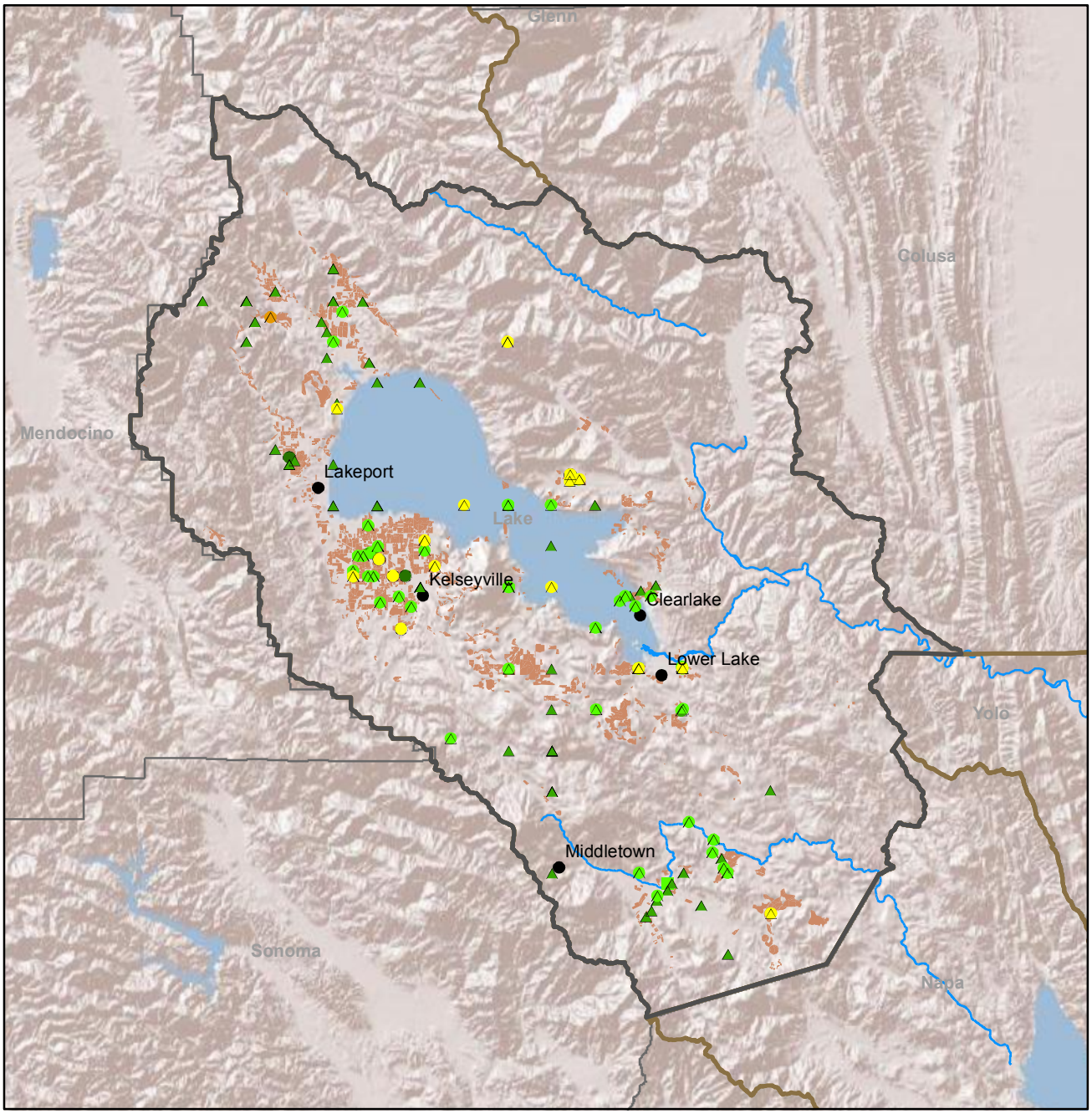
0 3.5 7

Miles

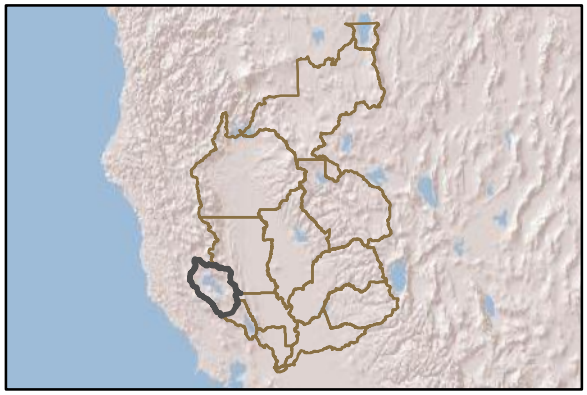
Notes:

FIGURE 14-2
NO3 Sampling Results
Lake Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP



Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

TDS Concentration(mg/L)

< 250
251 - 500
501 - 1000
1001 - 1500
> 1500

Well Depth (Feet)

unknown
< 250
> 250

Notes:

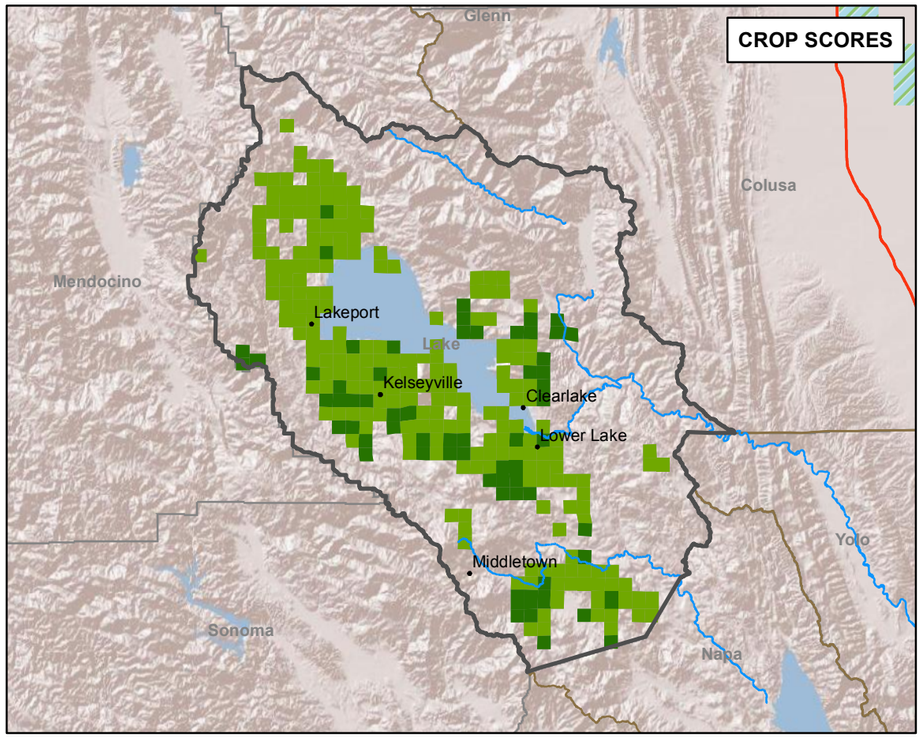
N

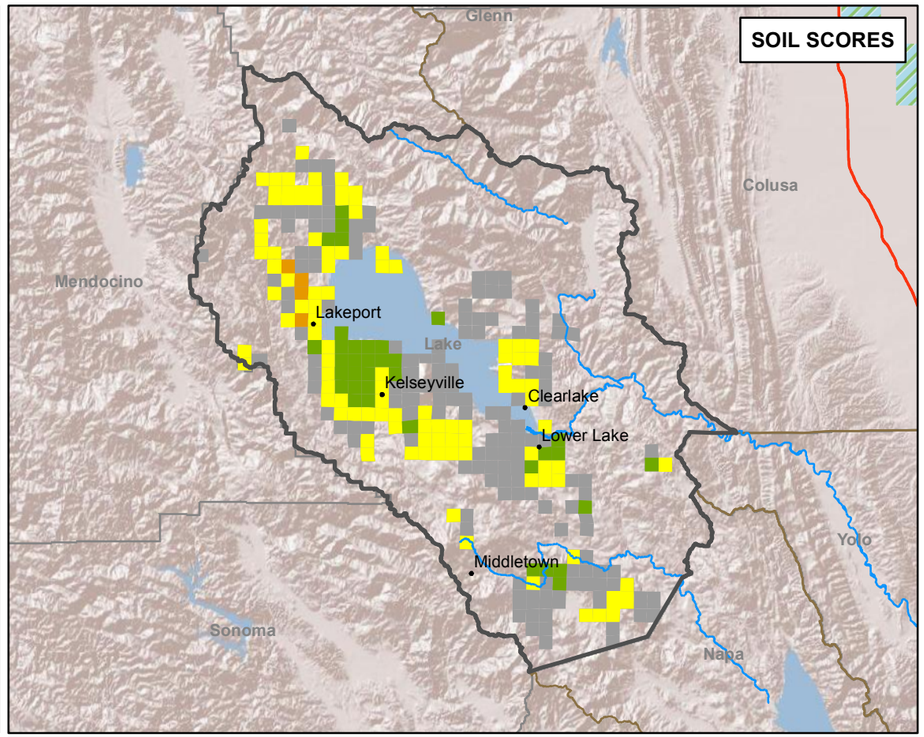
0 3.5 7

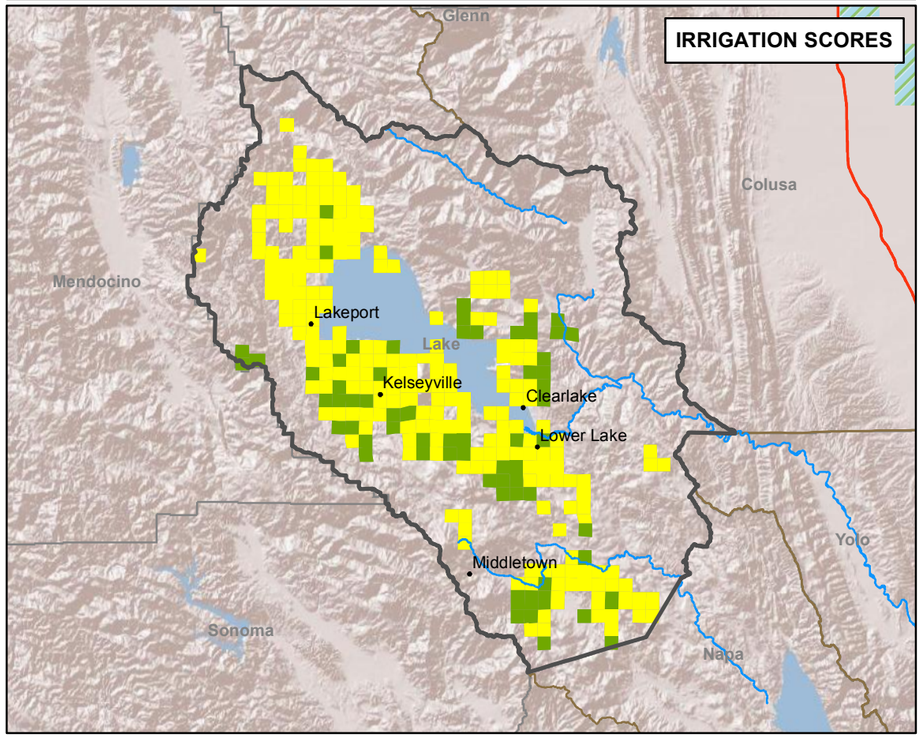
Miles

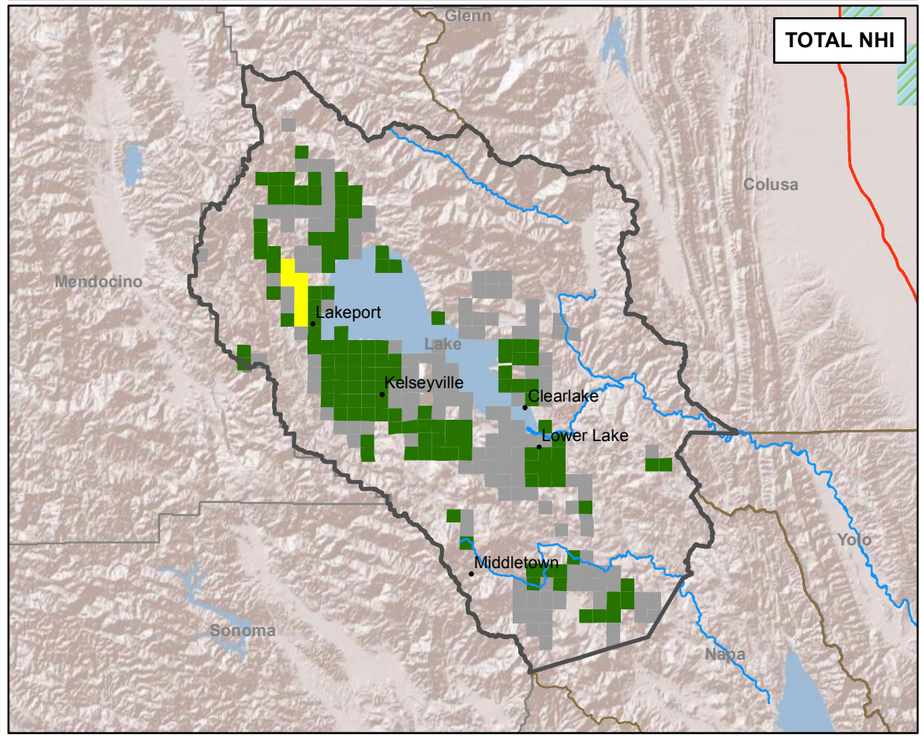
FIGURE 14-3
TDS Sampling Results
Lake Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

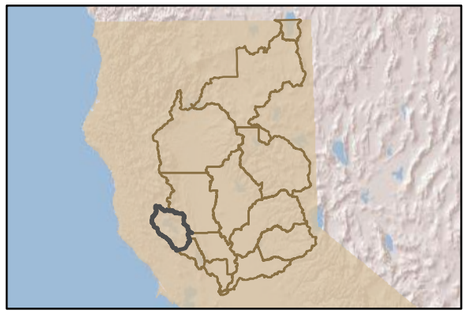








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

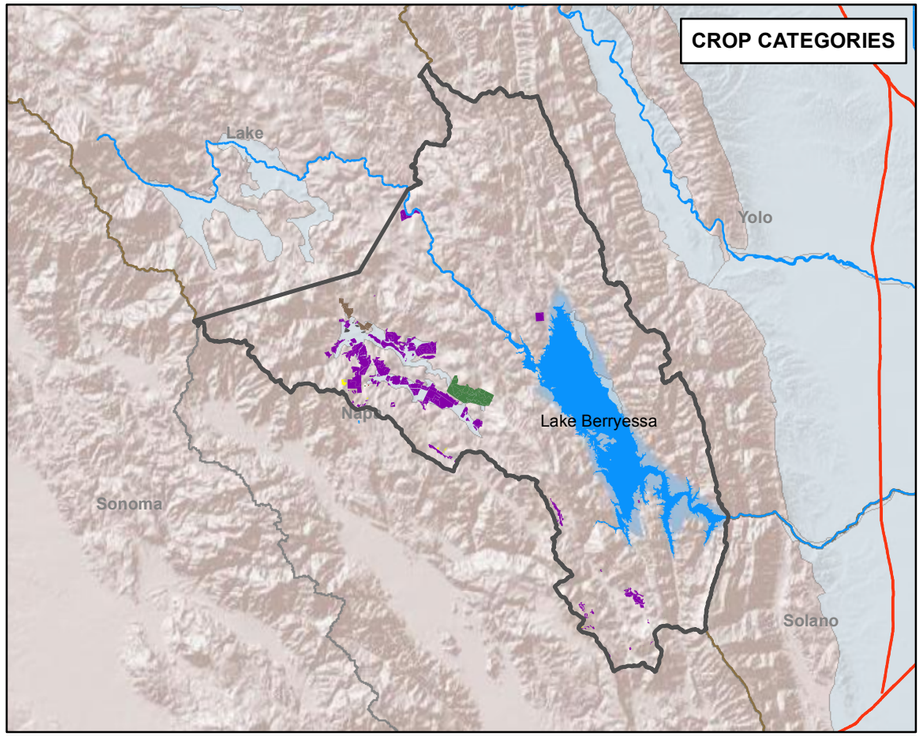
N

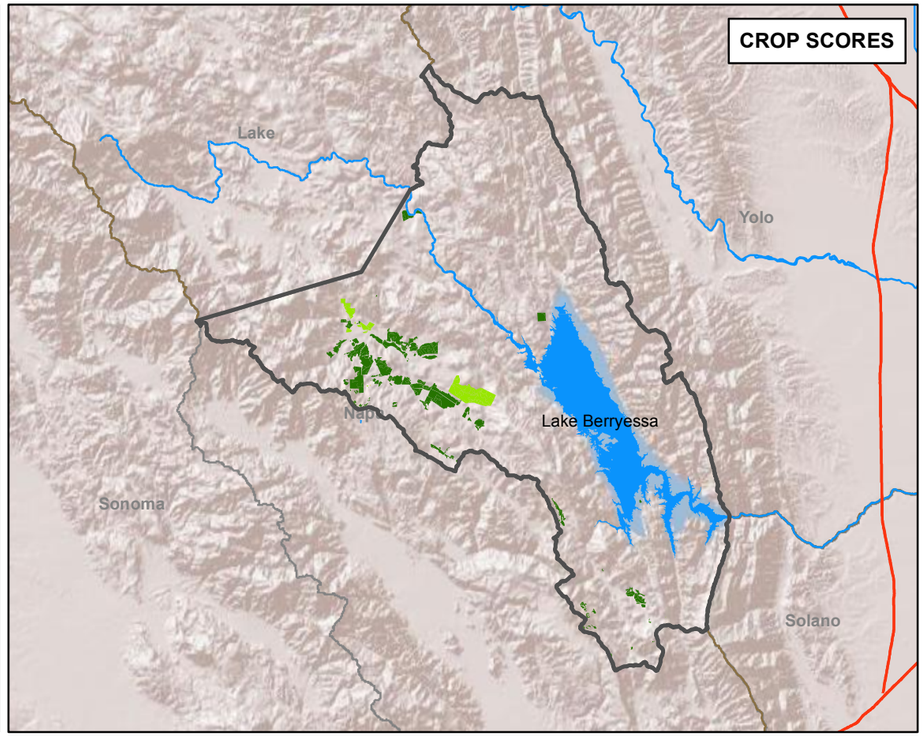
0 5 10
Miles

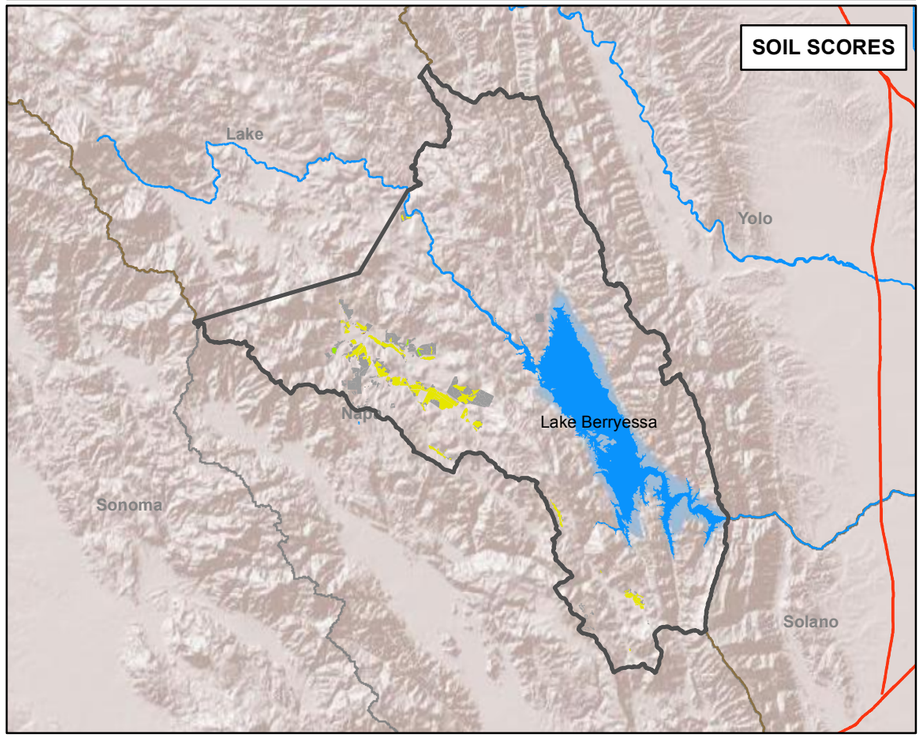
Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

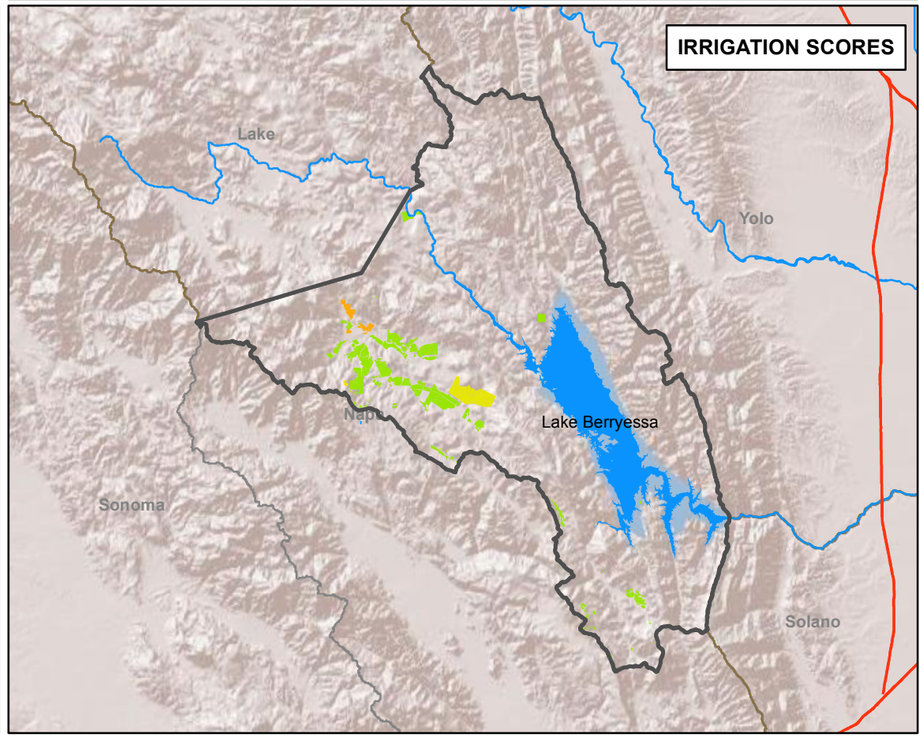
FIGURE 14-4
Section Level NHI Results
Lake Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

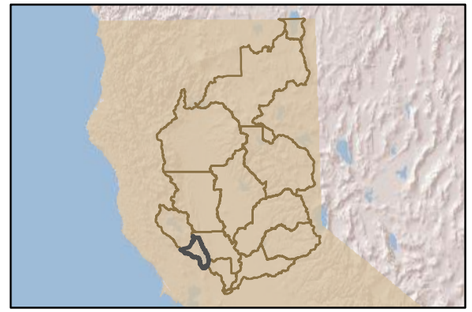








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 3.5 7

Miles

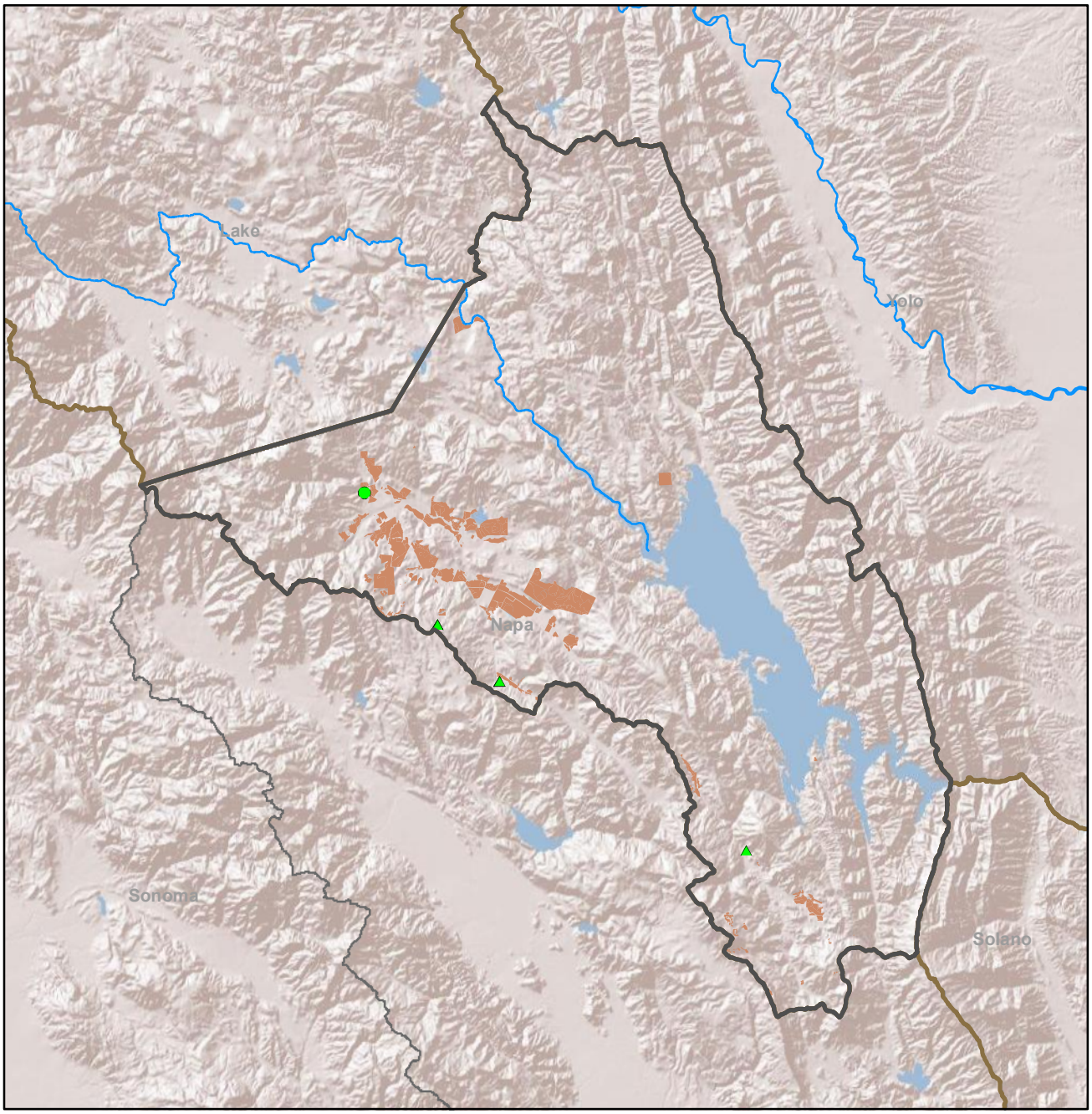
Notes:

1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

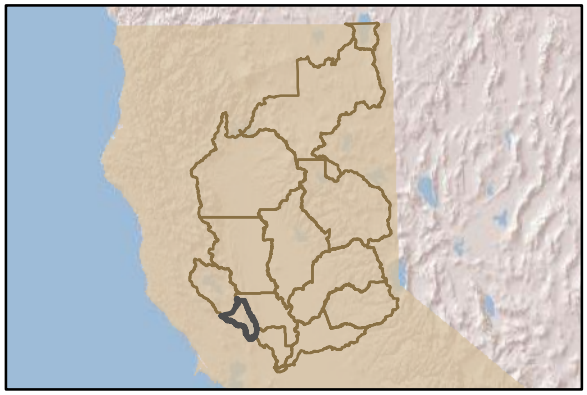
FIGURE 15-1
Field Level NHI Results
Napa Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NHIFIELD.MXD THATCH 6/19/2014



VICINITY MAP



- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

NO3 Concentration(mg/L)

- < 22.5
- 22.5 - 45
- > 45

Well Depth (Feet)

- unknown
- < 250
- > 250

Notes:

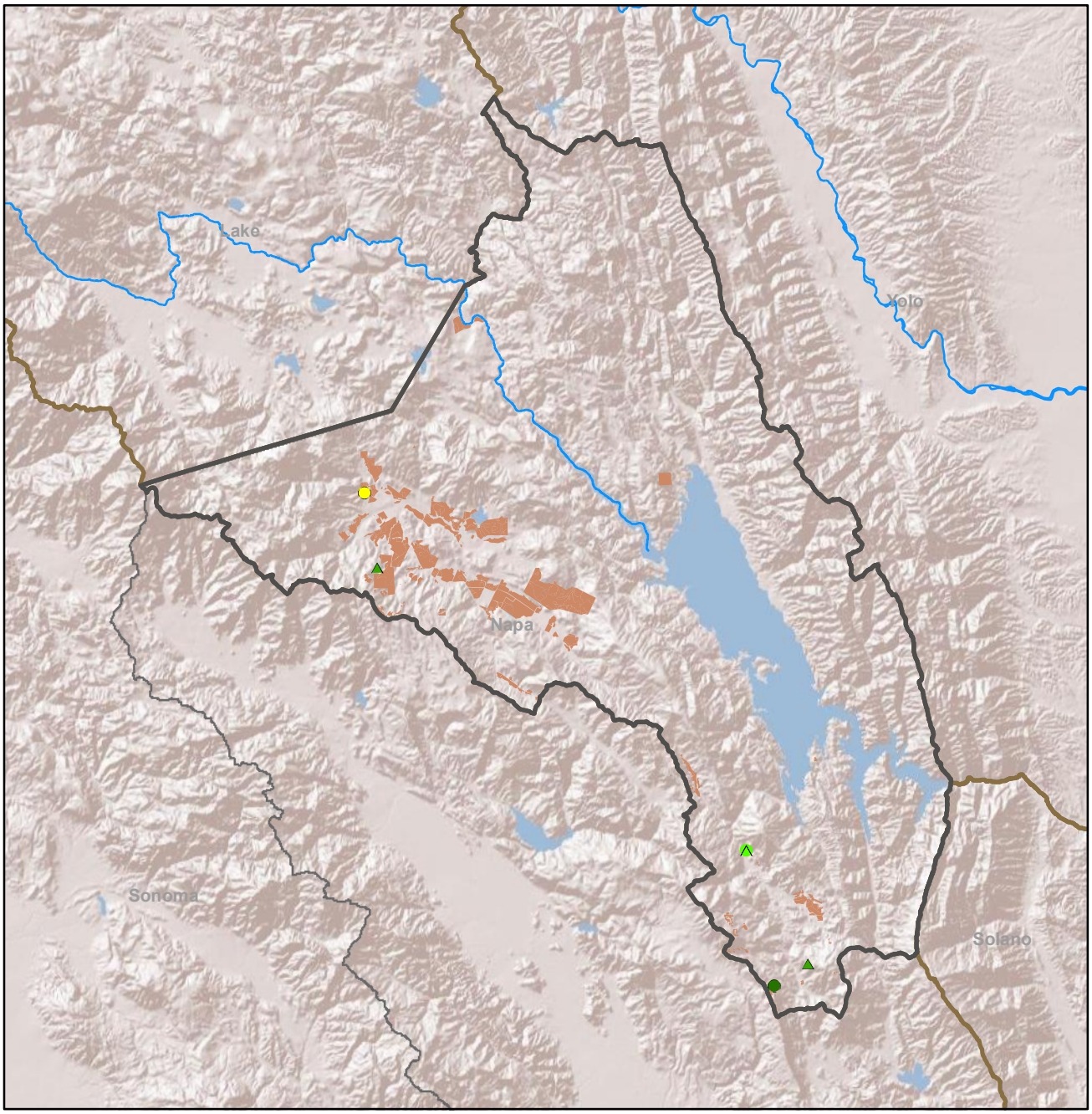
N

0 2.5 5

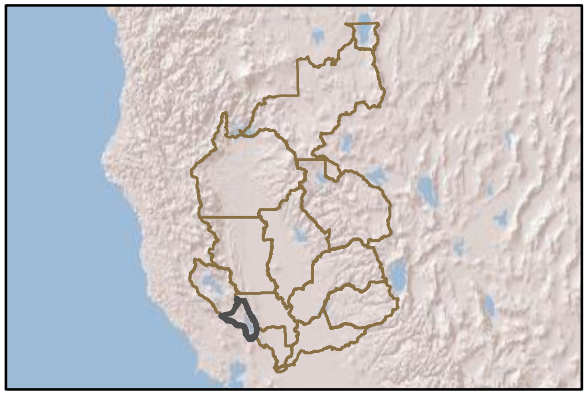
Miles

FIGURE 15-2
NO3 Sampling Results
Napa Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP



Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

TDS Concentration(mg/L)

< 250
251 - 500
501 - 1000
1001 - 1500
> 1500

Well Depth (Feet)

unknown
< 250
> 250

Notes:

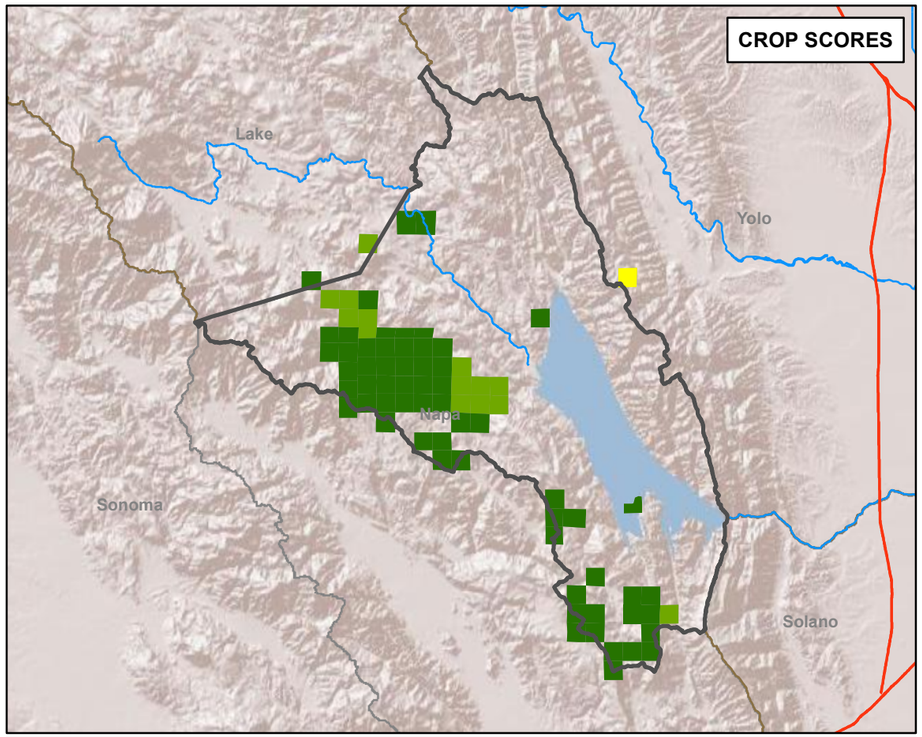
N

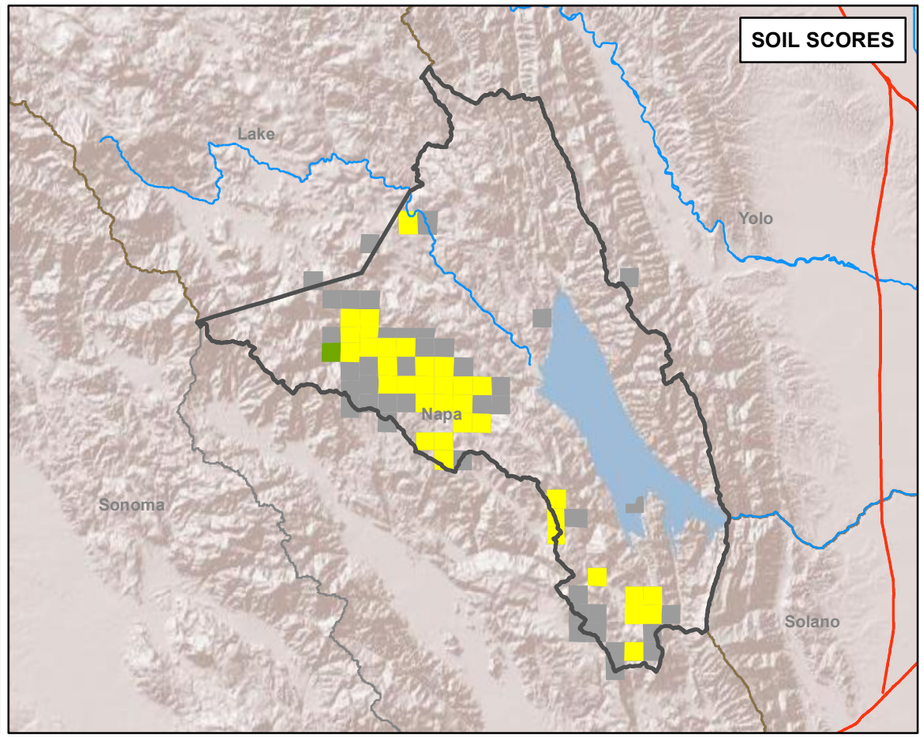
0 2.5 5

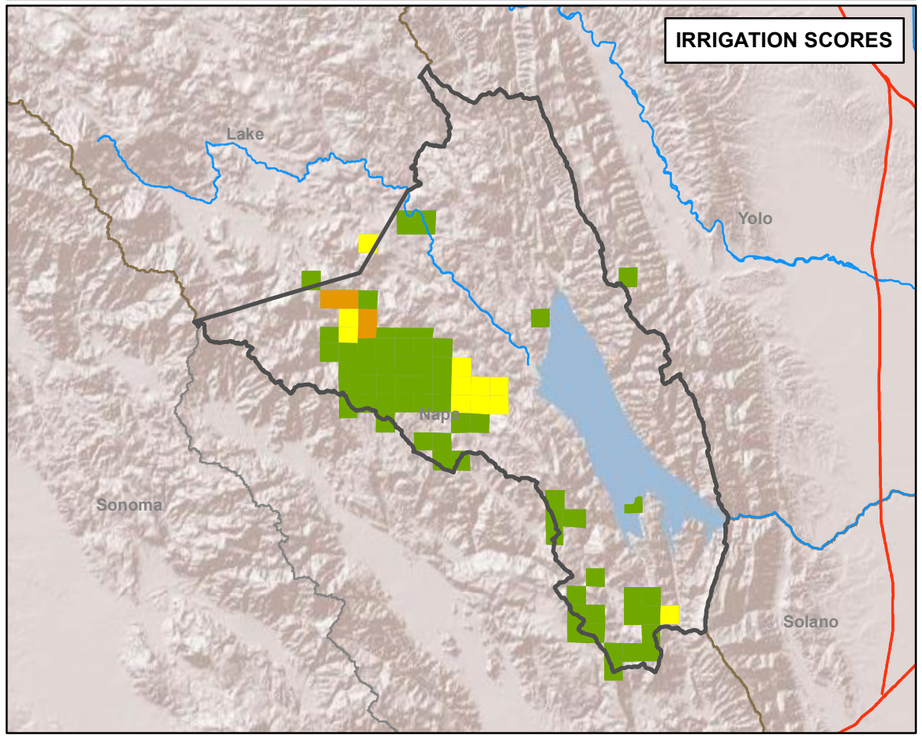
Miles

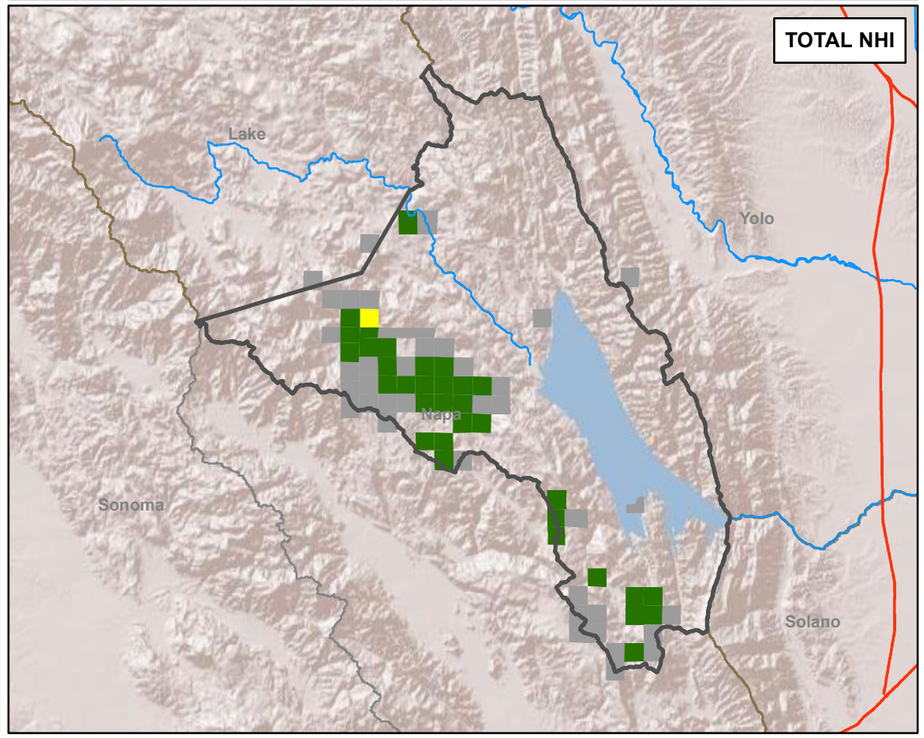
FIGURE 15-3
TDS Sampling Results
Napa Subwatershed
Groundwater Quality Assessment Report

CH2MHILL









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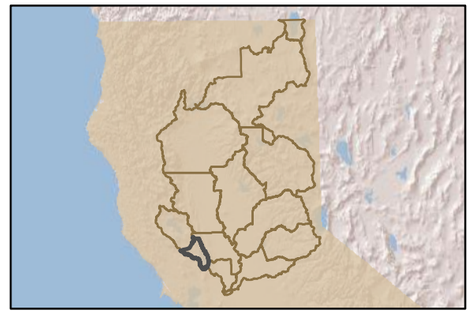


Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

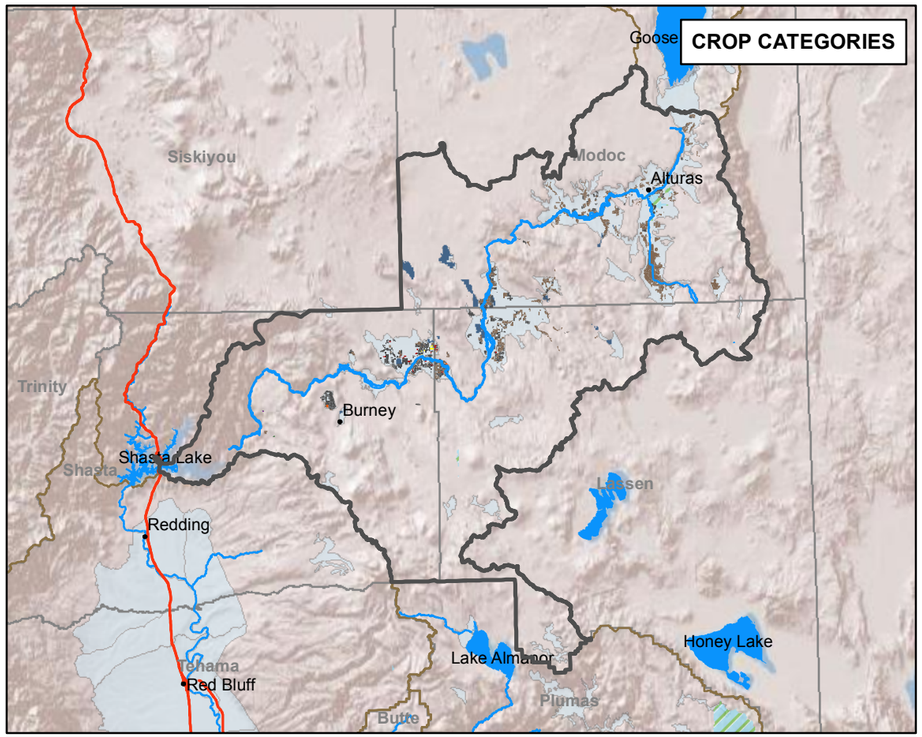
N

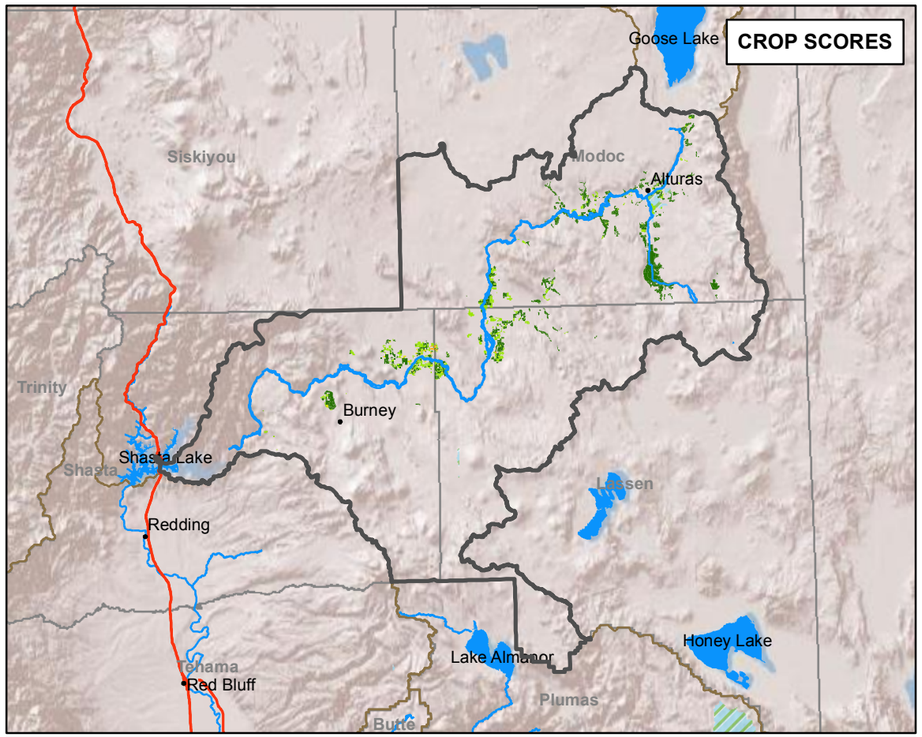
0 3.5 7
Miles

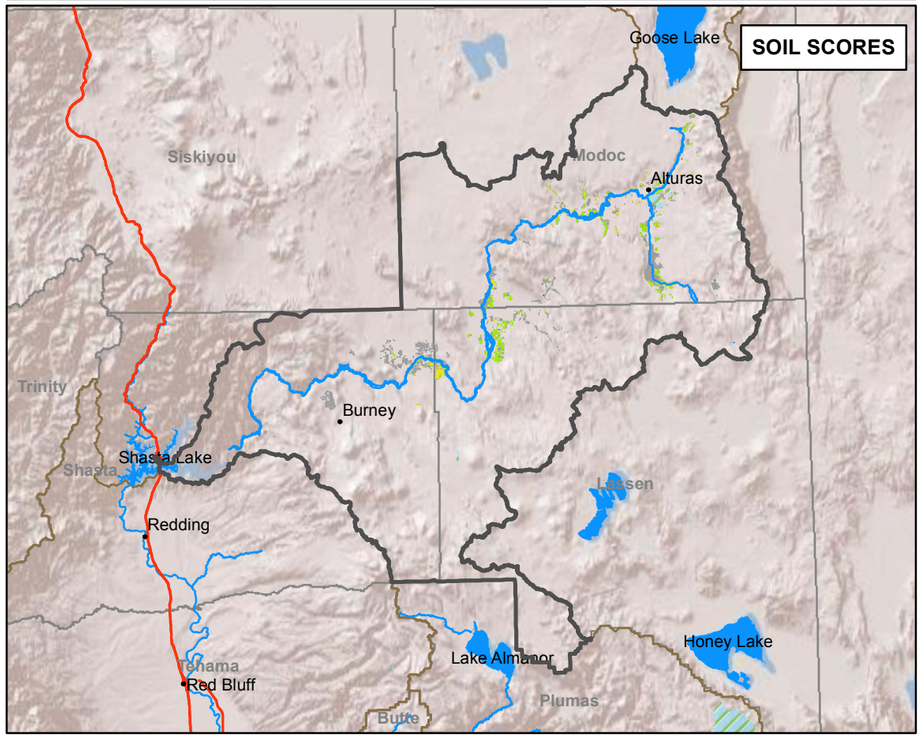
Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

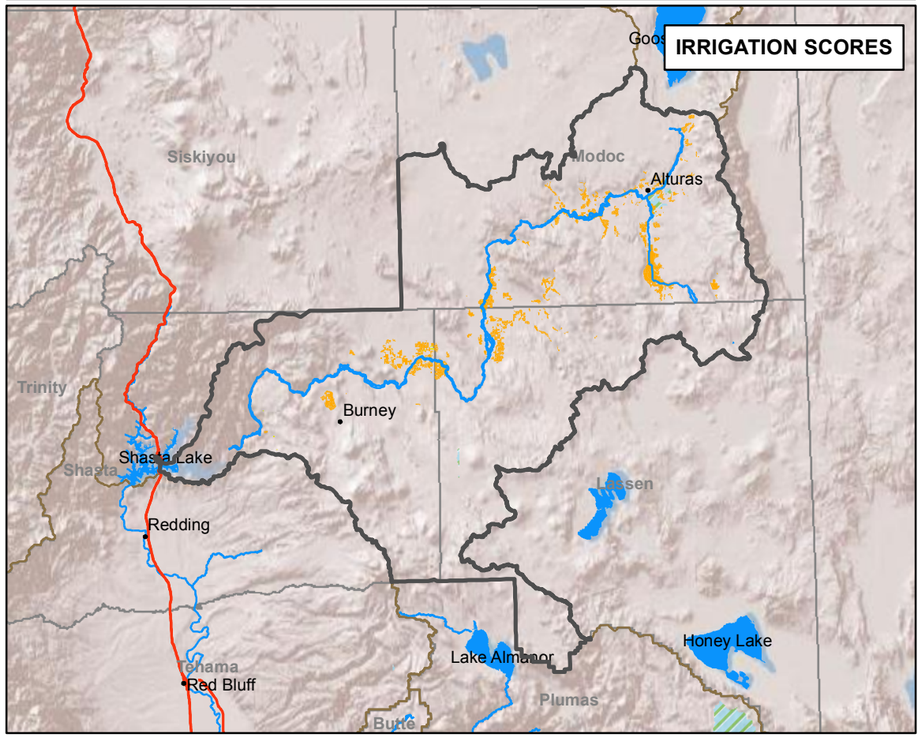
FIGURE 15-4
Section Level NHI Results
Napa Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

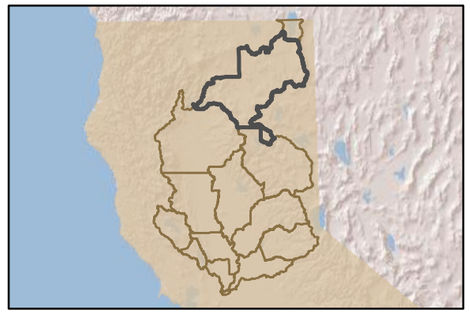








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 10 20

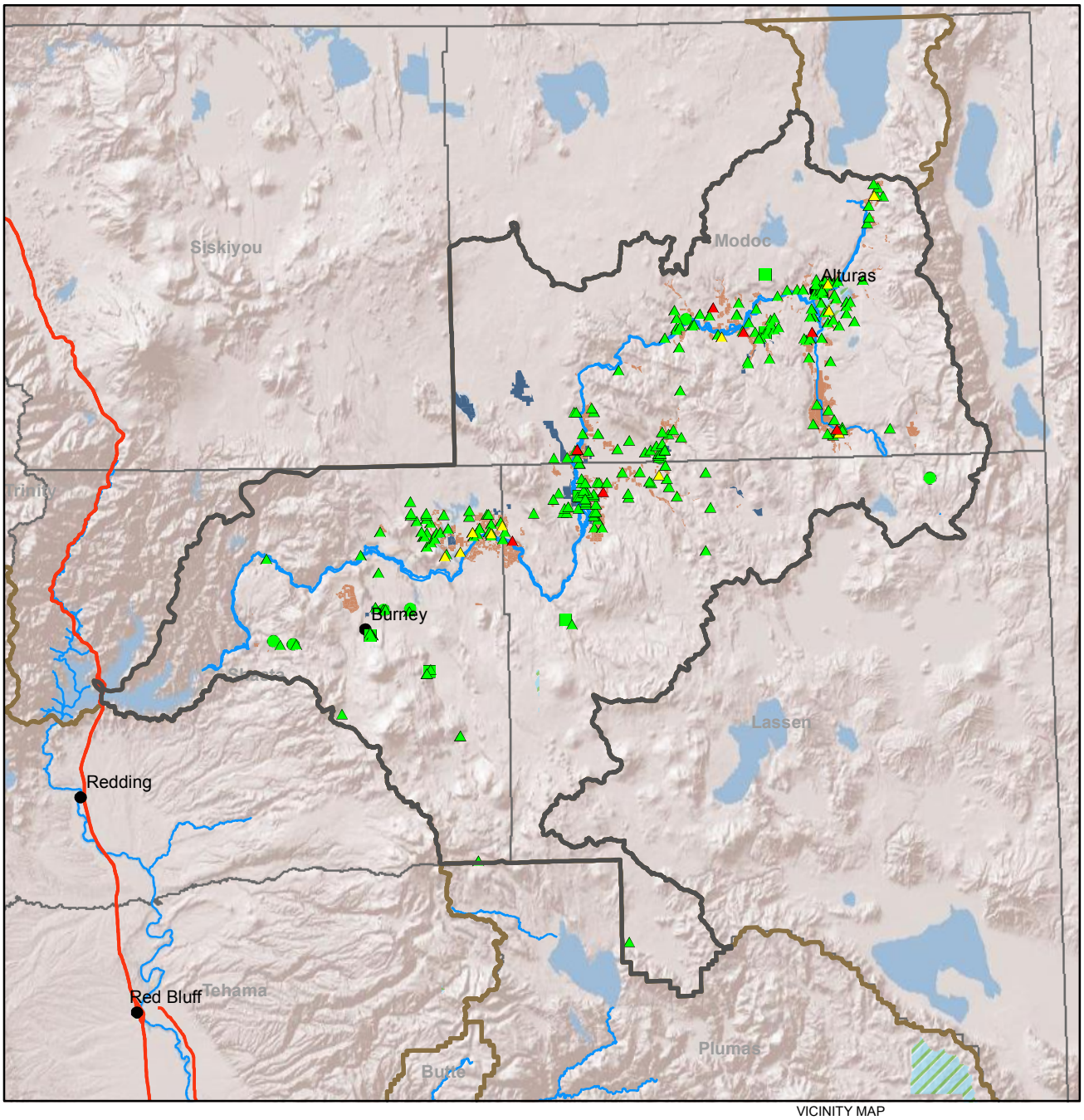
Miles

Notes:

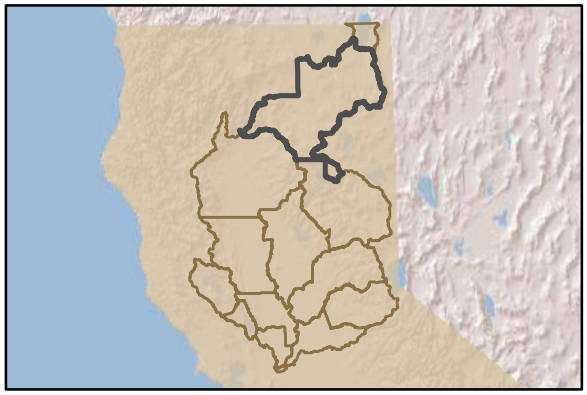
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 16-1
Field Level NHI Results
Pit River Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP



- Cities
- Highways
- Subwatersheds
- Rivers
- Wetlands Easements
- Irrigated Agriculture
- National Wildlife Refuges
- Counties

NO3 Concentration(mg/L)

- < 22.5
- 22.5 - 45
- > 45

Well Depth (Feet)

- unknown
- < 250
- > 250

Notes:

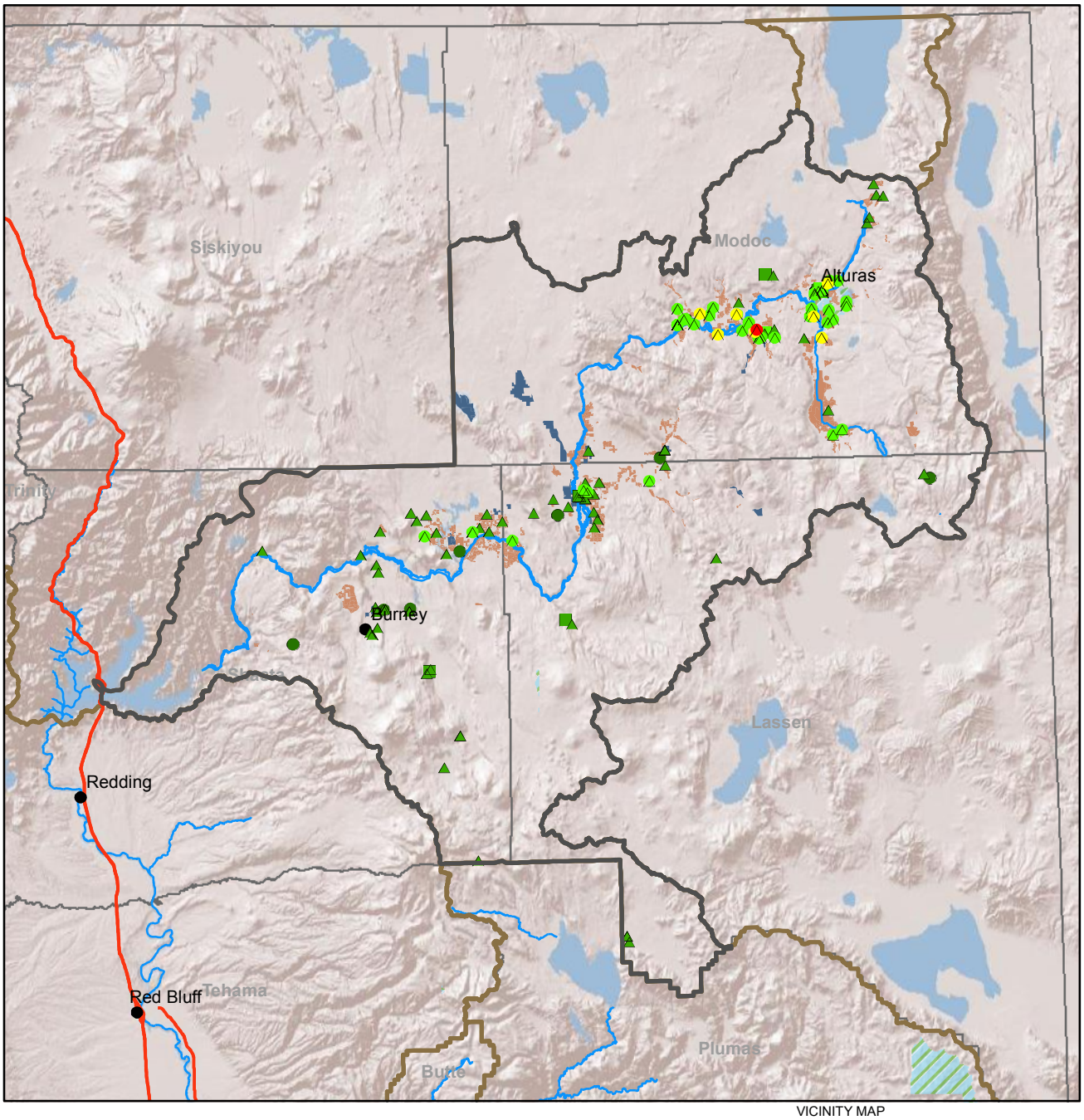
N

0 9.5 19

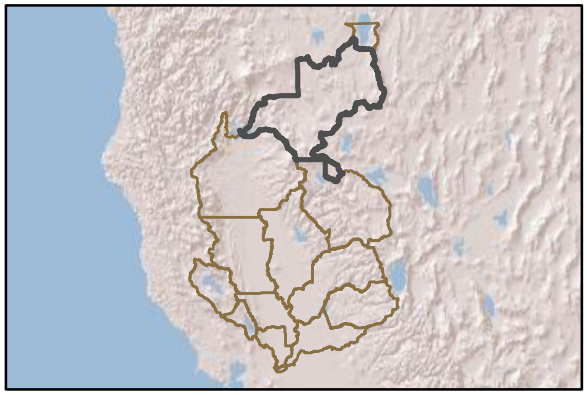
Miles

FIGURE 16-2
NO3 Sampling Results
Pit River Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



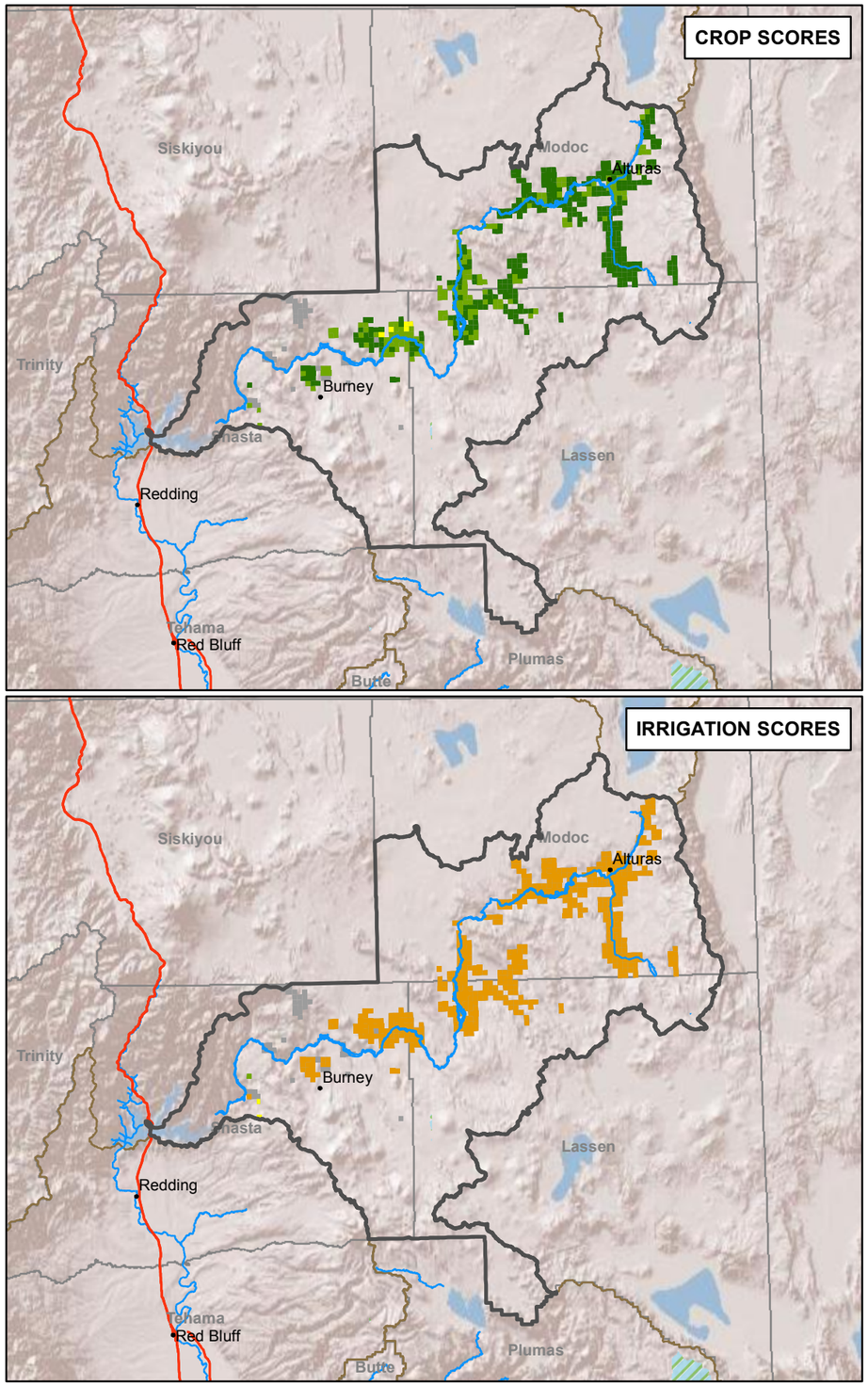
VICINITY MAP

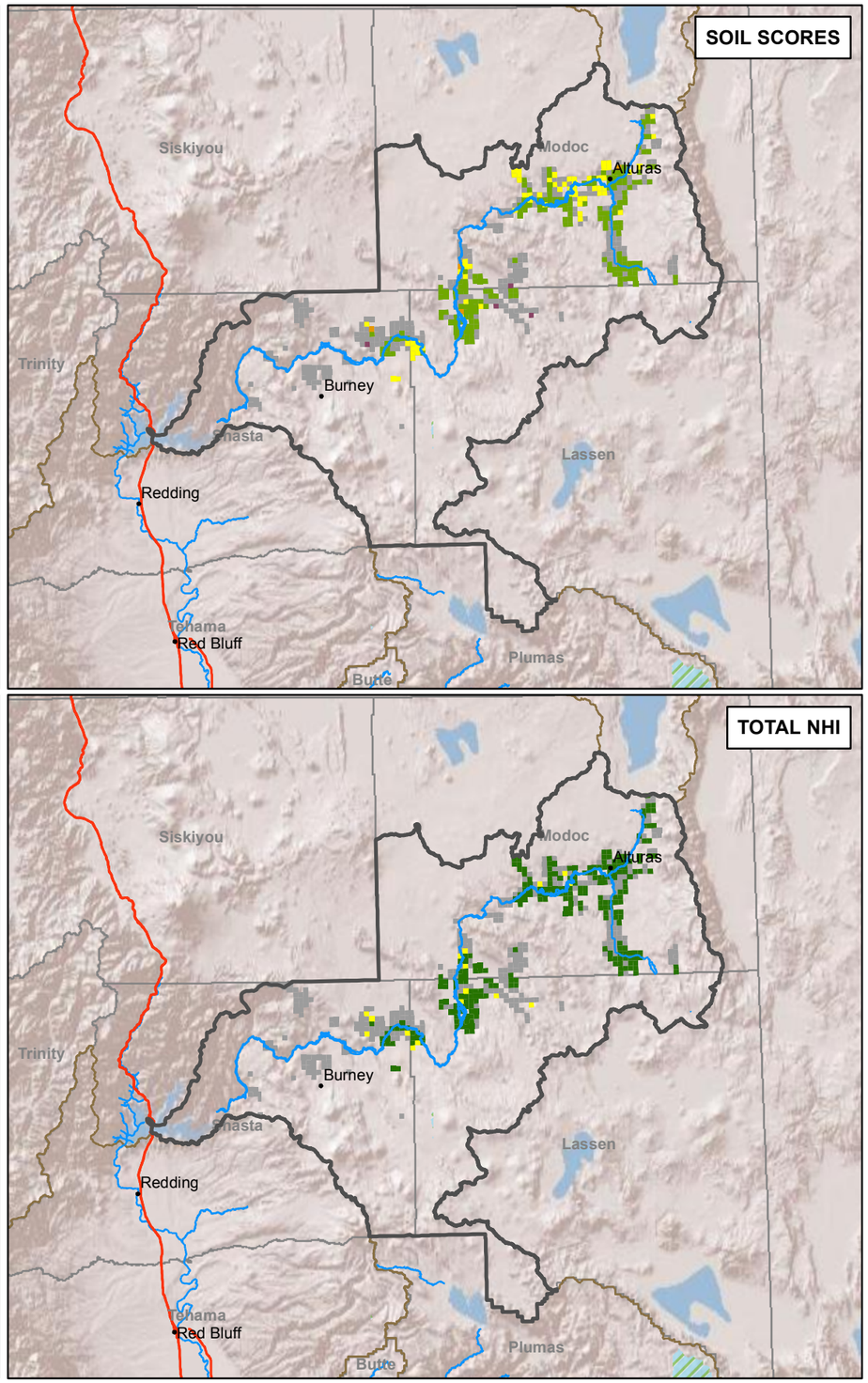


Notes:

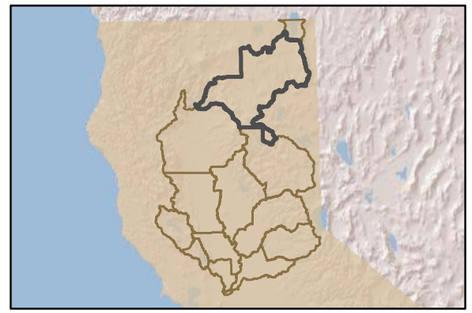
FIGURE 16-3
TDS Sampling Results
Pit River Subwatershed
Groundwater Quality Assessment Report

CH2MHILL





VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

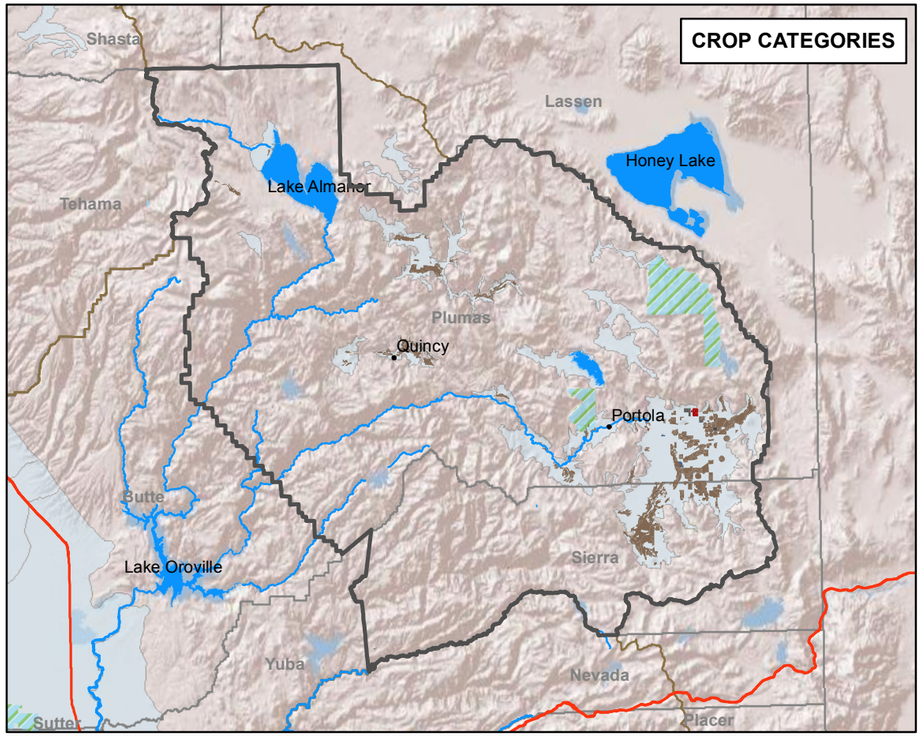
N

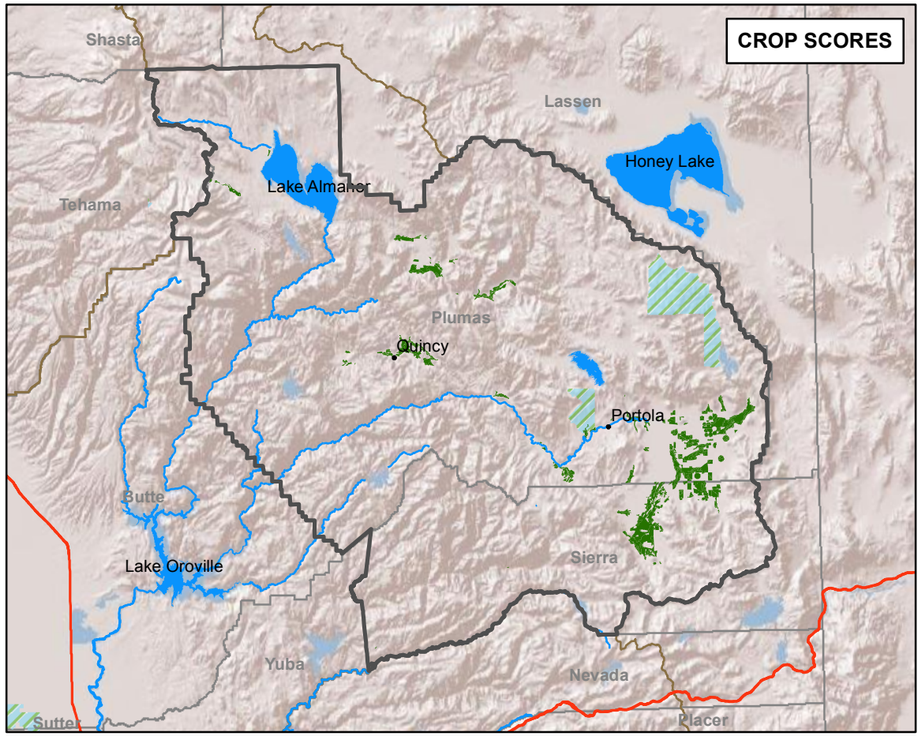
0 10 20
Miles

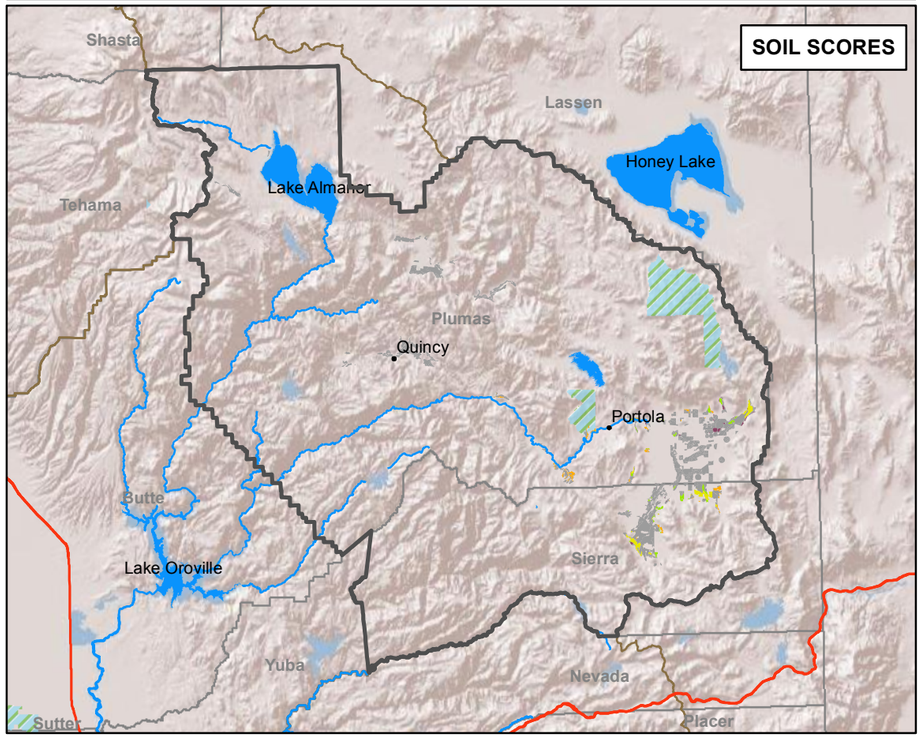
Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

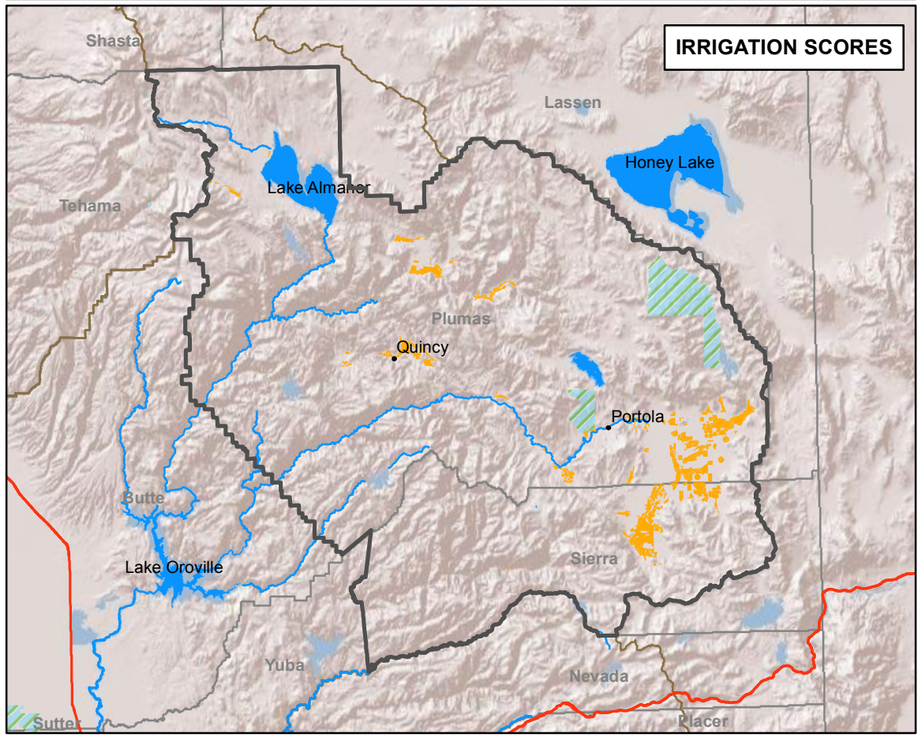
FIGURE 16-4
Section Level NHI Results
Pit River Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

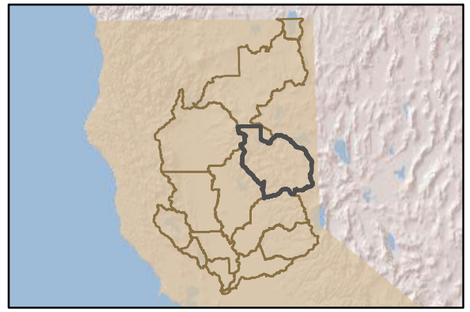








VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- WaterBodies
- Subwatersheds
- National Wildlife Refuges
- Wetland Easements
- Counties
- Groundwater Basins

Crop Categories

- Annual Fruit, Vegetables & Seeds
- Citrus, Olives & Ornamental
- Deciduous Fruits & Nuts
- Fields
- Grains & Hay
- Pastures
- Vineyards

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

N

0 8.5 17

Miles

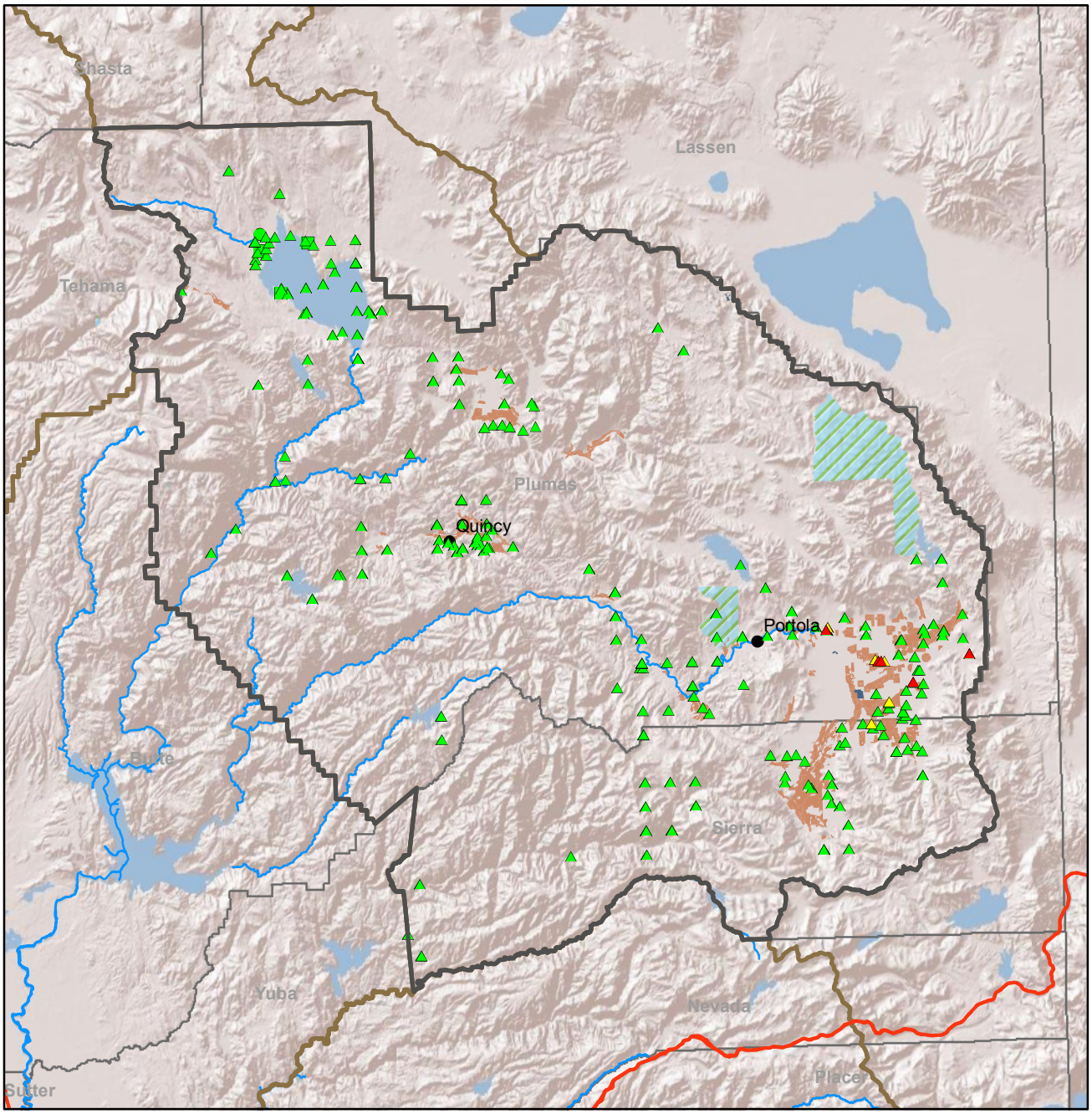
Notes:

1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

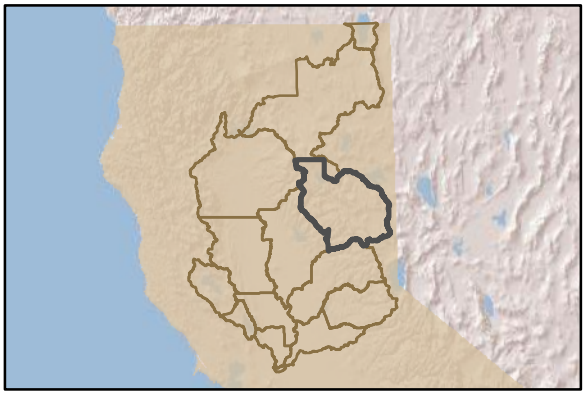
FIGURE 17-1
Field Level NHI Results
Upper Feather River Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NHIFIELD.MXD THATCH 6/19/2014



VICINITY MAP



Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

NO3 Concentration(mg/L)

< 22.5
22.5 - 45
> 45

Well Depth (Feet)

unknown
< 250
> 250

Notes:

N

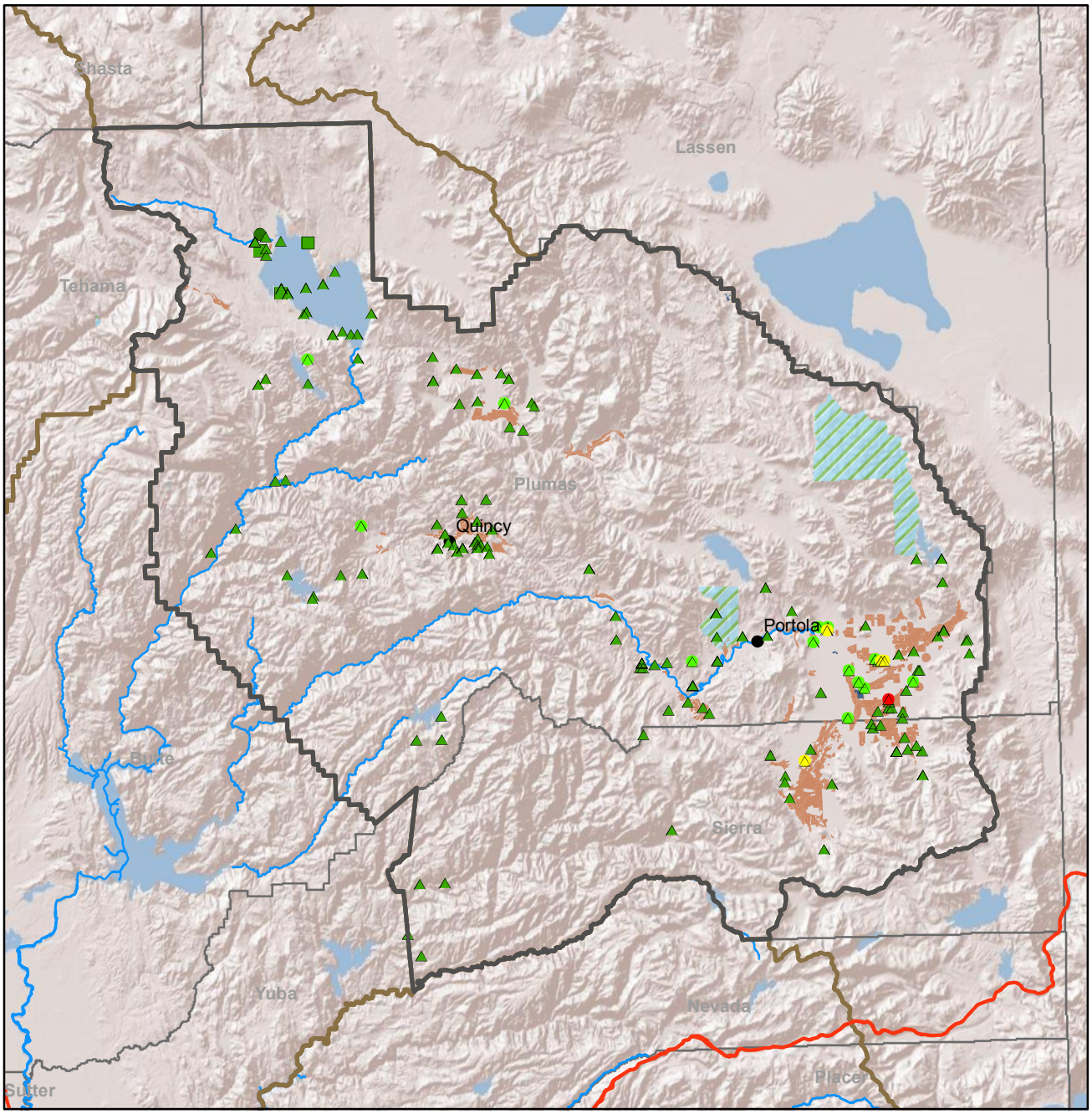
0 6 12

Miles

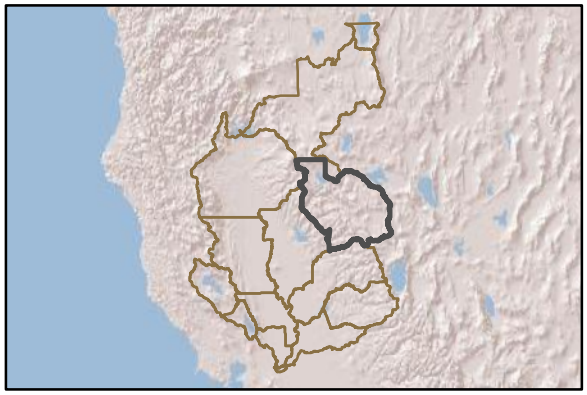
FIGURE 17-2
NO3 Sampling Results
Upper Feather River Subwatershed
Groundwater Quality Assessment Report

CH2MHILL

UNK \\YOSEMITE\GROUPS\WBG\PORTA_L\NCWA\GIS\MAPS\MAPMASTER_AUTOMATIONS\SW_NO3.MXD THATCH 5/14/2014



VICINITY MAP



Cities
Highways
Subwatersheds
Rivers
Wetlands Easements
Irrigated Agriculture
National Wildlife Refuges
Counties

TDS Concentration(mg/L)

< 250
251 - 500
501 - 1000
1001 - 1500
> 1500

Well Depth (Feet)

unknown
< 250
> 250

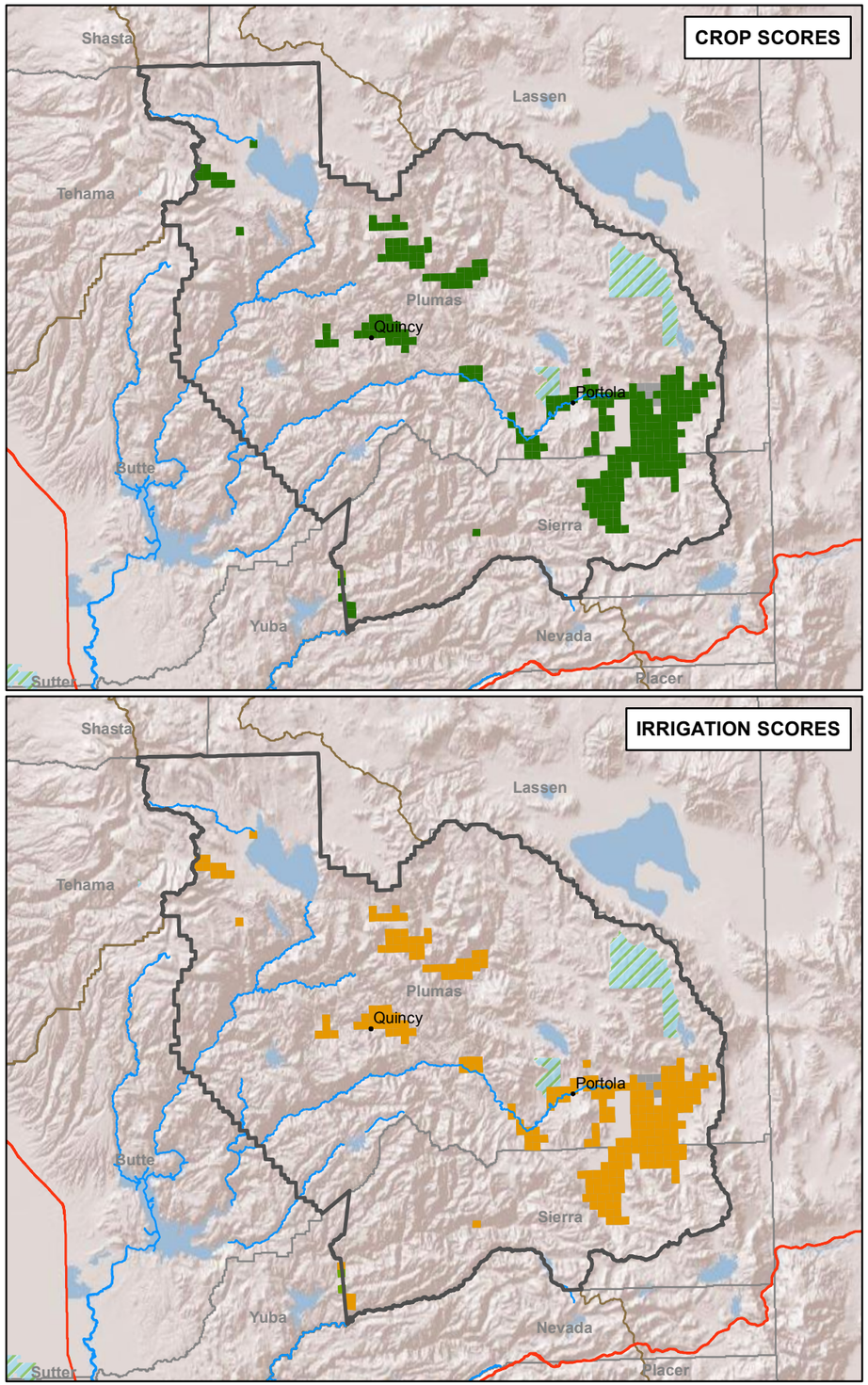
Notes:

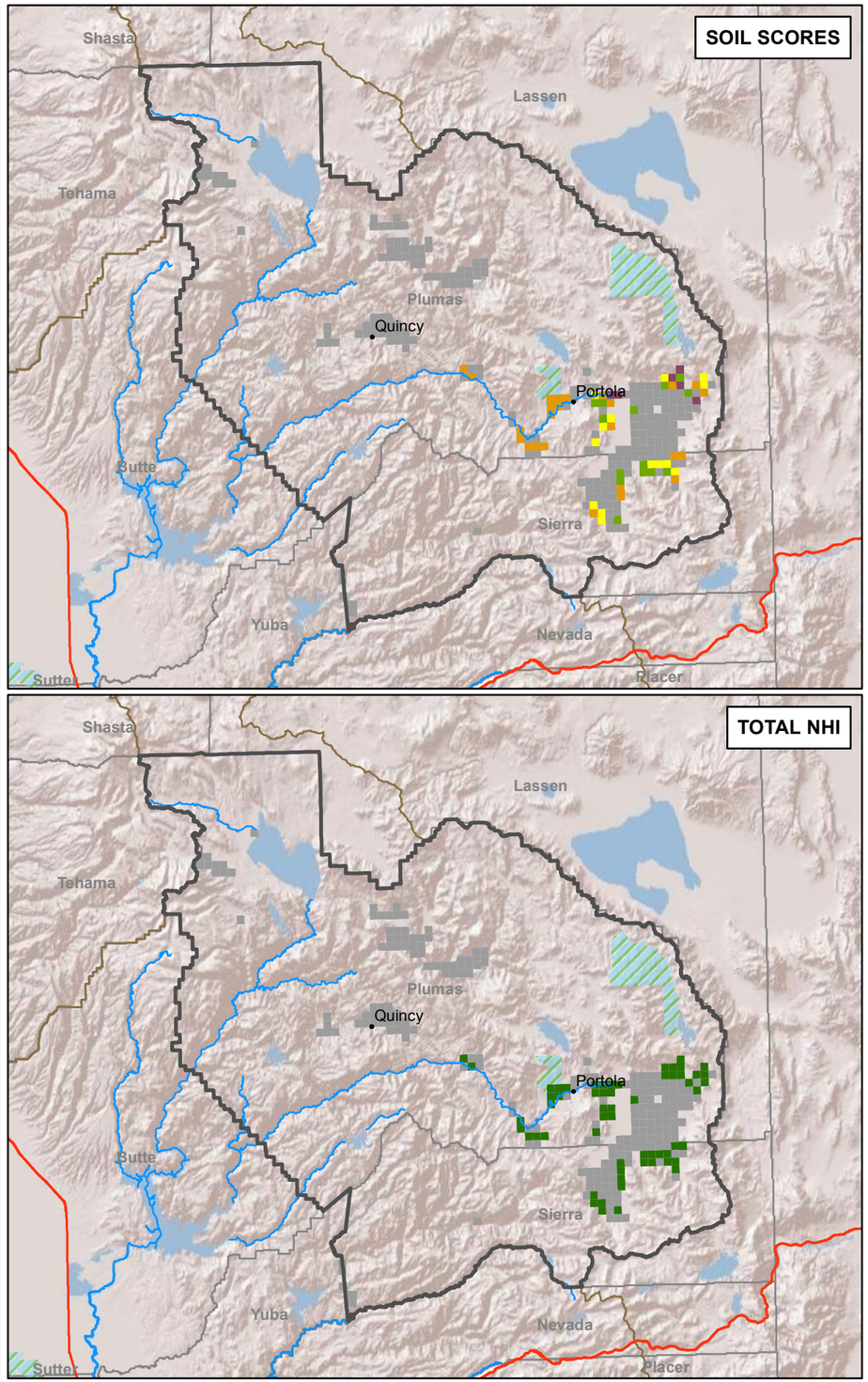
N

0 6 12
Miles

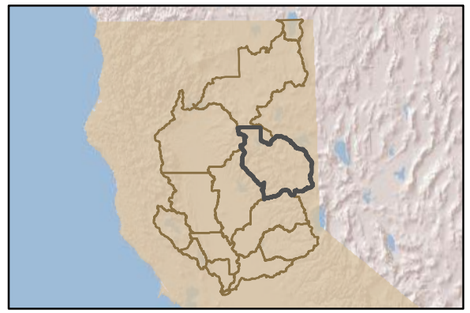
FIGURE 17-3
TDS Sampling Results
Upper Feather River Subwatershed
Groundwater Quality Assessment Report

CH2MHILL





VICINITY MAP



Legend

- Cities
- Highways
- Rivers
- Subwatersheds
- National Wildlife Refuges
- Counties

NHI Scores

- 1
- 2
- 3
- 4
- 5
- unclassified

Total NHI Score

- < 20
- 20 - 50
- > 50
- unclassified

N

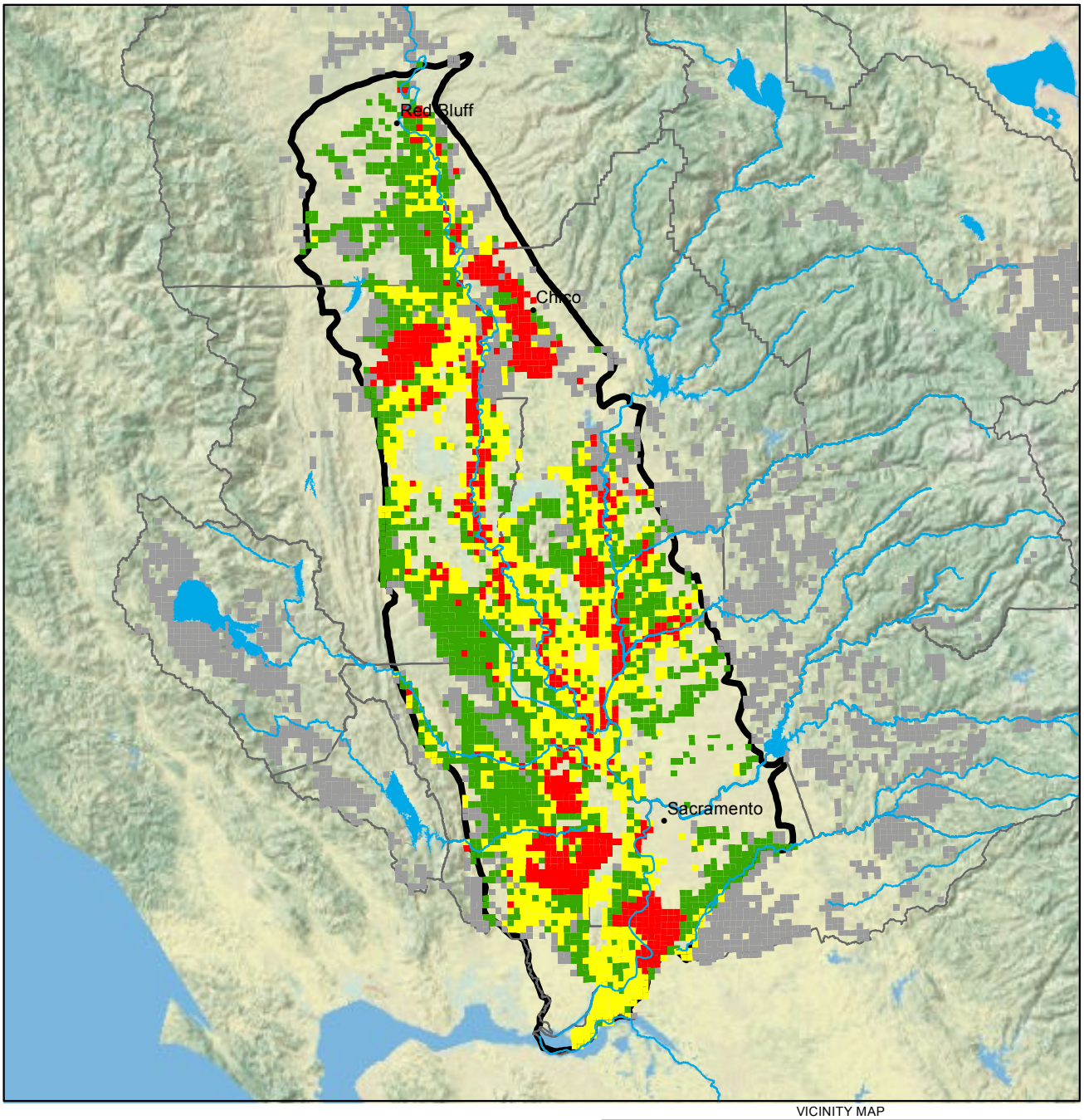
0 8.5 17

Miles

Notes:
1. Crop NHI values range from 1 to 4
2. Irrigation NHI values range from 2 to 4
3. Soil NHI values range from 1 to 5

FIGURE 17-4
Section Level NHI Results
Upper Feather River Subwatershed
Groundwater Quality Assessment Report

CH2MHILL



VICINITY MAP

LEGEND

- Cities
- Rivers
- Waterbodies
- Subwatersheds
- SACFEM Boundary

Vulnerability

- High
- Moderate
- Low
- data gap or outside SVGB boundary

Notes:
SVGB refers to the Sacramento Valley Groundwater Basin

N

0 5 10 20
Miles

FIGURE 18-1
Sacramento Valley Floor Vulnerability Designation
Groundwater Quality Assessment Report