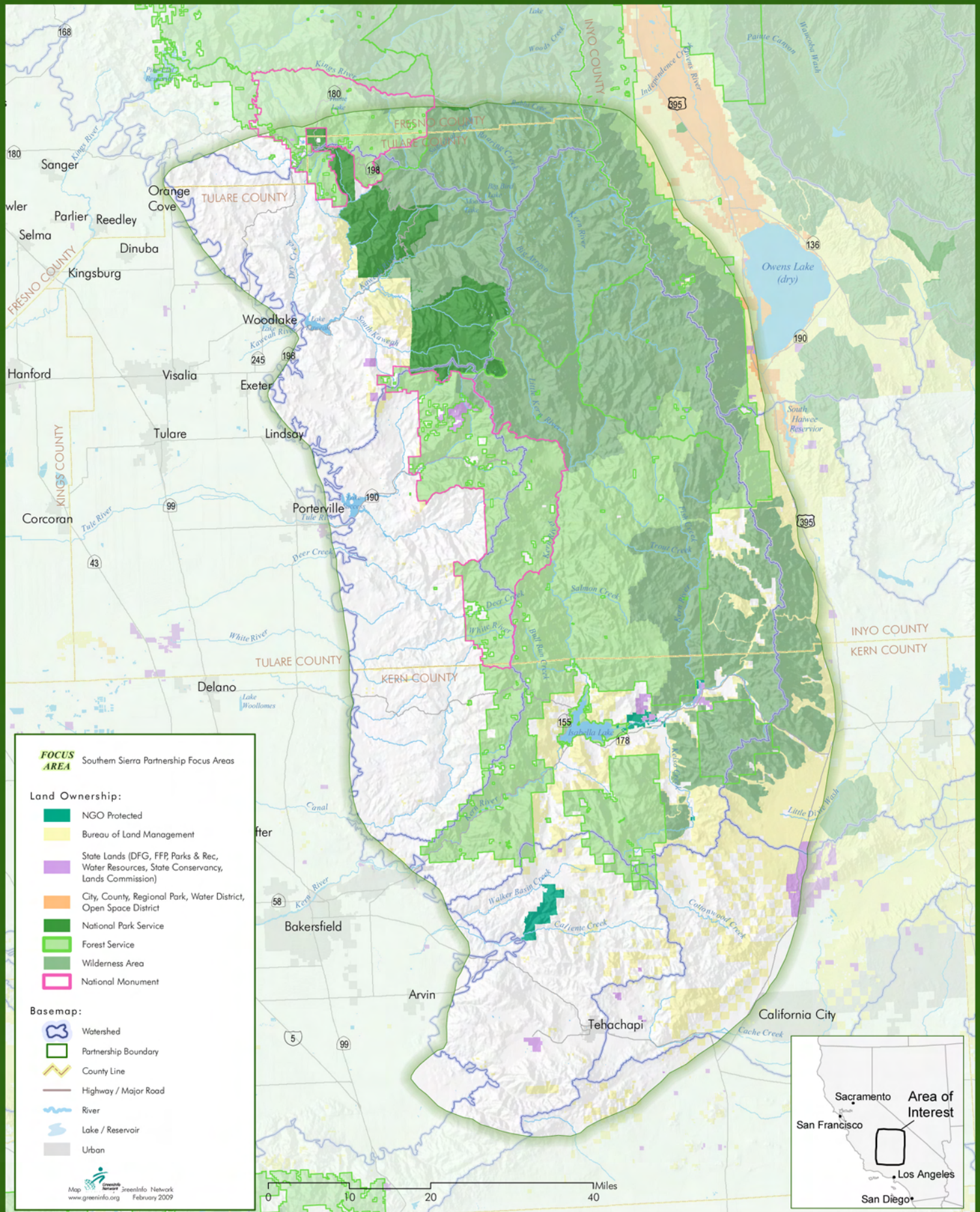


CONFIDENTIAL

SOUTHERN SIERRA PARTNERSHIP



conservation action planning handbook



TNC 2007

Developing strategies, taking actions and measuring success at any scale

Southern Sierra Partnership – Conservation Planning Outcomes

Regional analyses

- status of conservation targets
- threats analysis – especially climate change
- identify priority conservation sites

Conservation Action Plans for two sites

- southern Sierra Nevada
- portion of Tehachapi Range

White paper – how we addressed climate change in conservation planning

Priority conservation strategies

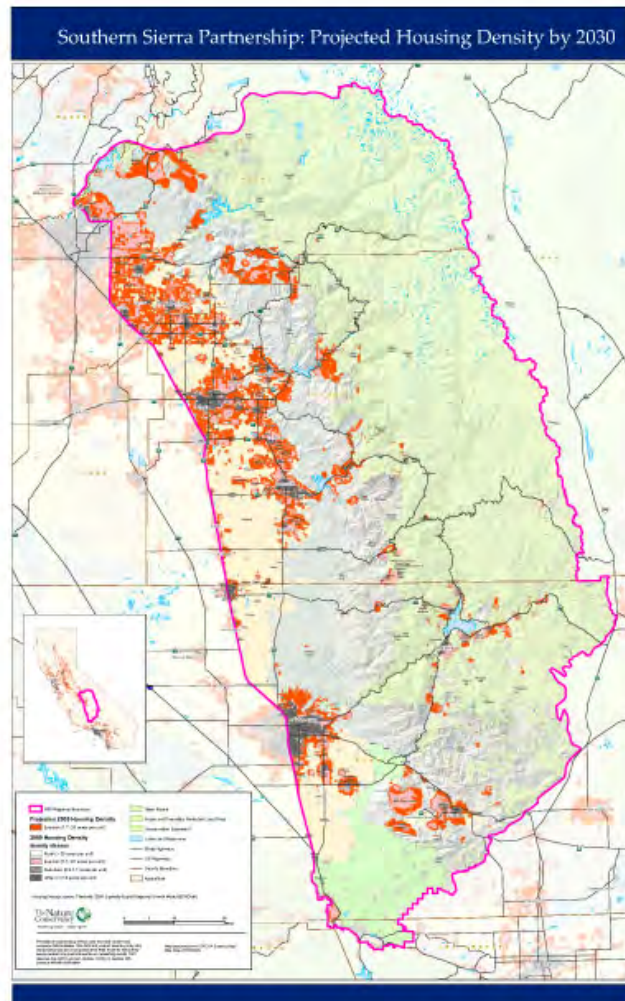
- for the region and tailored to conservation action planning area
- land or conservation easement acquisition
- restoration and management
- policy initiatives
- land use planning input
- mobilization of funding and other resources for conservation



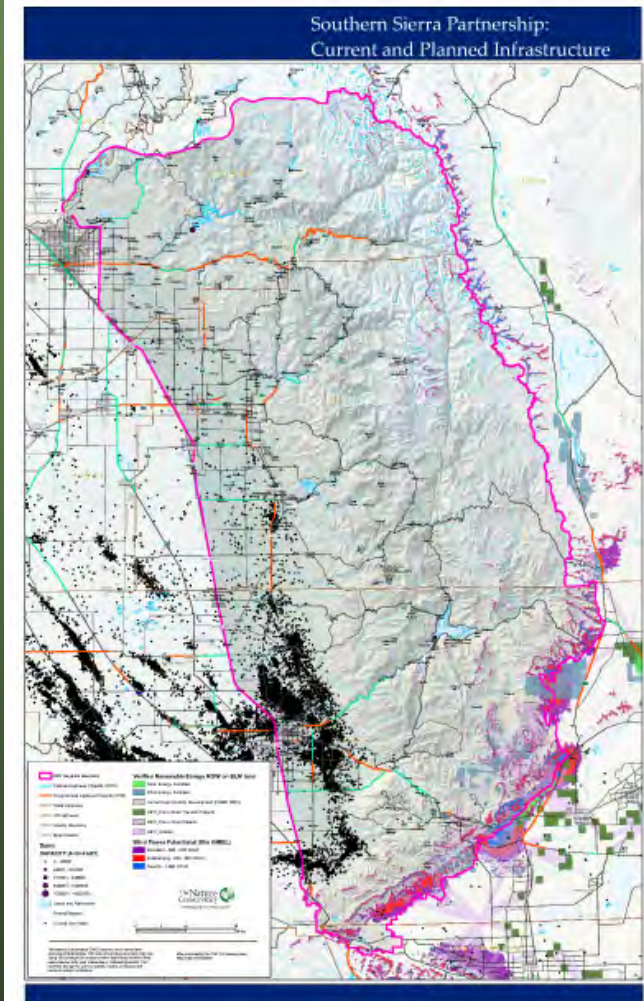
Goal of Regional Analyses

- Provide context for more local priority-setting
- Assess broader distribution of targets and threats
- Consistently characterize response of targets to climate change at a relevant scale
- Represent ecosystem service values and dynamics
- Identify priority conservation areas

What is the projected **future distribution of other threats** that will affect options and viability?



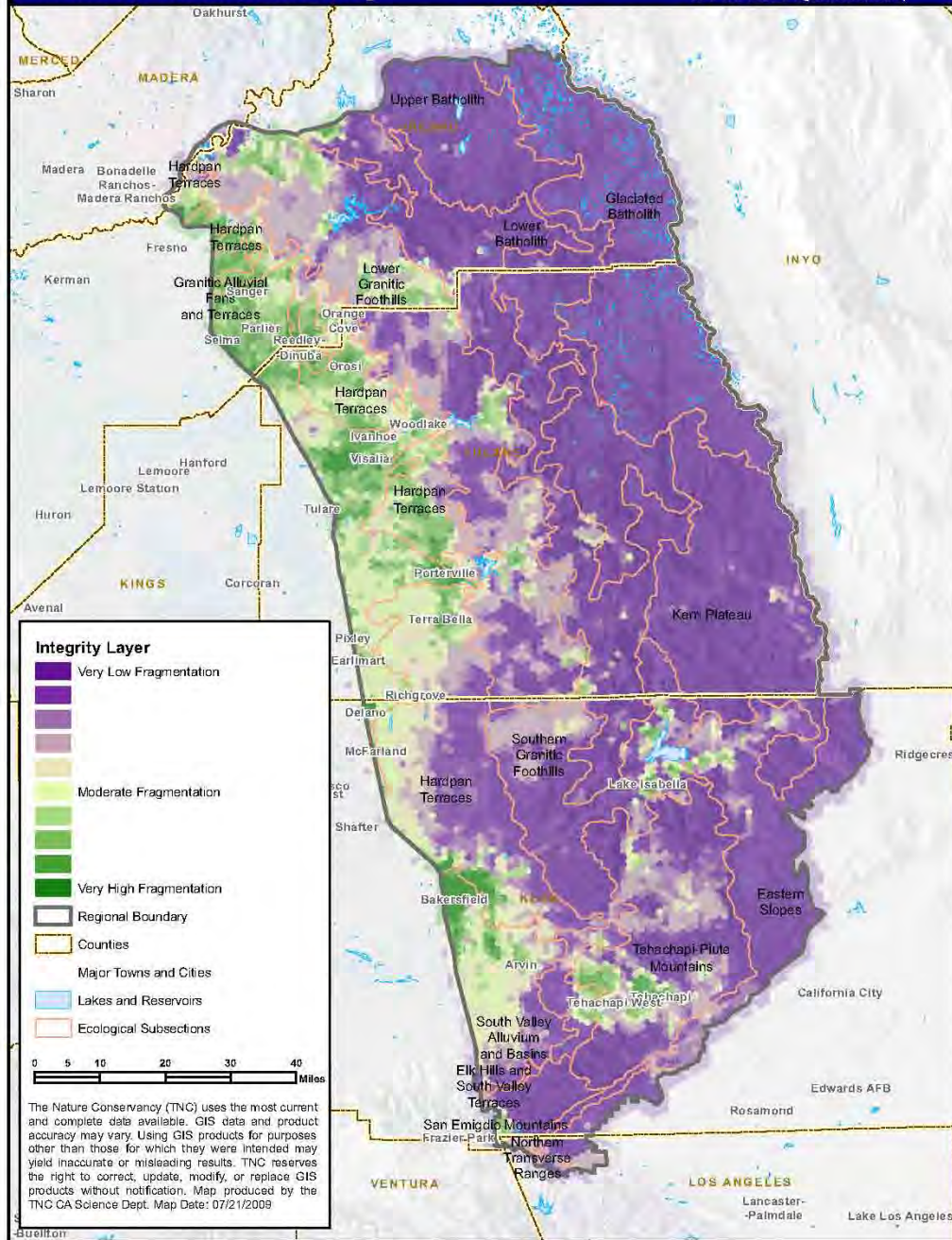
Projected Housing Density (2030)



Planned Energy and Transportation Projects

Southern Sierra Partnership

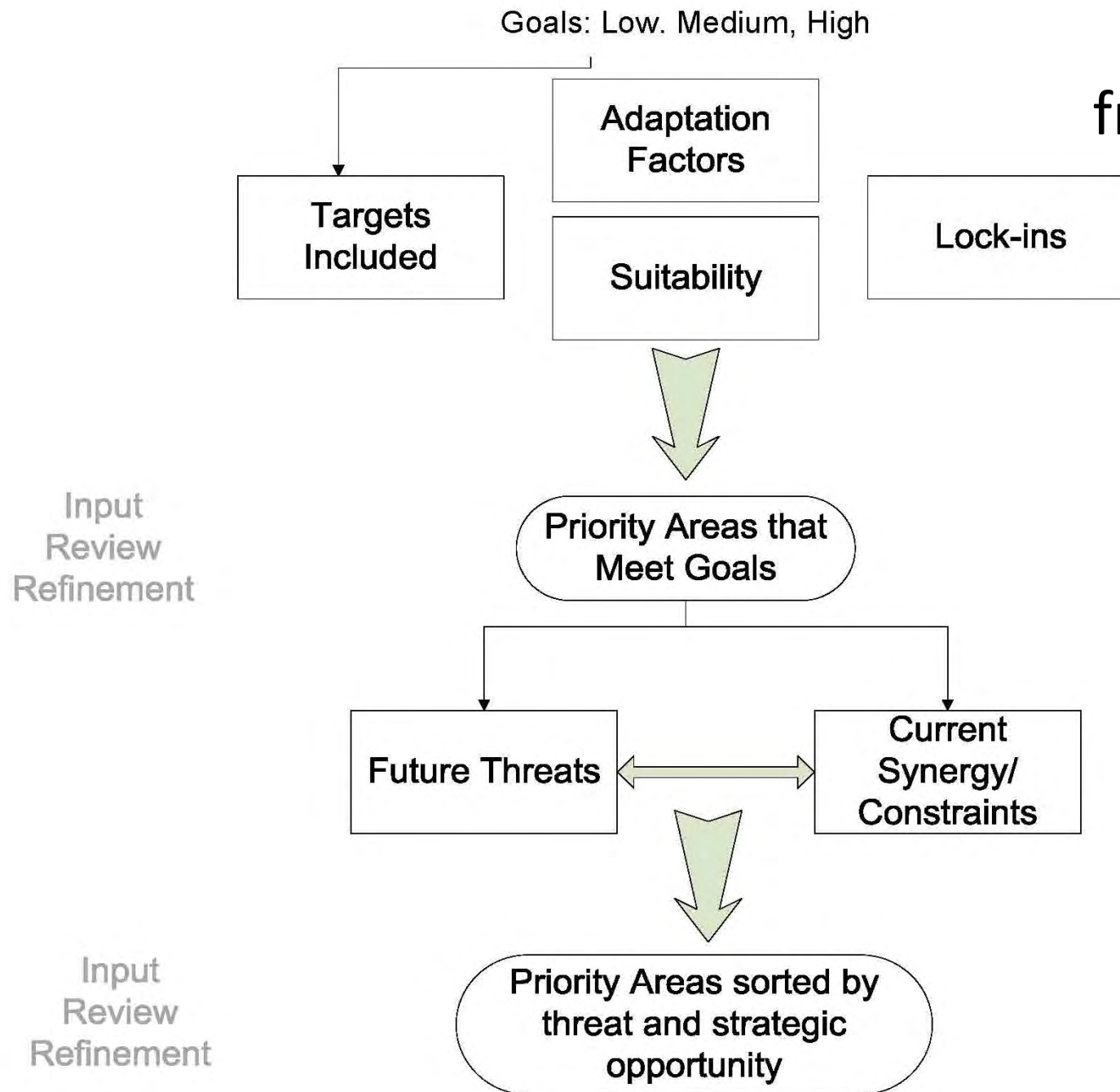
Sum Integrity/Suitability Layer
(housing density, road density
and converted agricultural land)



Sum Integrity /Suitability

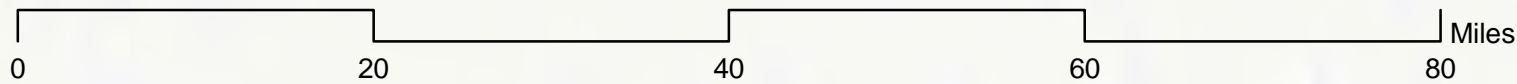
-Skewed toward
irreversible factors,
removed fire

Synthesis framework

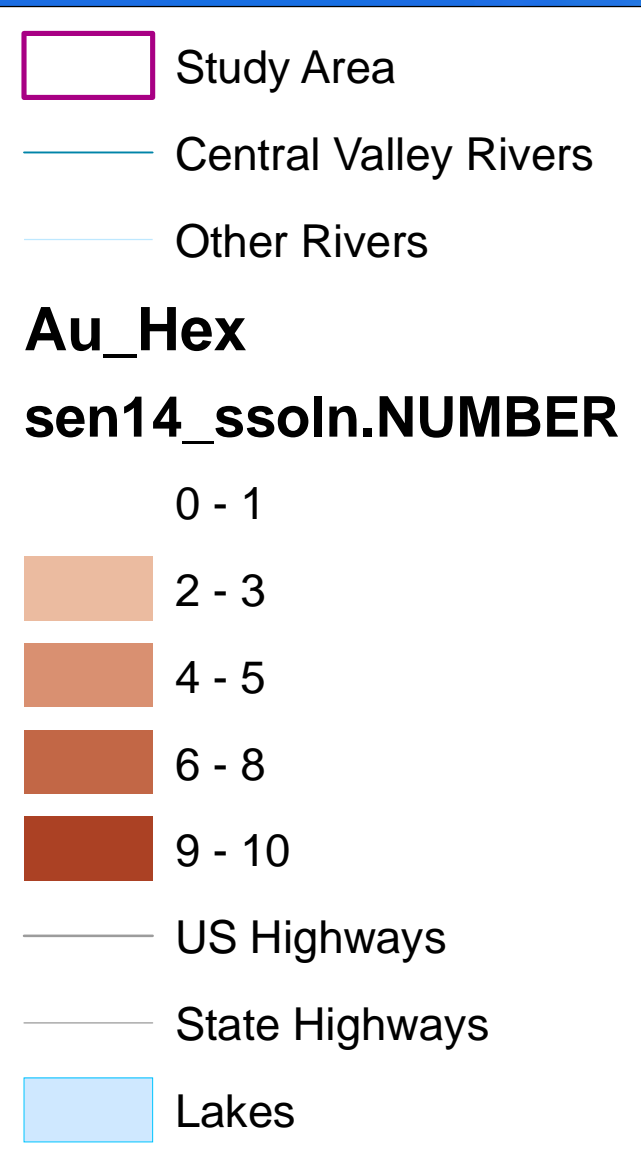


Central Valley Ecoregional Assessment Update:
Portfolio Assembly - Only System Targets
Sum Solution - Gap Status 1 and 2 Fee, and Easements locked-in

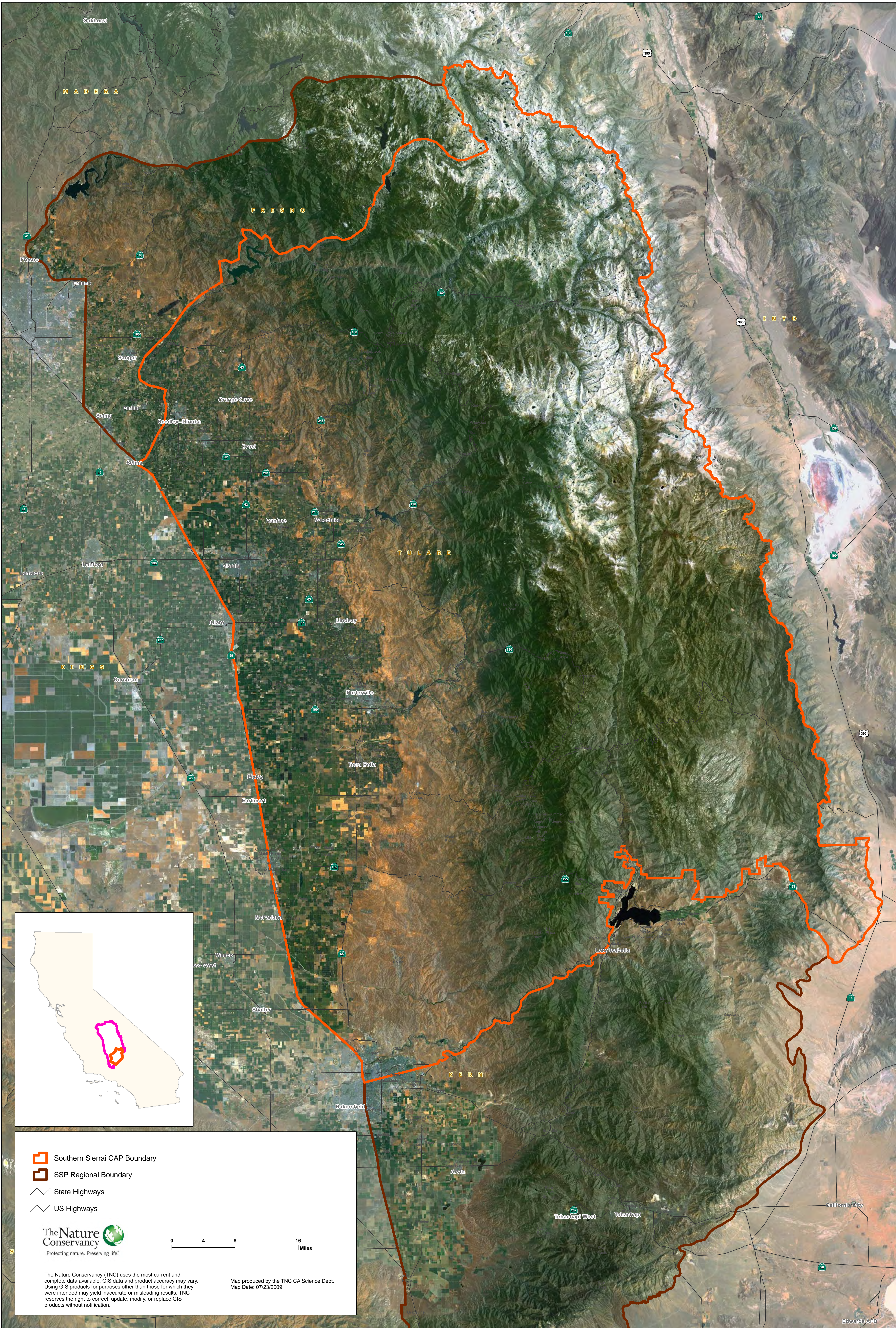
Map Date: October 15, 2006



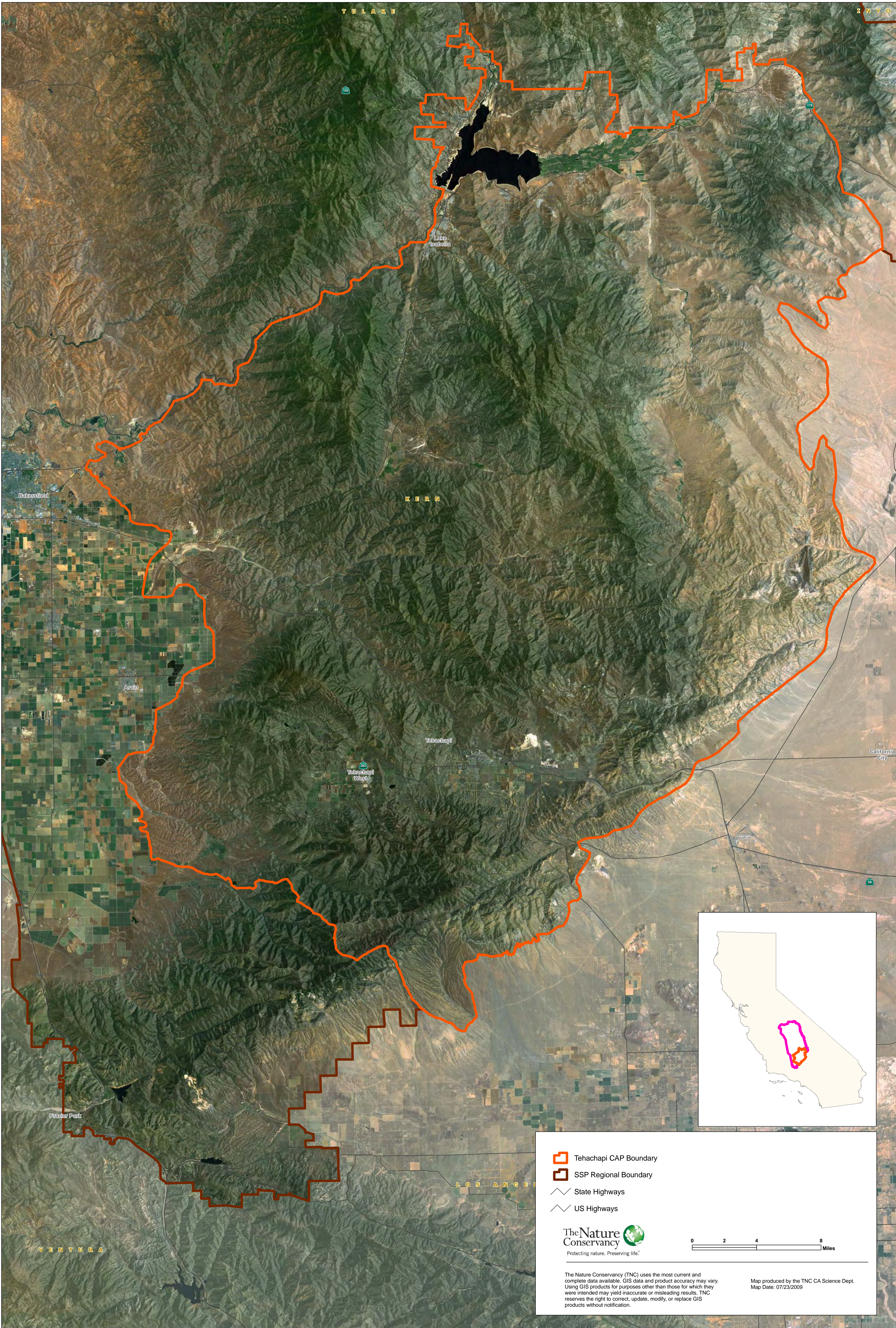
Internal: For Review Purposes Only



Southern Sierra Partnership: Southern Sierra CAP Aerial



Southern Sierra Partnership: Tehachapi CAP Aerial



Southern Sierra CAP -- Target Viability Matrix

Target	Key Ecological Attribute (KEA)	Indicator	Current Rank	Current Status	Desired Rank	Desired Status	Monitoring Methods
Oak Woodland	Spatial area	Area of oak woodland	GOOD	Total of XX acres in site planning area	GOOD	Total of YY acres of oak woodland in site planning area	
Oak Woodland	Landscape integrity	Area and configuration relative to site potential	GOOD	Relatively intact throughout historic range with good connectivity to grasslands and mixed conifer forest	GOOD	Protected swaths of un-fragmented oak woodland that span from upper grasslands to conifer forest, and include riparian/wetland communities (streams, vernal pools); blocks of oak woodland connected by corridors allowing free movement of terrestrial wildlife	
Oak Woodland	Fire regime	Proportion of oak woodland with fire frequency departing from past range of natural variability (approx 17 yr FRI); combined w/likelihood of severe fire	FAIR	Large proportion (76%) of oak woodlands unburned in last 50 years, another 24% beyond 17 yr FRI; however area likely to be affected by severe fires is relatively low (10% per USFS fuels data)	GOOD	75% of protected oak woodland burned on 20-yr cycle.	
Oak Woodland	Species composition & dominance	Relative cover of understory natives vs. non-natives? Extent of invasives? Diversity of native forbs?	FAIR	Mediterranean annual grasses dominant over vast majority of grasslands; still have diverse native forbs except in areas with continuous heavy grazing	GOOD	Representation of native grasses increased, diversity of native forbs maintained	
Oak Woodland	Invasive exotic species (plants & animals)	Extent and density of invasive exotic plant cover	FAIR	Moderate invasion of thistles throughout range	GOOD	Invasive exotics limited to current extent/density or reduced	??
Oak Woodland	Oak recruitment	Presence and abundance of seedlings and saplings	POOR	Few young trees anywhere in the oak woodlands	FAIR	Enough seedlings and saplings to maintain stands in most areas of oak woodland	
Oak Woodland	Oak tree mortality	Rate of mature tree mortality relative to past background rate	FAIR	Unexplained mortality in patches of mature oak woodlands, as well as accelerated mortality in vicinity of development	GOOD	Mortality rate in balance with recruitment rate	
Oak Woodland	Soil stability & organic carbon gain	RDM and spatial extent of erosion features (e.g. gullies, slumps)	FAIR	RDM either very low (e.g. <300 lbs/ac) with erosion features common, or RDM very high (i.e. not grazed or burned) favoring undesirables like ripgut brome	GOOD	RDM averages 800-1200 lbs/ac over most of the area in most years; few erosion features evident	
FINAL RANK			FAIR		GOOD		

S. Sierra Conservation Action Planning Target = OAK WOODLAND

	Stressor #1	Stressor #2	Stressor #3	Stressor #4	Stressor #5	Stressor #6	Stressor #7	Stressor #8	
Threats / Sources of Stress (causes of altered KEA's)	Altered spatial area	Altered landscape integrity	Altered fire regime	Altered species composition & dominance	Altered extent of invasive exotics	Altered oak recruitment	Altered oak tree mortality	Altered Soil stability & organic carbon gain	Overall Threat
Climate change: Increased temperatures and more erratic precipitation pattern (e.g. more extreme wet / dry periods, more severe events)	MEDIUM (gradual loss of long-lived trees)	HIGH	MEDIUM	HIGH	VERY HIGH	VERY HIGH	MEDIUM	MEDIUM	VERY HIGH
Residential development (and assoc. land grading, fencing, non-native landscaping)	MEDIUM	HIGH	HIGH	MEDIUM	HIGH		MEDIUM	MEDIUM	HIGH
Roads (ranch roads to major highways)	LOW	MEDIUM	LOW		HIGH			MEDIUM	MEDIUM
Groundwater withdrawals (wells)						LOW	MEDIUM		LOW
Surface water withdrawals (ditch cos., hydropower cos., etc)									
Flood control / water management systems / channel mtce practices									
Fire suppression / > human-caused wildfires			HIGH	MEDIUM	MEDIUM	HIGH	LOW		HIGH
Airborne pollutants (N deposition, ozone, airborne pesticides)				HIGH	MEDIUM	MEDIUM	LOW		MEDIUM
Conversion of native habitat to intensive ag (including marijuana gardens), with assoc. fertilizers, pesticides, etc					MEDIUM (as source of exotics)				LOW
Incompatible livestock grazing (too much or too little)			HIGH (affects both directions)	MEDIUM	HIGH	VERY HIGH		MEDIUM	HIGH
Incompatible timber management / wood-cutting practices / fuelbreak construction	LOW				MEDIUM		LOW	MEDIUM	MEDIUM
Energy resource and transmission line development	LOW	HIGH	MEDIUM		HIGH		MEDIUM	MEDIUM	HIGH
Alluvial aggregate mining									
Invasive, non-native plant species			HIGH	HIGH	VERY HIGH	HIGH		LOW	VERY HIGH
Non-native animals (bullfrogs, feral pigs, trout, mussels, starlings, domestic pets)				HIGH		MEDIUM		MEDIUM	MEDIUM
Pests and pathogens				LOW		LOW	HIGH		MEDIUM
Acorn predation	MEDIUM					HIGH			MEDIUM
Prevention of new T&E spp occurrences or re-occupancy of historic range				HIGH					MEDIUM
Habitat loss outside site planning area (e.g. for migratory & wide-ranging spp)				HIGH					HIGH

CONSERVATION TARGETS

Threats / Sources of Stress (causes of altered KEA's)	Grassland	Oak Woodland	Mixed Conifer Forest	Sub-alpine & Alpine Communities	Chaparral	Riparian Communities	Lakes, Rivers, Streams	Migratory & Wide- ranging Wildlife	Overall Threat Rank
Climate change: Increased temperatures and more erratic precipitation pattern	HIGH	VERY HIGH	HIGH	VERY HIGH	HIGH	HIGH	HIGH	MEDIUM	VERY HIGH
Residential development	HIGH	HIGH	LOW	LOW	MEDIUM	VERY HIGH	HIGH	VERY HIGH	VERY HIGH
Roads	MEDIUM	MEDIUM		LOW	LOW	HIGH	MEDIUM	VERY HIGH	MEDIUM
Groundwater withdrawals (wells)						HIGH	MEDIUM		HIGH
Surface water withdrawals						HIGH	VERY HIGH	LOW	HIGH
Flood control / water mgmt systems / channel mtce						VERY HIGH	VERY HIGH	HIGH	VERY HIGH
Fire suppression / > human starts	MEDIUM	HIGH	VERY HIGH	MEDIUM	MEDIUM	MEDIUM		MEDIUM	HIGH
Airborne pollutants	MEDIUM	MEDIUM	MEDIUM	LOW	LOW		MEDIUM	MEDIUM	MEDIUM
Conversion to intensive ag (including marijuana)	MEDIUM	LOW			MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM
Incompatible livestock grazing (too much or too little)	HIGH	HIGH			LOW	HIGH	LOW	MEDIUM	HIGH
Incompatible timber management / wood-cutting practices / fuelbreak construction		MEDIUM	HIGH	LOW	MEDIUM	MEDIUM	LOW	LOW	MEDIUM
Energy resource and transmission line development	MEDIUM	HIGH			MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM
Aggregate mining	LOW					HIGH	MEDIUM	MEDIUM	MEDIUM
Invasive, non-native plant species	VERY HIGH	VERY HIGH	MEDIUM	LOW	HIGH	HIGH	MEDIUM	MEDIUM	VERY HIGH
Non-native animals	MEDIUM	MEDIUM	LOW		LOW	MEDIUM	VERY HIGH	HIGH	HIGH
Pests and pathogens	LOW	MEDIUM	HIGH	MEDIUM	LOW	MEDIUM	VERY HIGH	MEDIUM	HIGH
Acorn predation		MEDIUM	LOW			MEDIUM		MEDIUM	MEDIUM
Intentional prevention of T&E spp establishment or re-establishment	MEDIUM	MEDIUM	LOW	LOW		HIGH	MEDIUM	HIGH	MEDIUM
Habitat loss outside site planning area (e.g. for migratory & wide-ranging spp)	HIGH	HIGH	MEDIUM	MEDIUM	LOW	HIGH		HIGH	HIGH
OVERALL THREAT RANK BY TARGET	MEDIUM	HIGH	MEDIUM	HIGH	MEDIUM	VERY HIGH	VERY HIGH	HIGH	

PLANNING QUESTIONS ABOUT INVASIVE EXOTIC PLANTS

- Do we have information on the current status of the invasive exotic plant threat?

Maps showing current distribution of invasive exotics (or “noxious weeds”) for the southern Sierra Nevada and Tehachapi Mountains?

- What are the best collaborative strategies for managing invasive exotics?
 - Partners?
 - Mechanisms?
 - Current efforts?
- What are the best ways to monitor the status of invasive exotics?
 - Who?
 - How?