

KING RANCH RIPARIAN HABITAT RESTORATION PROJECT

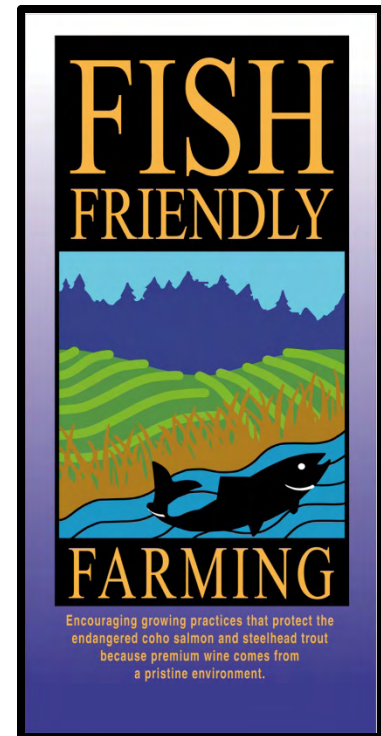


**California Land Stewardship Institute
Fish Friendly Farming Environmental
Certification**

550 Gateway Drive #108

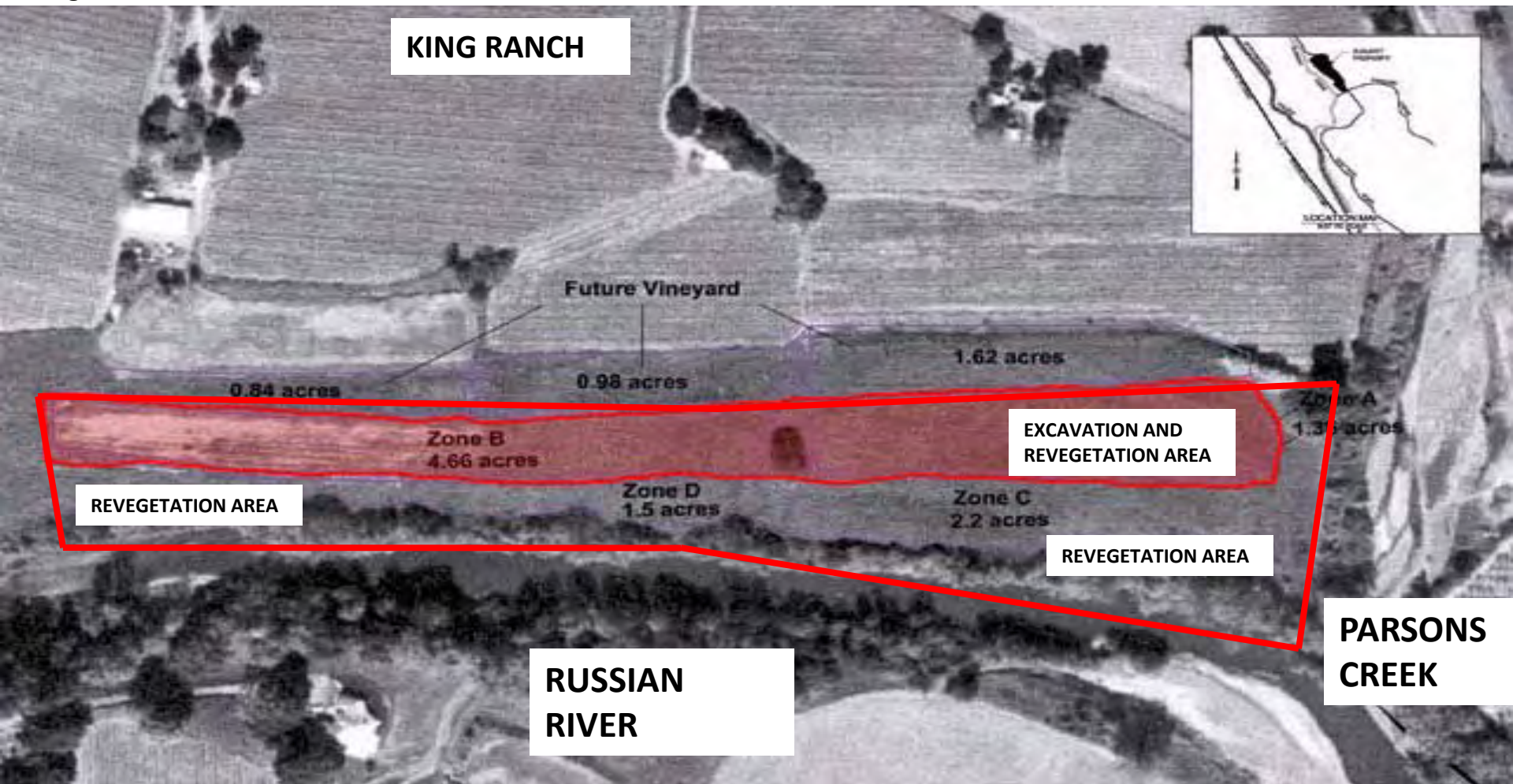
Napa, CA. 94558

707 253 1226



SITE DESCRIPTION – PHASE 1

The King Ranch borders the Russian River and Parsons Creek. The ranch is about 9.5 miles southeast of Ukiah, CA. Grass and weeds cover the terrace between the Russian River and the existing vineyard. A low levee on the terrace runs parallel to the river and is roughly 50 feet inland from bank. The project will excavate material from the terrace, which will be used to form three pads to expand the existing vineyards. Two small drainages will flow between the pads. These two small drainages discharge into the low area on the terrace but do not flow, on the surface, to the Russian River or Parsons Creek. Project design and management was completed by Dennis Jackson, Laurel Marcus and Rob Evans. The State Water Resource Control Board provided funding. Sotoyome RCD administer the contract and Circuit Rider Productions completed the revegetation.



Project Goals

The goal of this project was to implement a restoration project which converted a terrace (abandoned floodplain) adjacent to the Russian River into an active floodplain. Because of the great amount of entrenchment in the river channel, the conversion of a terrace to a floodplain requires the surface of the terrace to be lowered with the creation of a slough. A slough will provide for the storage of some floodwater. Cutting a slough will decrease the depth to groundwater in the area of the cut, allowing native riparian vegetation to be established. Vegetated banks along the river present a problem. Removal of significant amounts of vegetation would cause significant environmental impacts. Therefore, this project will not change the river channel and existing riparian forest.

Another goal for the project is to provide additional vineyard space using the soil excavated by creating the riparian slough. The Russian River floods the project site approximately every seven to ten years. At flood stage, the Russian River typically enters the terrace through a low spot adjacent to the small stream that crosses the terrace. The Russian River floodwater enters a depression just downstream of the mouth of the small stream and flows southeast, in a swale along the edge of the existing vineyards, towards Parsons Creek. A low spot in the riverbank near the confluence of the Russian River and Parsons Creek allows the floodwater to return to the river.

Before 2002 project



Grading for 2002 project



DESIGN AND CONSTRUCTION: Additional vineyard would be provided by fill placed in the field adjacent to the existing vineyards. The fill would be excavated from the terrace. The edge of the fill will have an elevation 2.24 feet higher than the estimated 10-year flood on the Russian River. The side slope of the placed fill would be 3:1. The cut slopes on the side of the swale would be less than 10%. The slope of the thalweg (lowest point) of the excavated swale will be less than 0.6%. The surface of the fill would have a slope of 2% up towards the existing vineyard. The slope will rise at a rate of roughly 5% towards the river. The side slope of the slough was allowed to vary so that the cut would stop well away from the top of the Russian River bank. The buffer strip was set by placing a straight line, along the top of the bank of the Russian River, for the entire length of the King property. This line was then moved away from the river until all of the riparian vegetation was on the side of the line towards the river. Another line was drawn parallel but 50 feet further away from the river. The line 50 feet away from the riparian vegetation set the buffer zone. No cuts were allowed beyond this line, but native plants would be installed there. To avoid any potential of the Russian River capturing the excavated area, the slope of the designed thalweg has been kept less than 0.6%. The low slope of the thalweg should prevent erosion of the swale bottom.



**GRADING FOR
2002 PROJECT**



GRADING FOR 2002 PROJECT

REVEGETATION: The excavated area was seeded with grass for erosion control after the earthwork was done, in June of 2002. The excavated area was planted with native vegetation in the winter of 2003. The lowest point of the excavation is located where the small drainage, closest to Parsons Creek, enters the swale on the terrace. This drainage is in line with the only trees growing on the terrace away from the riverbank. The project will lower the thalweg (lowest point) of the swale about 3.5 feet at this location. It was anticipated that the lowered ground surface in the excavated area will promote the establishment of the native vegetation by reducing the distance to the groundwater table.



**CIRCUIT RIDER PRODUCTIONS INSTALLING NATIVE RIPARIAN
PLANTS IN THE WINTER 2003 ALONG THE EXCAVATION AREA**



NATIVE PLANTS IN THE REVEGETATION/BUFFER AREA



**FIRST RAIN AFTER GRADING
WINTER 2003**



WINTER RAIN AFTER GRADING 2003

KING RANCH RIPARIAN HABITAT RESTORATION PROJECT: PHASE 2



KING RANCH RIPARIAN HABITAT SITE AFTER JAN 1, 2006 FLOOD



THE JAN 1, 2006 FLOOD CAUSED THE RUSSIAN RIVER TO OVERTOP ITS BANKS IN SEVERAL LOCATIONS ON THE KING RANCH SITE AND SCOUR SOME OF THE EXCAVATED AREA. WHILE THIS MOVED SOME SOIL IT WAS NOT VERY DESTRUCTIVE TO THE PROJECT.



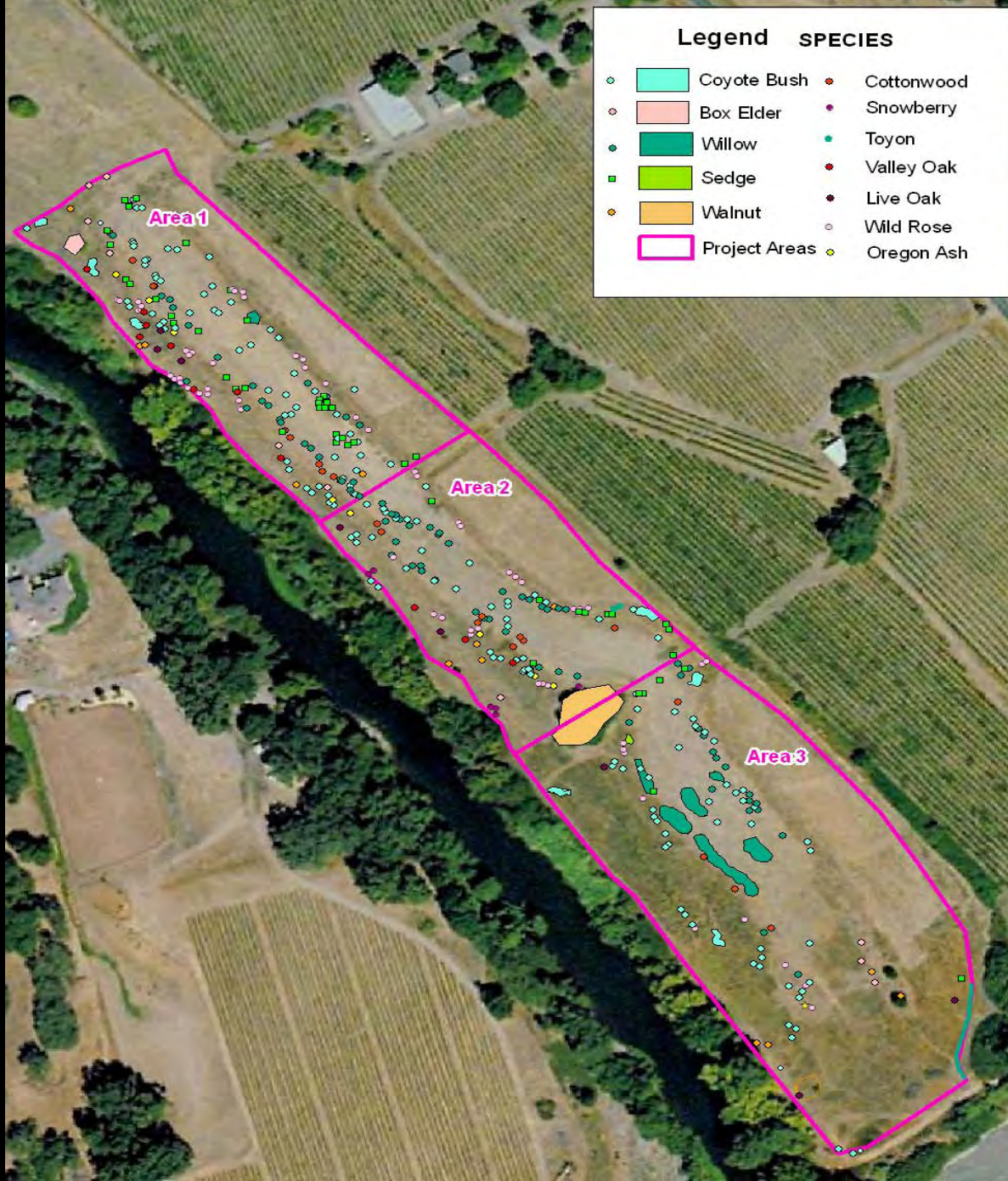
MANY OF THE NATIVE PLANTS INSTALLED IN 2003 GREW WELL AND WERE IRRIGATED BY THE OWNER. HOWEVER INVASIVE NONNATIVE YELLOW STAR THISTLE INVADED MANY AREA AND CROWDED SOME FO THE NATIVES.

**FILL AREA CREATED IN
2002 FOR FUTURE
VINEYARDS BECAME
INFESTED WITH YELLOW
STAR THISTLE**

**NATIVE TREES
IN
EXCAVATED
SLOUGH**



King Ranch Native Plant Survey, November 2007



**NATIVE SPECIES
LOCATION WERE
RECORDED USING A
GPS/GIS SYSTEM TO
ANALYZE THE
EFFECTIVENESS OF
THE INVASIVE PLANT
CONTROL AND
SUCCESS OF THE
NEXT PHASE OF
NATIVE PLANTINGS**





YELLOW STAR THISTLE IS THE GREY DORMANT PLANT INTERMIXED WITH THE NATIVE TREES. IN SPRING 2008 THE THISTLE WAS MOWED WITH AN ECOLOGIST ON SITE TO AVOID THE NATIVE PLANTS AND THEN SPRAYED WITH TRANSLINE AN HERBICIDE SPECIFICALLY FORMULATED TO KILL YELLOW STAR THISTLE



BEFORE
PIS OF
DENSE
yst



THE FIRST PHASE OF YELLOW STAR THISTLE REMOVAL WAS VERY SUCCESSFUL BUT SOME OF THE PLANTS DID SURVIVE AND ANOTHER ROUND OF TREATMENT WILL BE DONE IN 2009. ADDITIONAL NATIVE PLANTS WILL BE INSTALLED IN THE WINTER OF 2009-2010.