

Sacramento River Conservation Area Forum

Conversion of Agricultural Land to Habitat and Privately Owned Lands to Public Lands along the Sacramento River and Associated Economic Change

The Sacramento River Conservation Area Forum (Forum), the CSU, Chico Geographical Information Center (GIC) and economists from the CSU Chico Department of Economics and College of Agriculture are collaborating on a research project to address key questions that have been raised by local communities on the Sacramento River in response to habitat restoration programs.

1. How much land has changed from private ownership to public or conservation ownership?
2. How much agricultural land has been taken out of production and restored to habitat over the last 20 years?
3. What has been the economic change associated with these land use changes in rural economies and local government budgets?



The project is funded by a grant from the Department of Water Resources FloodSAFE Environmental Stewardship and Statewide Resources Office and its intent is to develop and provide accurate information to local stakeholders. Although such information may be available in multiple databases and contained within various studies over the years, there is no single source of information. Absent this comprehensive and accessible information, river corridor community leaders, agricultural landowners and other stakeholders make assumptions about the location, type and magnitude of these changes and establish positions based on these assumptions. The Forum believes that a comprehensive series of studies, conducted by economists from the region in cooperation with a local stakeholder organization, will facilitate a move from debate to discussion of how the region addresses local concerns.

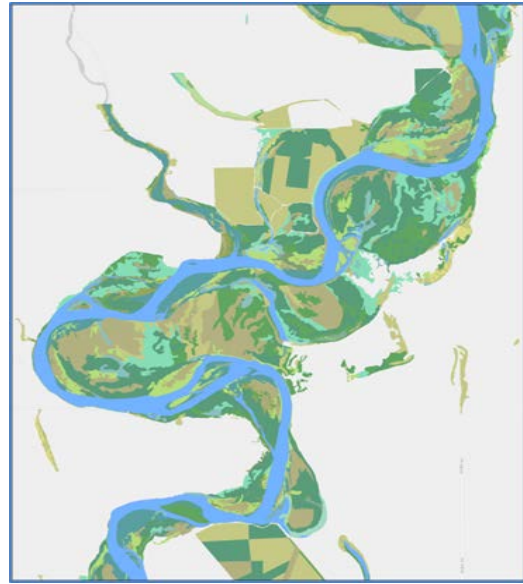
There have been different studies and mapping efforts associated with these issues in the past. What is different about our project is:

- We are looking back historically and attempting to accurately document what has actually changed on the river, rather than projecting forward what changes might be associated with a certain acreage of restoration.
- We are approaching the economic study with primary data collection, rather than disaggregating statewide statistics.

Habitat Mapping and Land Use Change

The GIC will analyze aerial photography from 1988 to identify the extent of riparian habitat at that time. This year is important as many initiatives began during this period. Water bond passage, development of mitigation banks, river restoration programs and the establishment of parks, wildlife areas and refuges are examples. The GIC will compare the riparian habitat extent to a recently completed 2009 map.

The GIC will also analyze Landsat satellite imagery for every year from 1988 to 2009 for every parcel within one mile of the river to determine what lands were converted from agriculture to habitat. The Forum will research the crops that were grown on the parcel the year prior to conversion to provide an estimate of production loss. Land ownership transfer records will be analyzed to determine the lands that were put into public ownership. This research will encompass the years from 1988 to 2012.



Excerpt from 2009 Riparian Map prepared by the CSU Chico Geographic Information Center. The habitat from this map will be compared to a new 1988 map to identify the change in habitat acreage within one mile of the river's edge

Economic Analysis

Based in part on the land use and landownership change analysis, economics and agriculture faculty from CSU, Chico will conduct an economic analysis of associated change through four interrelated studies.

Study 1: Determinants of Agricultural Land Conversion to Habitat

The study will estimate the magnitude of the change in agricultural production value occurring on these lands based on the prior year's crop. A survey of participating landowners will determine factors that were involved in the decision to participate in the transaction. Similar surveys will be applied to owners of parcels that did not transfer ownership or convert to habitat to further understand what factors influence a landowner's decision to participate in conservation transactions.

Study 2: Property Tax Change

For those parcels that converted from private to public ownership, the study will determine the property taxes paid to the counties before and after conversion. Property taxes will be projected forward in time based on factors such as Proposition 13 base years and Williamson Act contracts to determine what payments would have been to the counties had the properties not converted to public ownership. The study will also compile for each year all in lieu payments by the federal and state governments to compensate for conversion to public ownership.



Study 3. Economic Value of Recreational Uses in Relation to Habitat Improvements

The project will include a year-long survey of recreational uses along the river to determine the value of recreation. The primary tool will be a travel cost study, which is based on the idea that the cost of getting to a recreational site is a measure of the value individuals place on its use. We will also analyze the creel surveys (fishing use) that are conducted from time to time by the CA Department of Fish and Wildlife.

Study 4: Ecosystem Services

The study will also conduct a literature review of ecosystem services valuation for riparian habitat. We will compile and summarize the published academic literature on the ecosystem values of riparian habitat. If the data are appropriate, the study will include a meta-analysis on the research. We will provide a range of values for each ecosystem service, a summary of approaches that can be used to assess the values and considerations for choosing among the approaches.



Importance of this Research

This study is important for a number of reasons. First, it addresses questions that are critical to local communities along the river. Second, it is the first economic analysis to study actual change – not projected change based on estimated land conversion – and does so with a fine-grained, parcel by parcel analysis. Finally, the study can form the basis to identify solutions for any economic losses that are identified. The Forum is committed to work with federal, state and local stakeholders to understand what changes have occurred, what issues arise from those changes and how to best address the issues together.