Section 3. Overview of Assessment Scope and Methods

BACKGROUND

The Nature Conservancy (TNC), through its Sacramento River Project, has been involved in habitat restoration efforts along the Sacramento River since 1989. This undertaking has allowed TNC to become aware of and understand the myriad issues and concerns associated with local and regional efforts to restore floodplains and habitats. In public meetings and personal conversations with residents of the Sacramento Valley, it has been clearly communicated that there are a number of recurring questions that follow the habitat restoration process. The social and economic component of these questions can be placed in six broad categories:

- Effects on agricultural production
- Effects on farmers' profits
- Effects on flood-related costs and benefits
- Effects on the regional economy
- Fiscal impacts on local government
- Recreation and ecosystem benefits

A number of specific questions recur in each of the above categories. The scope of this assessment is designed to provide economic data and insights that can help to answer the key questions through the application of existing information, limited surveys of local residents and landowners, and standard economic evaluation tools. The questions addressed in the study include:

- Effects on agricultural resources
  - How much farmland will be displaced?
  - How will county crop production levels change?
  - How will county crop production values change?
  - How will changes in crop production affect employment and income at the county level?

- Effects on recreation resources
  - What are the effects on recreation activity levels?
  - What are the changes in recreation-related spending?
  - How will changes in recreation activity and spending affect employment and income at the county level?
- Effects of site monitoring
  - How much is spent to establish and maintain habitat?
  - How much is spent to monitor restored sites?
  - How will the habitat establishment, maintenance, and monitoring affect employment and income at the county level?
- Fiscal effects on local government
  - How will acquisition and restoration affect property taxes and Williamson Act subventions?
  - How will farming displacement and habitat restoration affect sales taxes?
  - Will state/federal in lieu payments offset property tax losses?
  - What will be the net fiscal impact on counties?
- Potential loss of agricultural benefits
  - What are the losses in net profits?
  - How do net profits vary from year to year?
- Flood control benefits and costs
  - What are the costs of protecting stream banks?
  - How are these costs expected to change over the program time frame?
  - What are the costs to landowners and the government from periodic flooding?
- Recreation and ecosystem protection benefits
  - How will the program contribute to recreation benefits?
  - What kinds of benefits will accrue to society from habitat restoration?

While many more questions may exist regarding the effects of establishing a riparian corridor, the funds available for this assessment have been focused on these key subject areas and questions. Subsequent efforts, perhaps stimulated by this assessment, may provide additional information to

support decisions regarding the restoration of habitat along the Sacramento River. Potential subject areas for subsequent studies could include:

- Water quality
- Water supply
- Water diversions
- Human health and safety
- Food supply and food security
- Community character

These subjects were mentioned by interested parties in the process of preparing this report. An assessment of the social and economic effects that habitat restoration may have in these subject areas was beyond the scope of this study.

METHODS

TNC sought funds through the CALFED environmental restoration program to conduct this study of social and economic effects. The funds have been used on three major fronts: 1) coordination with the SB 1086 Advisory Council, and subsequently with Sacramento River Conservation Area Forum (SRCAF) representatives to review study objectives and assumptions on conditions that might exist after establishing a riparian corridor; 2) collection of economic data through a survey of landowners and other individuals familiar with conditions along the river, as well as through contacts with local, federal, and state government agencies that maintain relevant economic data; and 3) conducting the socioeconomic analyses required to answer the questions listed above.

The economic effects associated with these questions are varied, requiring different analytical methods. Although most of the effects can be described in terms of estimated monetary flows, analysis of these effects is based on different data sources with varying levels of reliability. For example, while highly reliable data are available from landowners and the counties to estimate potential reductions in crop acreage and changes in production values, only very general data are available to estimate potential ecosystem and recreation benefits of the proposed restoration. Because of differences in the comparability of data for the different analyses, care must be taken in interpreting the results, particularly in comparing the economic effects for one topic with the results for other topics. The majority of the cost data presented are based on reliable sources, while the benefit information (e.g. recreation, flood control, ecosystem protection) is general, conservatively presented and likely to underestimate the true benefits of the riparian restoration.

The socioeconomic assessment involves using two kinds of analytical frameworks: one for evaluating regional economic and fiscal impacts, and a second for considering social benefits and costs. Analysis of regional impacts considers changes in economic and fiscal activity within different geographic regions (i.e., counties) stemming from changes in within-region spending associated with establishment of a riparian corridor. This type of analysis includes the initial direct effect of a change in spending plus the secondary indirect and induced multiplier effect (indirect impacts on input industries and induced impacts from household spending of labor income).

The regional economic and fiscal impacts include both beneficial and adverse effects. Most notably, important farmlands and agricultural production and related economic activities will be displaced as lands in the study area are restored. A related adverse impact involves reductions in tax revenues to local jurisdictions resulting from the sale of private land to public agencies or non-profit organizations. On the positive side, enhancement of ecosystem-related recreation opportunities (e.g., hunting, fishing, boating, and wildlife observation) result in increased recreation use and related economic activity in the region.

In addition to regional economic and fiscal effects, establishing the riparian corridor would result in costs and benefits to different members of society. The analysis of social costs and benefits attempts to measure the change in social welfare or value to producers and consumers, which forms the basis for benefit-cost analysis. For this type of analysis, value to consumers is measured in terms of their willingness-to-pay for a change in resource allocation, whereas value to producers can be approximated by the change in net income or profits. The difference between benefits and costs (i.e., net benefits) measures the social welfare associated with the program. Large prospective net benefits indicate that a program would strongly promote the public interest and may be suitable for public subsidy.

A formal benefit-cost analysis of the riparian restoration was not conducted in this study for several reasons. First, important components of costs and benefits, such as the value the public places on changes in the status of listed species, could not be estimated reliably with existing data and available resources. Second, for those effects that can be quantified, the level of uncertainty associated with some of the estimates is believed to be relatively high. Finally, there is considerable uncertainty about the scientific basis for predicting biological (and economic) effects over an extended period of time. The land conversion anticipated in the riparian corridor is expected to occur over a 30-year period.

Why analyze both regional economic impacts and social costs and benefits? Typically, it is important for federal agencies to conduct nationally oriented benefit-cost analyses in an attempt to maximize net benefits to society. A proposed action's effect on societal net benefits (e.g., total benefits minus costs) is often used as a decision criterion. Despite their more local orientation, regional analyses are still relevant because they provide valuable information as to the significance of impacts on a regional economy. Decision makers need to know the impact of a project or program on a regional economy to avoid creating significant negative impacts on a region with a limited economic base.

To maximize the value of the funds allocated to this study, it was decided to address a broad range of social and economic effects and to focus the analysis on conditions that would exist at the end of 30 years, the time assumed for establishing the riparian corridor. Accordingly, this study does not attempt to quantify or discuss in any detail the effects in intervening years. A general discussion of interim effects is included at the end of the analysis in Section 6.

More detailed descriptions of approaches and methods for the various economic assessments are provided in Section 6.