SOUTH BAY SALT POND RESTORATION PROJECT

The State of California and the Federal Government recently acquired 15,100 acres (26 square miles) of former salt ponds in South San Francisco Bay. The South Bay Salt Pond Restoration Project provides an exceptional opportunity to improve the physical, biological, and chemical health of over 15,000 acres of wetlands from the San Mateo Bridge to the southern edge of San Francisco Bay, and is the largest wetland restoration project on the West Coast. Over 85% of the historic wetlands in San Francisco Bay have been lost to development, including agriculture, salt ponds, and industrial development. Scientists have estimated that 100,000 acres of these former wetlands need to be restored to ensure the continued health of the Bay. The goal of the project is to initiate restoration activities within 5 years of acquisition (by March 2008).

The restoration planning effort will integrate restoration with flood management in the South Bay, and provide for public access, wildlife-oriented recreation, and education opportunities. The South Bay Salt Pond Restoration Project will restore and enhance a mosaic of wetlands, creating a vibrant ecosystem. Where feasible, flood capacities of local creeks, flood control channels, and rivers will be increased by widening the mouths of the waterways by breaching ponds. As ponds are opened to the tide, levees between the newly created tidal marsh and local communities will need to be built or enhanced to provide flood protection.

The acquisition of such a significantly large area of open space in the South Bay will allow for the provision of public access, wildlife-oriented recreation, and education opportunities, which will be planned concurrently with restoration and flood management. Public uses could include creation of Bay Trail segments for biking and hiking, and provision of hunting and angling opportunities, birdwatching, environmental education, and other recreational opportunities.

The long-term restoration planning process is being managed collaboratively by the California State Coastal Conservancy (Conservancy), the US Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (DFG). The USFWS and DFG are the landowners/managers and are responsible for planning and preparing the interim management of the salt ponds (maintenance of levees and management of water) while the long-term restoration planning is taking place. Due to the complexity and the large scale of the project, implementation of the restoration effort will be phased, and later phases of the project will build on information collecting during the earlier phases. Adaptive management will be a key feature of the overall restoration plan. The large (landscape level) scale of the project creates additional technical and scientific challenges, as impacts of the restoration itself could alter the hydrodynamic functioning of the South Bay.

An additional challenge is the large number of stakeholders for the project. The South Bay is a large urban area, with a population of over 3 million people, many of whom live in close proximity to the project area. Many South Bay residents have long sought access to recreational opportunities that could be provided by the project. Recreational user groups include hunter, anglers, bicyclists, hikers, bird watchers, boaters, and more. In addition, numerous NGOs wish to participate in the planning and data collection effort, researchers are interested in the scientific

opportunities, and local government agencies are interested in the economic and quality of life benefits and risks of the project.

GAIA has been assisting the project management for the South Bay Salt Pond Restoration long-term planning effort since August 2002 (before the acquisition). GAIA staff are functioning both as adjunct project team members and providing technical and public outreach support. In its adjunct project management role, GAIA has developed the schedule for the project (to meet the 5-year goal set by Senator Feinstein and Govenor Davis), and a detailed project workplan. GAIA also worked closely with the Conservancy to develop a budget for the project. The projected budget reflects our past experience on the Napa Salt Marsh Restoration Project. GAIA staff attend project management team meetings with the Conservancy, USFWS, and DFG, develop the agenda, track action items, and identify priorities for action based on the project schedule. We have also set up an intranet for the project management team and key expert consultants.

Public outreach support has included setting priorities for public outreach, developing an overall communication strategy to guide public outreach, development of a website (www.southbayrestoration.org), development of a large contact database, stakeholder assessment, planning of and publicity for a large public workshop, and development of supporting information (e.g., fact sheets). The website and supporting materials are currently being translated into Spanish.

Technical support has included the initial phases of a data gaps assessment and bibliographical database of studies pertaining to project; defining requirements for permits and other approvals, including the relationships among the various permits; and developing an approach for conducting the environmental review (EIS/EIR strategy). The data gaps assessment process is an extremely complex task, given the large number of studies that have been conducted in the South Bay, including extensive data held by local treatment plants, NGOs, and others. GAIA worked with the project management team to develop a data gaps workshop. Numerous local scientist were invited to workshop to help identify information/studies not known to the project team, and data needed to make key decisions for the project planning effort. The workshop also included prioritizing data gaps into data that would have to be collected immediately, and data that could be collected during the initial phases of restoration/adaptive management.

NAPA SALT MARSH RESTORATION PROJECT

The Napa Salt Marsh Restoration Project consists of 9,500 acres of former salt evaporation ponds in the North Bay that have been acquired by the California Department of Fish and Game (DFG) for wetland restoration. The U.S. Army Corps of Engineers, the California Coastal Conservancy (acting as the local sponsor on behalf of DFG), DFG are conducting a Feasibility Study and preparing an Environmental Impact Report / Environmental Impact Statement (EIR/EIS) for the proposed project. This project is the second largest wetland restoration project on the West Coast. The proposed project has national significance due the extensive habitat that would be crated/restored for endangered species, migratory waterfowl and shorebirds, and fish and other aquatic species. The project would also provide forbeneficial use for recycled water, improved water quality and productivity in the Napa River and San Francisco Bay, and public open space and recreational opportunities, including fishing, birdwatching, hunting, and environmental education.

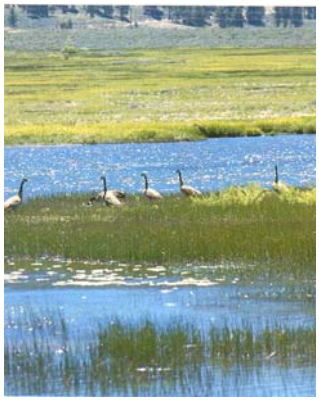
ECOLOGICAL RESTORATION

This project has significant urgency, as habitat quality in the project area continues to deteriorate, and potential releases of high saline brine due to salt pond levee failure could cause ecological damage to the adjacent sloughs.

Project goals include the following:

- Restore large patches of tidal marsh that support a wide variety of fish, wildlife, and plants, including:
  - special status mammals and water birds, specifically the salt marsh harvest mouse, California clapper rail, and black rail;
  - endangered fish, specifically Delta smelt, Sacramento splittail, steelhead trout, and Chinook salmon, and other fish species; and
  - aquatic animals, including the Dungeness Crab, and other benthic and planktonic invertebrates.
- Manage water depths of the remaining ponds to maximize wildlife habitat diversity, with shallow-water areas for migratory and resident shorebirds and dabbling ducks and deep-water areas for diving ducks.

This project presents several challenges, including the large project area to be restored. Also, a number of the salt ponds contain high salinity brines that must be removed before restoration can proceed. In addition, the habitat mix (the types of habitat to be restored) must be carefully balanced to avoid adverse impacts on species (primarily waterfowl and shorebirds) that currently use the salt ponds. Decaying infrastructure and increasing salt build-up in the ponds also create an urgent need for the project to proceed.



GAIA has provided project management and technical support for the Napa Salt Marsh Restoration Project since May 2001. Initially, GAIA was retained by the Corps of Engineers, San Francisco District, to assist with the preparation of a Feasibility Study for the project. GAIA also assisted with project management and coordination. Our tasks included developing the overall project budget for the feasibility study, developing the Project Management Plan for Phase II of the study, updating the schedule, and coordinating work efforts with team members, including the local sponsor. Due to Corps funding constraints, GAIA is continuing to provide technical and project management support for this project through the Conservancy. Specifically, GAIA prepared the administrative draft feasibility report, provided support through the Corps' review and approval process, assisted with the development and review of the EIS/R, coordinated the salinity reduction modeling (including defining alternatives and issues to be modeled, and reviewing modeling results), guided the preliminary design and cost estimate effort that was conducted by another contractor, and is participating in and tracking the permit development/application process. Most recently, GAIA worked with Corps and local sponsor staff to define the proposed adaptive management and approach and monitoring program for the project.

GUADALUPE RIVER RESTORATION PROJECT

GAIA is currently working with the U.S. Army Corps of Engineers-San Francisco District and the Santa Clara Valley Water District on the restoration of the Upper Guadalupe River (Reach 10b) in San Jose, California. The project involves fluvial geomorphic channel design and riparian mitigation and restoration. The total value of the contract is $258,000. The project team consists of GAIA as the prime contractor, and Moffatt & Nichol and Jones & Stokes as subcontractors.

The Upper Guadalupe River channel is being reconfigured to accommodate a deeper and narrower channel (for low flow conditions), with more natural meanders, to benefit the current fish population in the river and to facilitate an improved riparian corridor. The primary terrestrial habitat of concern in the project area is the riparian forest. The project team is responsible for assessing the current soil conditions and designing four new planting palettes to restore the riparian corridor. Vegetation selected for the site will be native to the area. The goal of new vegetation planted along the river (where the riparian forest abuts the river) is to provide adequate shading for salmon and steelhead trout and to reduce water temperature in the river. A new gauging station is also part of the design. Once the proper vegetation is selected for the site, a vegetation protection plan and a maintenance and monitoring plan will be developed.

PHASE I AND II FOR WETLANDS CREATION PROJECT

On behalf of Gayle Borchard and Associates, GAIA prepared a Phase I and Phase II Assessment for an undeveloped parcel of land that was being considered as a potential site for wetlands creation. The Phase II sampling plan reflected the projected activities required for wetland creation, including soil excavation and disposal, and sampling at the projected future wetland surface. The top one to two feet of the site was covered with waste sludge, from the nearby wastewater treatment plant, and thus potentially contained contaminants. The sludge cover varied in depth and slope throughout the site. GAIA's sampling effort included identifying the interface level and depth of the sludge and the original natural surface of the site.

GAIA's Phase II sampling approach also included the specific sampling required to evaluate the site according the Wolfenden and Carlin criteria (the Wolfenden and Carlin criteria determine the suitability of sediment for use in wetland creation). GAIA performed the sampling on the heavily overgrown, unstable site, and provided a report summarizing the data and providing recommendations for further action.