

Work Plan for Fiscal Year 2004

I. Program Title. Land Retirement Program, CVPIA Section 3408(h)

II. Responsible Entities.

	Agency	Staff Name	Role
Lead	USBR	Robert May	Program Manager (on Military Duty)
Co-Lead	FWS	Bea Olsen	Agency Representative

The overall objectives for the Land Retirement Program are outlined in CVPIA, Section 3408(h) and are described in the Land Retirement Program Interim Guidelines, which were revised in Nov. 1998, by the Interagency Land Retirement Team (LRT), with input from a stakeholder's group and other State and Federal Agencies.

III. Program Objectives for FY 2004.

A. Evaluate impacts.

Evaluate impacts of retiring 15,000 acres of land from irrigated agriculture. Interior will continue to purchase land from willing sellers within the Demonstration Project areas (Fresno, Tulare & Kings Counties), up to the targeted 15,000 acres and remove it from irrigated agriculture. Retired lands will be monitored and at the end of the five-year demonstration project a written report evaluating the physical impacts of land retirement upon groundwater level and quality, soil chemistry and potential risks to biota will be published. The progress reports of findings will be published in FY 2004.

As Westlands Water District has initiated their own land retirement program, acquisition funds will be focused in the Atwell Island Irrigation District to accomplish the 8000 acre target for that area. Approximately 800 acres will be the focus for purchases in FY 2004. Acquired lands will be rehabilitated, managed and monitored by the Bureau of Land Management in partnership with the Interagency Land Retirement Team.

B. Restore Upland Habitat.

A variety of methods, including direct seeding, drilling, imprinting and nursery transplants are being used and evaluated to determine the effective, safe and economical means for upland habitat rehabilitation, which may aid in the recovery of threatened and endangered species in the San Joaquin Valley. A target of 120 acres has been set for restoration of upland habitat in FY 2004. Native seed grow-out with a partner grower will increase to 2 acres, concentrating on Alkali Sacaton and Indian Rice Grass. An 80-acre burn to control the weed bassia in a salt grass establishment area will be done. 30 miles (about 40 acres) of hedgerows will be planted in with native shrub seed and additional acres will be restored along existing roads and canals. At Atwell Island seed test plots on sandy loam soils will

be set up similar to plots established in 2001 on heavy clay soils. The Tranquillity native plant nursery will continue and will be enlarged to 6 acres, with a goal to develop those species that lend themselves to mechanical production and harvest. Assisting with this latter effort will be the USDA-NRCS Plant Materials Center at Lockeford, CA.

Ancillary trials to clarify actions that can ensure future large-scale successes will be continued in 2004. These trials will test the effects of various measures to control weeds, including herbicides, irrigation, mowing, and burning. Continued scientific data collection and monitoring will provide the basis for the technology transfer of restoration management activities and techniques for upland habitats. Data gathered from this demonstration project may be adapted and used successfully in other parts of the state to restore habitat. Technology transfer will occur via field seminars, tours, publications, website development, economic development opportunities and presentations.

A grant applied for at the USBR Science and Technology Program will enable the Land Retirement Team to develop sound partnerships among resource agencies, local agencies, water districts, non-profit organizations and landowners to accomplish on-the-ground ecological restoration and information dissemination for upland habitats management. A second grant application to this program will be applied to soil and water technology.

C. Make acquired water available for other CVPIA purposes. Water not needed for habitat restoration will be made available for other CVPIA program uses. The Demonstration Project is exploring potential water uses, such as partnerships with other water users and methods such as water transfers, partial reassignment and utilization of other sources such as groundwater. Many of the Demonstration Project acquisitions in the Alpaugh and Atwell Island Districts come with productive deepwater wells that could be pumped to lower water tables in drainage-impaired areas, and to provide additional sources of water supplies for CVPIA uses.

The Demonstration Project is exploring the use of supplemental and pre-irrigation water to promote faster and more effective habitat restoration. A standard of 2-acre foot-per-acre has been estimated as being adequate to promote the growth of native, drought-tolerant shrubs, forbs and grasses, and some dryland crops, while not contributing to drainage problems. Acquired water may be used to provide water to refuges, or it may be transferred or reassigned to other CVPIA users.

IV. Status of the Program.

In 1997, Interior solicited offers for voluntary land retirement where willing sellers, within the eligible area, submitted proposals. A total of 80 applications have been received as of September 1, 2002, from willing sellers amounting to approximately

55,000 acres. Applications are accepted on a continuous basis. Response has exceeded available funding every year.

In November 1999, Interior established the CVPIA Land Retirement Demonstration Project. This project is 15,000 acres in size, with approximately 7,000 acres targeted for retirement in western Fresno County (WWD project area), 1,600 acres in southeastern Kings County and approximately 6,400 acres in southwestern Tulare County (Atwell Island project area). The demonstration project monitors and evaluates the impacts of land retirement upon groundwater levels, groundwater and surface water quality, soil chemistry and biota. Various techniques are being evaluated to determine the most effective and economical means to rehabilitate safe upland habitat that may aid in the recovery of threatened and endangered species in the San Joaquin Valley.

The specific purposes of the Demonstration Project are to determine if the current criteria for selection of lands in the Land Retirement Program Interim Guidelines are adequate to accomplish the mission of the Program: to reduce drainage, improve water quality in the San Joaquin River, establish wildlife habitat; and determine which habitat rehabilitation techniques and land management options will work best under various scenarios.

In 1999, a Habitat Restoration Study was implemented on 800 acres of the 2,090 acres acquired, to date, in the Westlands Site, as a demonstration project. The Atwell Island project site was implemented in the fall of 2001. The study consists of four treatments replicated five times in a randomized block design. The treatments consisted of 1) seeding and planting of native plants, 2) installing earthen berms to create micro-topographic contours, 3) seeding and planting native species and installing contours and 4) no treatment (control). Each plot is located in the center of a 40-acre block and the remainder of the block is planted with a barley buffer to isolate the plots. In the Alpaugh site, plot size will be reduced to 2.5 acres within 10-acre plots.

Data collected includes percent plant cover, productivity, survivorship, invertebrate species richness and abundance, and reptile species richness and abundance. Additional data are collected to examine winter raptor use and the presence of other wildlife species. Tissue samples are taken and analyzed to estimate the potential amount of bioaccumulation of contaminants, notably selenium, throughout the site. This contaminant level will be used to determine if further investigation is necessary to evaluate the effects of land restoration on the abundance, diversity and health of wildlife using the restored habitat.

Preliminary results from the Demonstration Project (1999-2002) Westlands Site support the concept of a declining shallow groundwater table in response to land retirement. The shallow groundwater beneath the project sites consists of highly saline water with high concentrations of selenium and boron. Soils consist primarily of poorly drained clays and loams with elevated levels of salt, selenium and boron when compared to other soils in the San Joaquin Valley.

Land retirement has led to increased abundance and diversity of wildlife. Increased invertebrate species and abundance have included parasites and predators of agricultural pests as well as beneficial pollinators. Bird species diversity and abundance increased across all treatments immediately following restoration efforts. Recorded at the Demonstration Project site in Fresno were 17 special status avian species, 3 of which successfully nested in the 2002 season. Populations of small mammals increased substantially on retired lands. Three mammalian special status species were found on restored land at Atwell Island.

Land retirement has not resulted in increased levels of bio-accumulated Selenium. Selenium concentrations in vegetation, invertebrates and mammals have not changed significantly over the study period to date. All Selenium levels measured are considered below concentrations of concern to EPA and USFWS.

Despite the obstacles of restoring retired agricultural lands, localized areas have responded well to the re-introduction of native vegetation. At the Westlands site, results indicate that seeding by imprinting is a successful and cost-effective method of planting a variety of native plant species. At the Atwell Island site, hedgerows with native plant species have been established. A palate of San Joaquin Valley wildlife species, including a kit fox, has been observed using the hedgerows just established in January 2003.

For more details on the Land Retirement Demonstration Project please see the website: www.mp.usbr.gov/cvpia/ (go to Projects section).

V. FY 2003 Accomplishments

- A. Acquired 580 acres of land and associated water from willing sellers in Atwell Island Water District (Atwell Island Demonstration Project Site). Total acres acquired to date of the targeted 8000 in Atwell Island: 6,158.
- B. Tested habitat rehabilitation techniques in replicated trials. Four Ancillary Trials were established in response to adaptive management questions. The replicated research restoration trials conducted in 2003 consisted of 5, 0.5 acre treated study plots and 5 controls that included an Herbicide and Growth Form Trial, a Mowing Trial, a burn Trial, and a Pre-Irrigation Trial. All trials focused on determining ways to reduce competition between native plants and weedy species.
- C. Continued management activities in addition to monitoring, data gathering and analysis for the habitat Restoration Study at both the Tranquillity (ESRP) and Atwell Island (BLM) study sites. All data collected for the study from 1999 to 2002 has been entered into databases, proofed and edited and have been statistically analyzed.

- D. Moved the Tranquillity native plant nursery to a site on better soil and near a more convenient water supply. Research on seed delivery, plant propagation and seed production methods was conducted on 34 different San Joaquin Valley locally collected native plant species. The nursery is being used to amplify seed stock, investigate efficient cultivation and grow-out, determine utility of species inclusion in restoration strategies and assess species' applicability for mechanized seed production. Five species showed a high potential for mechanized production and harvest. Historical records for particular species were investigated from primarily herbarium specimens and site-searches initiated.
- E. Continued to monitor ground water levels and ground water quality in accordance with the Quality Assurance Project Plan at the Westlands Demonstration Project site. Results to date indicate a declining shallow water table in response to land retirement. Monitoring of groundwater and soil conditions began at the Atwell Island project site.
- F. Published third Land Retirement Demonstration Project Report documenting results of physical and biological monitoring programs, and adaptive management of retired lands. An electronic copy of this report has been posted to Reclamation's website at www.mp.usbr.gov/cvpia (go to Projects section). A presentation of the aspects and results of the project that deal with selenium contamination was given to the FWS Environmental Contaminants experts.
- G. Public Outreach Activities included:
1. Tours were given to a variety of groups and individuals in 2003. Two tours for Fish and Wildlife Service personnel from Endangered Species and Project Implementation and Water Operations were held at both the Tranquillity and Atwell Island sites. A site tour for 50 members of the Fresno County Economic Opportunity Council and I-5 Business Corridor was given. A tour for Dr. Ken Lair, Research Ecologist and Botanist from the USBR Denver Technical Services Center resulted in a cooperative effort being established for 2004 with the USDA-NRCS Plant Materials Center in Lockeford, CA.
 2. A science education program at Alpaugh School was initiated, with possible coordination with the California Institute of Biodiversity using CAL-Alive CD-Rom, their educators and the Atwell Island Land Retirement Restoration Project.
 3. ESRP senior staff presented two presentations at a professional conference jointly held by The Ecological Society of America and the Society for Ecological Restoration in Tucson Arizona. Presentations were also given by Steve Laymon of BLM to local and regional community and conservation groups. He also organized the Annual Bird Count with birders from Point Reyes Bird Observatory and Sierra-Los Tulares Land Trust.

4. Our research partner, the Endangered Species Recovery Program (ESRP) sponsored a student from the Center for Advances Research and Technology (CART), who analyzed some of the small mammal data for her class project.

H. Established 50 miles of hedgerows on the Atwell Island project site and initiated restoration work on over 100 acres including planting out flamed grasslands, canal banks, tree poles and upland shrub planting in formerly alfalfa fields (approximately 20 acres), and 10 acres of shorebird habitat and planting. Cooperation with an organic farmer to grow-out Alkali Sacaton and Indian Rice grass was initiated.

VI. Tasks, Costs, Schedules and Deliverables

A. Narrative Explanation of Tasks

1. Program Management.

This program is managed as an interagency team with members from USBR, FWS & BLM. USBR provides program leadership, budgets and administration (1 FTE). USBR Hydrologist (0.7 FTE) provides expertise on the physical impacts of land retirement research studies and additional staff support from the USBR Sacramento Regional Office. FWS and BLM team members provide agency coordination, land management planning and project management expertise. Program priorities are set jointly, as a team.

The FWS cost estimate covers the FWS team member's salary (1 FTE) and additional staff support from the FWS Sacramento Field Office. The BLM cost estimate covers the BLM Coordinator in the BLM Bakersfield Area Office. Additional costs for BLM are included in the Interagency Agreement between BLM and USBR, which provides for additional BLM support for land acquisition, restoration and land management activities. BLM is providing additional support in the way of equipment, office space, supplies and personnel at BLM's cost. BLM is not charging any overhead to this program.

2. Demonstration Project (Principal Investigators: Endangered Species Recovery Program Contract for the WWD site and BLM on the Atwell Island site) Continue the fourth year of five-year demonstration program in Westlands Water District (WWD), and implement the second year of a five-year study at the Atwell Island Project Site in the Alpaugh Irrigation District (AID) and Atwell Island Water Districts (AIWD). Goals of the studies are to determine effectiveness of LRP Selection Criteria, evaluate effects of retiring land and develop effective and economic techniques to rehabilitate retired lands to suitable upland wildlife habitat. The demonstration program will also include a method for tracking progress and assessing actual results. This method will provide a means for determining future land retirement needs and identifying actions needed to accomplish long-term land retirement objectives.

3. Land Acquisition/ (BLM)
Acquire approximately 100 acres of land in FY 2004 and its associated water within the Atwell Island Water District for the purposes of the Land Retirement Demonstration Project. Appraisals will be conducted by DOI-qualified appraisers to determine the fair market value of additional properties to be acquired and establish the basis of negotiation and/or acquisition of the properties. The services of a title and escrow company will be utilized.
4. Denver Technical Services Assistance
Utilize expertise of the USBR Denver Technical Services Center in the form of Ken Lair to formulate partnerships and enhance involvement of water users and suppliers to expedite refinement and continuance of research on species adaptation and planting methods; to develop an initial framework for infrastructure and coordination between research, industry and end users; and to determine how plant selection, propagation, seed increase, and supply of plant materials can be coordinated for landscape-scale application, employing avenues of research through interagency development to commercial retail supply. Additionally, Technical Service Center will collect and analyze soil chemistry data from the Land Retirement Demonstration Project, especially salinity, selenium and boron.
5. Groundwater Monitoring
Groundwater, Surface Water and Soil Samples will be collected and analyzed for constituents of concern as part of the Land Retirement Demonstration Project. Findings will be reported in the annual monitoring report.
6. GIS Mapping Analysis
GIS databases and maps creating and analysis on data collected for the past years and current one of the Land Retirement Demonstration Project.
7. Additional Funding Needs (FY04)
 - a. Land Acquisition - Atwell Island Water District (AIWD)
The current budget precludes acquisition of approximately 1740 acres of land and associated water within the boundaries of the Land Retirement Demonstration Project in the Atwell Island Water District. This acquisition would complete the targeted acreage for the Land Retirement Demonstration Project in the Atwell Island Water District.
Estimated Cost: \$2,958,000 (assumes average cost of \$1700/acre for land and water).
 - b. Surface Water Risk Assessment.
Because all selenium contamination data to date has been collected in drought years, no information from the site is available that would indicate the levels of selenium bio-accumulation during a year with above average rainfall. Trials to simulate above average rainfall conditions by excavating small catchments, irrigating and monitoring vegetation and invertebrates would be established to evaluate results in this situation.
Estimated Cost: \$50,000 for construction and monitoring and analysis.

B. Schedule and Deliverables

	Task	Start Date	Complete Date	Deliverable
	Program Management	10/01/03	09/30/04	Annual Work Plan, Program Administration, Public Outreach
1.1	USBR Program Manager	10/01/03	09/30/04	USBR Agency Program Manager (1 FTE) to integrate efforts, resources, Public Outreach, and responsibilities on all projects.
1.2	FWS Staff	10/01/03	09/30/04	FWS Agency Coordination (1.25 FTE), Demonstration Project Study Coordination (Project Management), Public Outreach, Sacramento staff support.
1.3	USBR Staff, Hydrologist	10/01/03	09/30/04	USBR Agency Hydrologist (0.8FTE), Manages the well monitoring program, groundwater data and modeling programs, and physical impact(s) of all restoration projects.
2	Demonstration Project Coordination with ESRP	10/01/03	09/30/04	Monthly Progress, Annual Budget & Schedule, Annual Report, Data archives
3	Land Acquisition (BLM) & Restoration (BLM)	10/01/03	09/30/04	Real property acquisition (processing, appraisal, title co., cadastral review, GIS) & restoration & monitoring activities.
4	Denver TSC	10/01/03	09/30/04	Report of framework to assist in site restoration assessment and technology transfer methods. Coordination with seed industry and NRCS Plant Materials Research Program. Soil and water analysis.
5	Groundwater Monitoring	12/01/03	9/30/04	Groundwater data, Phase I Environmental Site Assessment Reports
6	Groundwater Modeling	10/01/03	9/30/04	Quantify selenium fate and transport in the shallow aquifer in lands within Westlands Water District.
7	GIS Mapping and Analysis	10/01/03	9/30/04	GIS Map Products and Analysis

Schedule and Deliverables - FY 04 Additional Funding Needs.

#	Task	Start	Complete	Deliverable
1	Land Acquisition (AIWD)	10/01/03	9/30/04	Real Property Acquisition (+/- 1740 acres), Atwell Island Water District
2	Surface Water Risk Assessment	10/01/03	9/30/04	Assess risks of selenium contamination in surface water ponding greater than 30 days.

The current budget precludes acquisition of approximately 1740 acres of land and associated water within the boundaries of the Land Retirement Demonstration Project in the Atwell Island Water District. This acquisition would complete the targeted acreage for the Land Retirement Demonstration Project in the Atwell Island Water District.

Estimated Cost: \$2,958,000 (assumes average cost of \$1700/acre for land and water).

2. Surface Water Risk Assessment.

Because all selenium contamination data to date has been collected in drought years, no information from the site is available that would indicate the levels of selenium bio-accumulation during a year with above average rainfall. Trials to simulate above average rainfall conditions by excavating small catchments, irrigating and monitoring vegetation and invertebrates would be established to evaluate results in this situation. Plan for spring implementation. Estimated Cost: \$50,000 for construction and monitoring and analysis.

C. Summary of Program Costs and Funding Sources.

#	Task	Total Cost	Funding Sources	
			RF	W&RR
1	Program Management Costs (USBR, FWS, BLM)			
1.1	USBR	\$ 397,555	\$ 397,555	\$
1.2	FWS	\$ 145,879	\$ 145,879	\$
2	Demonstration Proj. (ESRP)	\$ 450,000	\$ 450,000	\$
3	Land Acquisition/BLM-I Agreement	\$ 280,000	\$ 280,000	\$
4	USBR Denver Technical Service Center	\$ 48,000	\$ 50,000	
5	Groundwater Monitoring	\$ 124,066	\$ 125,000	
6	Groundwater Modeling	\$ 45,000	\$ 50,000	
7	GIS mapping & analysis	\$ 9,500	\$ 9,500	
Total Program Budget		\$ 1,500,000	\$ 1,500,000	\$

Explanatory Notes:

Land Retirement Program team has contracted with the Endangered Species Recovery Program (ESRP) to conduct various research activities in the operation of the Demonstration Project in the amount of \$850,000 under task 2. See Section VI, A2.

Land Retirement Program team has entered into a five (5) year Inter-agency cooperative agreement with BLM to acquire land and conduct restoration activities and monitoring in the Atwell Island Water District for the purposes of the Land Retirement Demonstration Project. See Section VI, A3.

Program Costs and Funding Sources - Additional Outyear Funding Needs .

	Task	Total Cost	Funding Sources	
			RF	W&RR
1	Land Acquisition (AIWD)	\$2,958,000	\$2,958,000	\$ 0
2				\$ 0
Total Program Budget		\$2,958,000	\$2,958,000	\$ 0

Explanatory Notes: The current budget precludes acquisition of approximately **1740 acres** of land and associated water within the boundaries of the Land Retirement Demonstration Project in the Atwell Island Water District. This acquisition would complete the targeted acreage for the Land Retirement Demonstration Project in the Atwell Island Water District.

Estimated Cost: **\$2,958,000** (assumes average cost of \$1700/acre for land and water).

D. CVPIA Program Budget

	Task	Direct Salary and Benefits Costs	Contracts Costs	Miscellaneous Costs	Administrative Costs	Total Costs
1	Program Manage Costs (USBR,FWS,BLM)					
1.1	USBR	\$185,912		\$8,704	\$72,939	\$397,555
1.2	FWS	\$123,626			\$2,253	\$145,879
2	Demo Project ESRP		\$			\$450,000
3	Land Acquisition/BLM -IA		\$			\$280,000
4	USBR Denver TSC		\$48,000			\$48,000
5	Groundwater Monitoring		\$124,066			\$124,066
6	Groundwater Modeling		\$45,000			\$45,000
7	GIS mapping		\$9,500			\$9,500
	Total by Category	\$309,538	\$956,566	\$38,704	\$	\$1,500,000

Explanatory Notes: There are currently more acres of land to retire than money available in the Atwell Island Water District.

CVPIA Program Budget - Additional Funding Needs.

	Task	FTE	Direct Salary and Benefits Costs	Contracts Costs	Miscellaneous Costs	Administrative Costs
1	Acquire Land (AIWD)			\$2,958,000		
Total by Category				\$2,958,000		

Explanatory Notes:

The current budget precludes acquisition of approximately **1740 acres** of land and associated water within

the boundaries of the Land Retirement Demonstration Project in the Atwell Island Water District. This

acquisition would complete the targeted acreage for the Land Retirement Demonstration Project in the

Atwell Island Water District. Purchases are done through a USBR-BLM IA.

Estimated Cost: **\$2,958,000** (assumes average cost of \$1700/acre for land and water).

The current budget precludes acquisition of approximately **1740 acres** of land and associated water within

the boundaries of the Land Retirement Demonstration Project in the Atwell Island Water District. This

acquisition would complete the targeted acreage for the Land Retirement Demonstration Project in the

Atwell Island Water District. Purchases are done through a USBR-BLM IA.

Estimated Cost: **\$2,958,000** (assumes average cost of \$1700/acre for land and water).

VII Future Years Commitments/Actions

In the immediate future, the five years of monitoring the Land Retirement Demonstration Project will be completed on the BLM managed portion of the project. A final report will be issued, remaining acres within the Atwell Island Water District will be purchased, restoration activities and technology transfer will continue and partnerships will increase and broaden within the communities of concerned San Joaquin Valley resource managers.

Funding reductions below \$1,500,000 will jeopardize continuity and ability to continue implementation of the Land Retirement Demonstration Project (LRDP) on existing retired agricultural land. The process of developing habitat restoration plans, land management plans, ongoing habitat recovery for threatened and endangered species, and demonstration research on

cost effective land management and restoration techniques for retired lands will be disrupted. Development and transfer of ecological restoration technologies for retired agricultural lands in the San Joaquin Valley would similarly be jeopardized at funding levels below \$1,500,000.

Funding at \$5,000,000 will allow continued demonstration research, restoration technology transfer and increased availability of desired native plant seed, partnership development and acquisition of approximately 1470 acres of drainage impacted lands in the western San Joaquin Valley. Incremental funding at \$3,000,000 will allow continued demonstration research, restoration technology transfer, and allow acquisition of approximately 400 acres of drainage impacted land in the western San Joaquin Valley.