

Big Chico Creek Watershed Alliance



Watershed Management Strategy

Adopted May 8, 2006

TABLE OF CONTENTS

Acknowledgements.....	3
List of Acronyms	3
Introduction	3
Goals, Objectives and Actions.....	4
Chapter 1. Water Quality	4
Objective A. Bacterial/Pathogen Contamination.....	4
Objective B. Urban Runoff.....	5
Objective C. Agricultural runoff	5
Objective D. Highway 32 Spills	6
Objective E. Stream Temperature Management.....	6
Objective F. Sedimentation	7
Objective G. Monitoring Program	7
Chapter 2. Fisheries.....	8
Objective A. Develop understanding of native fish communities	8
Objective B. Salmon and Steelhead Habitat	9
Objective C. Gravel management.....	10
Chapter 3. Wildlife Resources	10
Objective A. Amphibians and Reptiles.....	11
Objective B. Migratory Deer.....	11
Objective C. Birds.....	12
Objective D. Landscape conservation	12
Chapter 4. Stream Channel and Riparian Habitat	13
Objective A. Large woody debris	13
Objective B. Stream channel incising and floodplain modification.....	14
Objective C. Riparian Habitat.....	15
Chapter 5. Non-Native Species.....	15
Objective A. Non-native Plant Species	15
Objective B. Non-native Animal Species	16
Chapter 6. Groundwater.....	16
Objective A. Stakeholder participation.....	17
Objective B. Science	17
Chapter 7. Fire Management	18
Objective A. Cooperation with Butte County Fire Safe Council	18
Chapter 8. Environmental Education Programs	19
Objective A. Linking environmental education with citizen monitoring	19
Objective B. Outdoor education	19
Appendices	Error! Bookmark not defined.
Glossary	Error! Bookmark not defined.

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List of Acronyms

BMP	Best Management Practice
BCRCD	Butte County Resource Conservation District
Chico, USA	Chico Urban Streams Alliance
DFG	CA Department of Fish and Game
DWR	CA Department of Water Resources
ECR	Existing Conditions Report
RWQCB	CA Regional Water Quality Control Board
USFWS	U.S. Fish and Wildlife Service

Introduction

The Big Chico Creek Watershed Alliance (the Alliance) is a nonprofit group that began in 1996. Our mission is to protect and enhance the ecological integrity and economic vitality of the Big Chico Creek watershed through cooperative efforts. In partnership with landowners, interested citizens, government agencies and private enterprise, we work to foster education, understanding, sustainable land management, and ecosystem and water quality restoration and conservation.

The Big Chico Creek Watershed includes that area draining to Big Chico Creek, Lindo Channel/Sandy Gulch, Sycamore Creek, Mud Creek and Rock Creek. The Alliance has assessed the condition of our watershed and prepared an Existing Conditions Report, which is incorporated by reference, and can be found at www.bigchicocreek.org. This report describes the natural resource conditions in the watershed and includes a history of the Alliance. The following goals, objectives and actions are based on the challenges and opportunities identified in that assessment, along with input from watershed stakeholders.

This strategy will form the basis for future projects for the Alliance and its partners. In order to solicit input from those partners, the Alliance conducted outreach to community associations, individual landowners, government agencies, environmental groups, and other stakeholders. It is intended to be evaluated and updated on a

regular basis. The Alliance will continue to assess its progress towards meeting the goals and objectives outlined below and will continue to seek input from stakeholders on that progress and the need to modify those goals and objectives.

Goals, Objectives and Actions

Chapter 1. Water Quality

Big Chico Creek was found in the ECR to exhibit impacts from fecal coliform bacteria, turbidity and temperature. Bacterial problems and potentially other pathogens are found primarily in the lower reaches of Big Chico Creek during the late summer months. Potential sources of bacteria include wildlife, livestock, urban runoff, malfunctioning septic systems and recreation. Turbidity and sediment impacts are exhibited during storm events. Potential sources of turbidity include dirt roads, forestry activities, construction, urban development, recreation and agriculture. Big Chico Creek provides spring run salmon spawning habitat between Salmon Hole and Higgins Hole, where temperature management is especially important. Potential sources of temperature impacts are loss of streamside and canopy shading vegetation. Urban runoff can contain residues of petroleum products, fertilizer, pesticide and a wide variety of chemicals used in the urban environment. Big Chico Creek is also at risk from spills of petroleum and other toxic substances transported on Highway 32.

GOAL 1 RESTORE WATER QUALITY WITHIN BIG CHICO CREEK AND ITS TRIBUTARIES IN ORDER TO SUPPORT HABITAT FUNCTION AND HUMAN USE.

Objective A. Bacterial/Pathogen Contamination

Develop cooperative effort with City of Chico, wildlife managers and upper watershed grazing operators to understand extent and sources of bacterial impacts.

- Action 1. Compile and analyze existing bacterial monitoring data
Lead: Alliance Monitoring Program
Partners: City of Chico Park Division and Stormwater Program; Butte County Stormwater Program; Grazing operators, Regional Water Quality Control Board (RWQCB), Department of Water Resources (DWR)
Timeline: 2010

- Action 2. If warranted by conclusions of Action 1, conduct more intensive study as recommended in the ECR to more accurately define bacterial contributions.
Lead: Alliance Monitoring Program
Partners: City of Chico Park Division and Stormwater Program; Butte County Stormwater Program; RWQCB; DWR; Grazing Operators; CSU, Chico

Timeline: 2013

Objective B. Urban Runoff

Reduce water quality impacts in Big Chico Creek and its tributaries from urban runoff pollution.

- Action 1. Work with Chico Urban Streams Alliance (Chico USA) to coordinate Alliance's Citizen Monitoring Program with public outreach efforts.
Lead: Alliance Monitoring Program
Partners: City of Chico Stormwater Program; Butte Environmental Council; RWQCB; DWR
Timeline: 2006 - 2007

- Action 2. Work with Chico USA to improve structural BMPs used within the City for stormwater management.
Lead: City of Chico Stormwater Program
Partners: Alliance, Kennedy/Jenks Consultants, Butte Environmental Council, Regional Water Quality Control Board, Butte County Stormwater Program
Timeline: 2007

- Action 3. Seek adoption of low impact development planning practices in Chico development planning documents
Lead: City of Chico Stormwater Program and Planning Department; Butte County Stormwater Program
Partners: Alliance, League of Women Voters, CSU, Chico Concrete Industry Management Program
Timeline: 2007

- Action 4. Seek funding to bring training to local government planners, water quality engineers and local development professionals on stormwater management methods.
Lead: Alliance
Partners: City of Chico Stormwater Program and Planning Department, Butte County Stormwater Program
Timeline: 2007

Objective C. Agricultural runoff

Cooperate with Butte County Resource Conservation District and others in implementing practices to reduce water quality impacts from agricultural runoff.

- Action 1. Assist with educational workshops on agricultural water quality.
Lead: Butte County RCD

Partners: Alliance, other Butte County watershed groups, Natural Resources Conservation Service, Butte County Agricultural Commissioner, U.C. Cooperative Extension, CSU, Chico College of Agriculture
Timeline: 2006 - 2007

- Action 2. Cooperate with Rock Creek Reclamation District in exploring overflow channel and riparian habitat creation project that would reduce flooding impacts, provide habitat and manage agricultural runoff.
Lead: Rock Creek Reclamation District
Partners: Alliance, landowners, Butte County Public Works, Butte County RCD, Natural Resources Conservation Service
Timeline: 2006 - 2007

Objective D. Highway 32 Spills

Prepare for emergency spills on Highway 32 to reduce potential impact to Big Chico Creek.

- Action 1. Expand Highway 32 Spill Contingency Plan prepared by Deer Creek Watershed Conservancy to cover highway stretch in Big Chico Creek watershed.
Lead: Alliance
Partners: Butte County Office of Emergency Services, Deer Creek Watershed Conservancy
Timeline: 2014

Objective E. Stream Temperature Management

Reduce stream temperatures in salmon spawning areas.

- Action 1. Evaluate temperature influences of watershed vegetation and develop vegetation management plan for upper Big Chico Creek to reduce stream temperatures, including key spring run salmon holding pools.
Lead: Alliance
Partners: Big Chico Creek Ecological Reserve, Upper watershed landowners, Sierra Pacific Industries, Department of Fish and Game, U.S. Fish and Wildlife Service; BCRCDC
Timeline: 2009
- Action 2. Implement riparian restoration and other vegetation management techniques to reduce stream temperatures in locations identified by vegetation management plan.
Lead: Alliance

Partners: Big Chico Creek Ecological Reserve; Upper watershed landowners, Department of Fish and Game, U.S. Fish and Wildlife Service, BCRCD
Timeline: 2010

Objective F. Sedimentation

Reduce human-caused sediment entering Big Chico Creek and its tributaries.

Action 1. Rehabilitate existing upper watershed dirt roads that contribute sediment to streams.
Lead: Alliance
Partners: Upper watershed landowners, Butte County RCD, other watershed groups, Sierra Pacific Industries; Big Chico Creek Ecological Reserve; Butte County Public Works, City of Chico Park Division
Timeline: 2010

Action 2. Work with Butte County Development Services and Public Works to develop standards for new dirt roads that incorporate design to reduce erosion and sedimentation.
Lead: Alliance
Partners: Butte County Public Works and Development Services, Butte County RCD, other watershed groups, Sierra Pacific Industries
Timeline: 2009

Objective G. Monitoring Program

Develop understanding of watershed health in the Big Chico Creek watershed through a monitoring program that uses current scientific protocols, addresses resource issues and involves citizen volunteers wherever possible.

Action 1. Develop strategic monitoring framework that focuses on key issues, tracks progress towards implementation of this strategy, includes measurable water quality characteristics and coordinates with broader regional and statewide efforts.
Lead: Alliance Monitoring Program
Partners: Regional Water Quality Control Board, Sierra Nevada Alliance, Sacramento River Watershed Program, DWR, City of Chico Stormwater Program, Butte County Stormwater Program, CSU, Chico, Butte County RCD, other Butte County watershed groups, CSU, Chico – DFG Macroinvertebrate
Timeline: 2008

Action 2. Evolve current citizen monitoring program from baseline monitoring to address key issues in monitoring framework.
Lead: Alliance Monitoring Program

Partners: Regional Water Quality Control Board, Sierra Nevada Alliance, Sacramento River Watershed Program, DWR, City of Chico Butte County Stormwater Program, Program, CSU, Chico, Butte County RCD, other Butte County watershed groups, , CSU, Chico – DFG Macroinvertebrate
Timeline: 2009

Action 3. Partner with Butte County RCD to link Alliance citizen monitoring program to RCD program to assist agricultural landowners.
Lead: Butte County RCD
Partners: Alliance Monitoring Program, other watershed groups, agricultural landowners
Timeline: 2006

Action 4. Establish continuous monitoring on Big Chico Creek using discharge gauging, automated samplers and composite sampling.
Lead: Alliance Monitoring Program
Partners: City of Chico Stormwater Program, Butte County Stormwater Program, Regional Water Quality Control Board
Timeline: 2008

Action 5. Evaluate impacts of septic systems on Big Chico Creek and its tributaries.
Lead: Alliance Monitoring Program
Partners: Butte County Nitrate Compliance Program, Regional Water Quality Control Board
Timeline: 2010

Chapter 2. Fisheries

Big Chico Creek supports three runs of salmon at various life stages, including Spring and Fall run spawning and Spring, Fall and Winter run rearing at the mouth of the creek in the lower tributaries (Mud, Rock and Lindo). The health of these populations is compromised by barriers, spawning gravel availability, temperature (See Objective 1.F. above) and siltation. Steelhead and Pacific lamprey have been observed in the creek, although data on these species is spotty. Native species were impacted by a rotenone treatment in 1986 and recovery has not been established.

GOAL 2 RESTORE SUSTAINABLE POPULATIONS OF NATIVE FISH IN BIG CHICO CREEK AND ITS TRIBUTARIES.

Objective A. Develop understanding of native fish communities

Action 1. Assess fish community structure and population levels for native resident fish. Compare to data available prior to 1986 rotenone treatment.

Lead: Alliance
Partners: CSU, Chico, Department of Fish and Game, U.S. Fish and Wildlife Service
Timeline: 2015

- Action 2. Survey for presence of Pacific Lamprey and compare historic and present population levels. Determine barriers to migration.
Lead: Alliance
Partners: CSU, Chico, Department of Fish and Game, U.S. Fish and Wildlife Service
Timeline: 2013

Objective B. Salmon and Steelhead Habitat

Restore salmon migration, improve temperatures for Spring run (see Objective 1.F. above), restore spawning gravels in lower watershed, and improve rearing habitat in Big Chico Creek and its tributaries.

- Action 1. Rehabilitate and improve Iron Canyon Fish Ladder to allow Spring run salmon migration at normal spring flows.
Lead: CSU, Chico
Partners: Alliance, City of Chico Park Division, CSU, Chico, DWR, Department of Fish and Game, U.S. Fish and Wildlife Service, Big Chico Creek Ecological Reserve
Timeline: 2008
- Action 2. Work with landowners to improve fish passage at diversion dams and culverts on Big Chico Creek, Mud Creek and Rock Creek.
Lead: Alliance
Partners: Landowners, Department of Fish and Game, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Butte County Public Works, DWR
Timeline: 2012
- Action 3. Work with landowners, nonprofit organizations and public agencies to enhance rearing habitat in the valley sections of Big Chico Creek, Lindo Channel, and Mud Creek.
Lead: Alliance
Partners: Landowners, The Nature Conservancy, Sacramento River Preservation Trust, Department of Fish and Game, U.S. Fish and Wildlife Service, CSU, Chico; CA Department of Parks and Recreation
Timeline: 2010
- Action 4. Coordinate with public agencies responsible for floodway maintenance to retain large woody debris and in-channel vegetation wherever possible.
Lead: Alliance

Partners: Butte County Public Works, DWR, City of Chico Park Division
Timeline: 2013

- Action 5. Conduct study to determine steelhead habitat and population levels on Big Chico Creek and tributaries.
Lead: Alliance
Partners: CSU, Chico, Department of Fish and Game, U.S. Fish and Wildlife Service
Timeline: 2008

Objective C. Gravel management

Restore sediment transport and gravels in Big Chico Creek and Lindo Channel to promote channel stability and salmonid habitat.

- Action 1. Work with Butte County Public Works to develop gravel management plan at the Five-Mile Dam to restore channel function, stability and habitat in Big Chico Creek and Lindo Channel.
Lead: Butte County Public Works, DWR
Partners: Alliance, Streaminders, DFG, USFWS
Timeline: 2007
- Action 2. Develop gravel replenishment program for Big Chico Creek downstream of the Five-Mile and One-Mile Dams.
Lead: Alliance
Partners: City of Chico Park Division, Streaminders, Butte County Public Works, Department of Fish and Game, U.S. Fish and Wildlife Service, CSU, Chico, UC Berkeley
Timeline: 2007
- Action 3. Work with City of Chico Park Division to modify the One-Mile pool to allow the passage of gravel (e.g., install inflatable dam).
Lead: City of Chico Park Division
Partners: Alliance
Timeline: 2008
- Action 4. Explore gravel replenishment program for areas of Mud Creek scoured out by diverted flood flows. Avoid exacerbating the problem of sediment build-up in Mud Creek downstream of Meridian Road from large amounts of sediment eroded out of the Sycamore Diversion.
Lead: Alliance
Partners: Butte County Public Works, DWR
Timeline: 2012

Chapter 3. Wildlife Resources

The Big Chico Creek watershed provides habitat for a wide range of wildlife species. There are eighteen listed species on the Big Chico Creek Ecological Reserve alone. Significant areas of protected habitat lie within the Reserve and Bidwell Park and the Nature Conservancy's Lassen Foothills project lies directly north of the watershed. Opportunities exist to protect and/or manage lands between these two protected areas to provide linkages.

GOAL 3 PROTECT AND ENHANCE NATIVE WILDLIFE POPULATIONS IN THE BIG CHICO CREEK WATERSHED.

Objective A. Amphibians and Reptiles

Identify status of and habitat for sensitive amphibians, including causes and remedies for decline.

- Action 1. Survey for presence and habitat of foothill yellow-legged frog and habitat that may be appropriate to reintroduce red-legged frog.
Lead: Big Chico Creek Ecological Reserve
Partners: Alliance, City of Chico, CSU, Chico, Department of Fish and Game, U.S. Fish and Wildlife Service
Timeline: 2010
- Action 2. Survey for presence and abundance of other amphibians and reptiles and evaluate for possible decline.
Lead: Big Chico Creek Ecological Reserve
Partners: Alliance, City of Chico Park Division, CSU, Chico, Department of Fish and Game, U.S. Fish and Wildlife Service
Timeline: 2015
- Action 3. Evaluate causes of Upper Bidwell Park changes in western pond turtle populations, age structure, and sex ratios from upstream areas where public access is limited (e.g. Big Chico Creek Ecological Reserve, private lands). Identify restoration program.
Lead: Big Chico Creek Ecological Reserve
Partners: Alliance, City of Chico Park Division, CSU, Chico, Department of Fish and Game, U.S. Fish and Wildlife Service
Timeline: 2015

Objective B. Migratory Deer

Incorporate migratory corridors for Tehama Deer Herd into land use and resource management planning.

- Action 1. Do research and develop demonstration project on shaded fuel break design that incorporates maintenance by deer browse.

Lead: Big Chico Creek Ecological Reserve
Partners: Alliance, Butte County Fire Safe Council, CSU, Chico,
Department of Fish and Game, U.S. Fish and Wildlife Service
Timeline: 2012

- Action 2. Cooperate with Butte County Planning Department to include contiguous corridors for migratory deer habitat in General Plan update, including Highway 32 mortality.
Lead: Alliance
Partners: Butte County Planning, Department of Fish and Game, Big Chico Creek Ecological Reserve, CalTrans
Timeline: 2007
- Action 3. Work with landowners to create or modify fencing so that it is wildlife-friendly along animal trails.
Lead: Alliance
Partners: Department of Fish and Game, Big Chico Creek Ecological Reserve
Timeline: 2010

Objective C. Birds

Increase habitat for native birds by restoring riparian areas.

- Action 1. Restore riparian areas and establish riparian area cover crops in agricultural areas to provide habitat and reduce nest parasitism by cowbirds on Willow Flycatcher, Warbling Vireo, Spotted Towhee, Yellow Warbler, Blue Grosbeak, Lazuli Bunting, Lesser Goldfinch, and Common Yellowthroat.
Lead: Alliance
Partners: Riparian area landowners, Butte County RCD, CSU, Chico, Department of Fish and Game, U.S. Fish and Wildlife Service, U.S. Natural Resources Conservation Service
Timeline: 2011
- Action 2. Provide public education on impacts of domestic and feral cats on bird and reptile populations.
Lead: Alliance
Partners: Cat Coalition, Butte County Human Society, Audubon Society
Timeline: 2011

Objective D. Landscape conservation

Develop strategy to conserve wildlife values, oak woodlands and recharge areas in the foothills.

- Action 1. Identify key areas and develop suite of conservation techniques to manage land use impacts on wildlife, oak woodlands and groundwater recharge management.
Lead: Alliance
Partners: Landowners, Butte County Planning and Water and Resource Conservation Departments, Butte County RCD, Department of Fish and Game, U.S. Fish and Wildlife Service, DWR, City of Chico Park Division and Planning Department
Timeline: 2007
- Action 2. Cooperate with U.S. Fish and Wildlife Service and Department of Fish and Game to develop Habitat Conservation Plan and Natural Community Conservation Plan.
Lead: U.S. F&WS, DFG
Partners: Landowners, Alliance, Butte County Planning Department, Butte County RCD, City of Chico Planning Department
Timeline: 2006
- Action 3. Cooperate with Butte County RCD and others on development of oak woodlands management plan and oak woodlands conservation easements.
Lead: Butte County RCD
Partners: Oak woodlands landowners, Alliance, Big Chico Creek Ecological Reserve, other watershed groups, U.C. Cooperative Extension, Butte County Planning Department, City of Chico Planning Department and Park Division
Timeline: 2006 – 2007

Chapter 4. Stream Channel and Riparian Habitat

Big Chico Creek and its tributaries' channel and riparian habitat have been altered by flood control projects, urbanization, recreational facilities, agriculture, and grazing. Significant opportunities exist to restore structure and function to the stream channels and riparian habitat.

GOAL 4 RESTORE FUNCTIONING RIPARIAN HABITAT ALONG BIG CHICO CREEK AND ITS TRIBUTARIES.

Objective A. Large woody debris

Maintain large woody debris for channel structure.

- Action 1. Modify flood control structures and bridges for large woody debris passage to allow retention of large woody debris consistent with flood safety.
Lead: Butte County Public Works Department

Partners: Alliance, Department of Water Resources, DWR, Butte County Office of Emergency Services, Sierra Pacific Industries
Timeline: 2010

Objective B. Stream channel incision and floodplain modification

Re-establish floodplain connections to channels suffering from incision in order to restore fluvial processes.

- Action 1. Develop channel restoration projects for that portion of Big Chico Creek downstream of the Nord Avenue bridge.
Lead: Alliance
Partners: Streamside landowners, Streaminders, Butte County Public Works Department
Timeline: 2007
- Action 2. Restore floodplain and riparian habitat along Lindo Channel.
Lead: City of Chico Park Division
Partners: Alliance, CSU, Chico
Timeline: 2007
- Action 3. Assess Big Chico Creek through lower Bidwell Park and CSU, Chico for channel changes from flow restriction (e.g. narrowing and siltation of low floodplain) and recreation impact and identify potential for restoring channel, floodplain and riparian habitat.
Lead: Alliance
Partners: City of Chico Park Division, CSU, Chico
Timeline: 2011
- Action 4. Develop channel restoration project to reverse downcutting in Sycamore Creek at confluence with Sycamore Diversion Channel.
Lead: Alliance
Partners: Butte County Public Works, City of Chico Park Division, DWR
Timeline: 2009
- Action 5. Work with landowners along Mud and Rock Creeks and at Big Chico Creek headwaters meadows to manage grazing to reduce channel incision, restore baseflow and riparian habitat.
Lead: Butte County RCD
Partners: Grazing landowners, Alliance, Cattlemen's Association
Timeline: 2009
- Action 6. Work with landowners at confluence of Lindo Channel and Big Chico, and Mud Creek and Big Chico to restore floodplain habitat while protecting residences and preserving the maximum viable agricultural lands.
Lead: Alliance

Partners: Landowners, Butte County Public Works, the Nature Conservancy, State Parks, Sacramento River Preservation Trust
Timeline: 2015

Objective C. Riparian Habitat

Restore riparian habitat along Big Chico Creek and its tributaries.

Action 1. Plant native riparian vegetation to shade channels of Big Chico Creek and tributaries consistent with flood management needs.

Lead: Alliance

Partners: Riparian landowners, City of Chico Park Division, Butte County Public Works, DWR

Timeline: 2007 and ongoing

Action 2. Work with City of Chico along Sycamore Creek to manage grazing to protect riparian habitat.

Lead: Alliance

Partners: Grazing landowners, City of Chico Park Division, CSU, Chico

Timeline: 2014

Chapter 5. Non-Native Species

Non-native invasive plant species reduce habitat value, impair stream – riparian habitat relationships, contribute to fire hazard and displace native vegetation within the Big Chico Creek watershed. Species of concern are giant reed, broom, Himalayan blackberry, tree of heaven, privet, vinca. Non-native bullfrogs are of special concern for their impacts on native foothill yellow-legged frogs, western pond turtles and other native species, and for compromising the potential to compromise efforts to reduce red-legged frogs in the watershed.

GOAL 5 ERADICATE NON-NATIVE PLANT AND ANIMAL SPECIES THAT THREATEN ECOSYSTEM HEALTH.

Objective A. Non-native Plant Species

Eradicate invasive non-native plant species in the Big Chico Creek watershed.

Action 1. Cooperate with CSU, Chico on removal of Arundo and Tamarisk in Lindo Channel.

Lead: CSU, Chico

Partners: Alliance, City of Chico Park Division, Riparian landowners, Sonoma Ecology Center

Timeline: 2006-2008

Action 2. Identify the invasive species that are impacting riparian areas and prioritize their removal, specifying preferred removal techniques.

Lead: Alliance

Partners: Riparian landowners, Butte County RCD, Butte County Weed Management Area, Butte County Fire Safe Council, City of Chico Park Division, Butte County Agricultural Commissioner, Public Works and Department of Water Resources, CSU, Chico, CA State Parks

Timeline: 2006-2007 and ongoing

Action 3. Remove non-natives and replant with natives along Big Chico Creek and its tributaries.

Lead: Alliance

Partners: Riparian landowners, Butte County RCD, Butte County Fire Safe Council, City of Chico Park Division, Butte County Agricultural Commissioner, Public Works and Department of Water Resources, CSU, Chico

Timeline: 2006-2007 and ongoing

Objective B. Non-native Animal Species

Eradicate non-native animal species that pose a threat to sensitive species.

Action 1. Survey to establish distribution of exotic bullfrogs and develop strategy for eradication in habitat areas key to foothill yellow-legged and red-legged frogs.

Lead: Big Chico Creek Ecological Reserve

Partners: Alliance, City of Chico, CSU, Chico, Department of Fish and Game, U.S. Fish and Wildlife Service

Timeline: 2010

Action 2. Determine impacts of non-native turkeys on herp and other native populations.

Lead: Big Chico Creek Ecological Reserve

Partners: Alliance, CSU, Chico, Department of Fish and Game, U.S. Fish and Wildlife Service

Timeline: 2015

Chapter 6. Groundwater

Groundwater is critically important in the Big Chico Creek watershed, both in its support of native vegetation such as valley oaks and riparian areas and in its supply for agriculture. Butte County has instituted a Basin Management Objectives program for stakeholder development of management levels for groundwater levels, groundwater quality and land subsidence. A significant area of the watershed is theorized to provide recharge for the Lower Tuscan aquifer, which provides the City of Chico municipal supply and is being considered for a large-scale regional conjunctive use project.

GOAL 6 DEVELOP SUSTAINABLE GROUNDWATER MANAGEMENT STRATEGIES USING AN OPEN PUBLIC PROCESS

Objective A. Stakeholder participation

Increase stakeholder participation in groundwater management.

Action 1. Assist Water Advisory Committee appointees for the Chico Urban Area and Vina subbasins in developing basin management objectives.
Lead: Chico Urban Area BMO Stakeholders Group, Vina BMO Stakeholders Group
Partners: Alliance, Butte County Water and Resource Conservation, DWR, City of Chico, Calwater, League of Women Voters
Timeline: 2006-2007

Action 2. Develop stakeholder process for management of the Lower Tuscan aquifer. Identify and actively involve those groundwater users potentially impacted by management plans.
Lead: Alliance
Partners: Butte County Water and Resource Conservation, DWR, Northern California Water Association, Tehama County, Glenn County, Colusa County, Sacramento Valley Environmental Water Caucus, League of Women Voters
Timeline: 2006-2007

Objective B. Science

Develop appropriate science to support groundwater management policies and programs.

Action 1. Work with Butte County Water and Resource Conservation and Butte County Planning Department to develop understanding of aquifer/stream interactions and to identify and protect key groundwater recharge areas.
Lead: Butte County Water and Resource Conservation and Butte County Planning Department
Partners: Alliance, DWR, CSU, Chico
Timeline: 2007

Action 2. Develop Watershed Environmental Hydrology model to predict impacts in stream and riparian zones from changes in groundwater management.
Lead: Alliance
Partners: Butte County Water and Resource Conservation, DWR, CSU, Chico

Timeline: 2007

Chapter 7. Fire Management

The Big Chico Creek watershed, like many in northern California, suffers from a build-up of fuels that can result in catastrophic fire. Many opportunities exist to partner with the Butte County Fire Safe Council to reduce that risk while maintaining ecological values of foothill and mountain areas.

GOAL 7 REDUCE FIRE DANGER WHILE MAINTAINING WATERSHED ECOLOGICAL FUNCTION.

Objective A. Cooperation with Butte County Fire Safe Council

Develop joint efforts with Butte County Fire Safe Council address fire risk while maintaining ecologic and hydrologic functions

Action 1. Expand Big Chico Creek Ecological Reserve's broom eradication project to other parts of the watershed and coordinate riparian removal with upland areas to prevent reinfestation.
Lead: Alliance
Partners: Butte County Fire Safe Council, Big Chico Creek Ecological Reserve, Butte County RCD
Timeline: 2008

Action 2. Incorporate fire safe ingress and egress concerns into road evaluations proposed for erosion reduction program.
Lead: Alliance
Partners: Butte County RCD, Butte County Fire Safe Council, other watershed groups
Timeline: 2009

Action 3. Cooperate with Butte County Fire Safe Council in joint outreach efforts.
Lead: Alliance
Partners: Butte County Fire Safe Council
Timeline: 2007

Action 4. Work with PG&E to reduce debris contributing to fire danger in power line easement maintenance.
Lead: Butte County Fire Safe Council
Partners: Alliance
Timeline: 2013

Action 5. Support research on fuel break performance and ecological function with multi-species retention as a goal.

Lead: Alliance
Partners: Butte County Fire Safe Council, CSU, Chico, CA Native Plant Society
Timeline: 2014

Chapter 8. Environmental Education Programs

Significant opportunity exists for partnership efforts in environmental education within Butte County. CSU, Chico has a Center for Excellence in math and science education. The community is developing a Northern California Natural History Museum. Marsh Junior High School has a strong watershed education program. Kids and Creeks and the Chico Creek Nature Center have strong education programs. Big Chico Creek Ecological Reserve includes K-12 education in its programs.

GOAL 8 DEVELOP EDUCATIONAL PROGRAMS IN PARTNERSHIP WITH EXISTING EFFORTS TO INCREASE PUBLIC AND K-12 UNDERSTANDING OF WATERSHED FUNCTIONS.

Objective A. Linking environmental education with citizen monitoring

Develop K-12 environmental education elements of the citizen monitoring program.

Action 1. Coordinate with CSU, Chico's Hands On Lab to develop curriculum kits for citizen monitoring.

Lead: Alliance
Partners: CSU, Chico Hands On Lab
Timeline: 2008

Action 2. Coordinate with Kids and Creeks, Chico Creek Nature Center, other education groups and Chico Unified School District to develop joint efforts for environmental education.

Lead: Alliance
Partners: Kids and Creeks, Chico Creek Nature Center, Chico Unified School District, CSU Chico – DFG Macroinvertebrate Lab
Timeline: 2010

Objective B. Outdoor education

Develop outdoor education activities.

Action 1. Institute watershed science summer camp in cooperation with Big Chico Creek Ecological Reserve.

Lead: Alliance
Partners: Community Collaborative for Youth, Big Chico Creek Ecological Reserve, CSU, Chico Hands On Lab, Chapman Neighborhood Council, Mechoopda Tribe
Timeline: 2008

Action 2.

Institute docent program where community members learn to conduct natural history tours on the BCCER. Conduct docent-led natural history tours on a weekly schedule for Chico and surrounding community.

Lead: Big Chico Creek Ecological Reserve, Northern California
Natural History Museum

Partners: Alliance

Timeline: 2010