

### GOALS

1. By 2025, evaluate the effect of one management fire on vegetative community structure on spring brooks.
2. By 2025, keep springs separated from other aquatic habitats if they are naturally isolated.
3. By 2025, protect all perennial springs in each HUC to the insure surface flowing water is maintained
4. By 2025, establish long term protection for at least one spring or spring brook in each HUC through easement or acquisition.
5. By 2025, Restore at least one spring or spring brook in each HUC. (e.g. species reintroductions into suitable habitats, and rewatering)
6. By 2025, restore native species assemblages, and reduce invasive species on at least one spring or spring brook in each HUC.
7. By 2025, secure one or more new agreements per HUC to protect vulnerable aquifers from overexploitation to insure that continuous surface water flows are not interrupted.

The State Wildlife Action Plan examines the health of wildlife and prescribes actions to conserve wildlife and vital habitat before they become more rare and more costly to protect. The plan also promotes wildlife conservation while furthering responsible development and addressing the needs of a growing human population.

### STRATEGIES, OBJECTIVES AND ACTIVITIES

1. Manage invasive species to expand range of native fishes
  - a. Objectives
    - i. Selectively remove or control invasive species within the HUCs
  - b. Activities
    - i. Collect and update data on abundance, distribution, and threats to native aquatic fauna
    - ii. Coordinate and partner with public and private landowners
    - iii. Apply for and obtain funding
    - iv. Develop a management and control plan for invasive species
    - v. Initiate long-term monitoring
2. Translocation or reintroduction of species
  - a. Objectives
    - i. Establish self-sustaining and genetically viable native fish populations
  - b. Activities
    - i. Identify source populations
    - ii. Collect/analyze genetic data to define priorities
    - iii. Remove invasive or problematic species from historic native fish habitat
    - iv. Create georeferenced map/data base for native fish habitats
    - v. Develop basin plan for native fish management
    - vi. Obtain funding for strategy implementation
    - vii. Coordinate management actions with natural resource agencies, NGOs and private landowners
3. Establish and develop co-management partnership(s)
  - a. Objectives
    - i. Establish joint partnership to improve dam and/or water management and use
    - ii. Establish joint partnership to control invasive species
    - iii. Establish joint partnership to manage renewable energy project impacts and mitigation
  - b. Activities
    - i. Develop interagency cooperation agreement/plan
    - ii. Develop user group cooperation/coordination agreement/plan
    - iii. Coordinate with related industry/business interests
    - iv. Identify management/conservation partners
    - v. Obtain funding for strategy development
4. Improve management of dams and other barriers
  - a. Objectives
    - i. Where appropriate, dams and barriers are modified or maintained to prevent invasion and/or genetic mixing with nonnative fishes
  - b. Activities
    - i. Identify and prioritize barriers for retrofit
    - ii. Identify and prioritize key areas for fish passage
    - iii. Conduct viability study of barrier designs to determine optimal design
    - iv. Develop manmade barrier maintenance protocol
    - v. Obtain funding to implement strategy
5. Provide input on local planning
  - a. Objectives
    - i. Protect spring habitats and conserve flows through participation in the planning and decision making processes
6. Data gathering and analysis
  - a. Objectives
    - i. Identify impacts of dams, water management and water use to the spring systems and species
7. Provide Outreach and education
  - a. Objectives
    - i. Improved public awareness, concern and participation in resource conservation

### AT RISK SPECIES

- Amargosa speckled dace
- Amargosa pupfish
- arroyo toad
- black toad
- Cottonball Marsh pupfish
- desert pupfish
- desert slender salamander
- Long Valley speckled dace
- Mohave tui chub
- Owens pupfish
- Owens tui chub
- Owens speckled dace
- Owens sucker
- Salt Creek pupfish
- Shoshone pupfish
- Saratoga Springs pupfish
- toikona tui chub
- southwestern pond turtle



DESERT PUPFISH



Owens pupfish



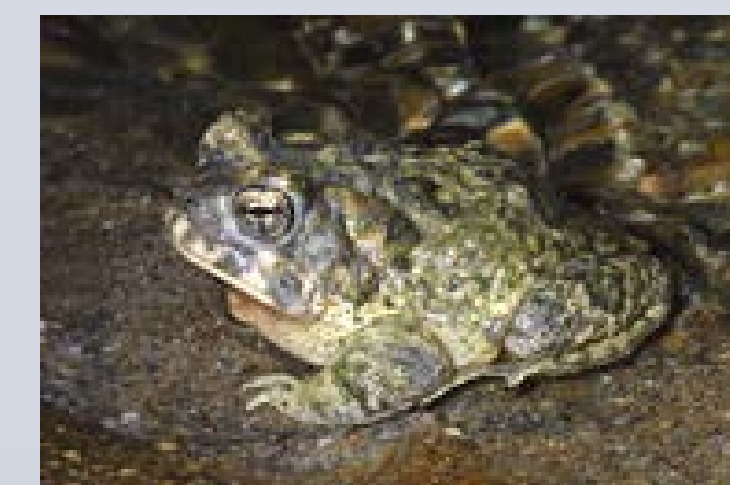
Owens speckled dace



DFG File Photo  
Mohave tui chub



southwestern pond turtle © 2003 Pierre Fidenci



arroyo toad © 2004 Chris Brown, USGS



toikona tui chub



Owens tui chub

### ENVIRONMENTAL STRESSES

- Changes in area and extent of community
- Changes in community structure and composition
- Connectivity/habitat fragmentation
- Changes in natural fire regime
- Surface water flow regime
- Change in groundwater tables
- Changes in annual average precipitation



bull thistle. Photo courtesy of Bob Case



wind energy



Incompatible grazing practices



recreational activities

### HUMAN RELATED IMPACTS

- Invasive plants/animals
- Dams & incompatible water management
- Problematic native species
- Groundwater overdraft
- Hybridization with introduced forms
- Renewable energy development
- Incompatible grazing practices
- Incompatible recreational activities
- Aquaculture
- Commercial & industrial development



Tui chub habitat on private ranch land.

### Name

- David Vigil
- Junko Hoshi
- Steve Parmenter
- Judy Hohman
- Dawne Emery
- Glenn Yoshioka
- Mike Giusti

### TEAM

#### Organization

- CDFW-R6
- CDFW-HCPB
- CDFW-R6
- USFWS
- CDFW-R6
- CDFW-FB
- CDFW-R6

#### Role

- Team Member
- Team Member
- Team Member
- Team Member
- Team Member
- Team Member
- Team Member
- Leader/Manager:



Amargosa pupfish habitat in BLM's Grimshaw Lake ACEC