

LOWER VIRGIN RIVER

Recovery Actions

Recovery Actions

- Virgin River Fishes Recovery Team
- SNWA Funded Activities (fish and birds)
- BLM Funded Actions (e.g. tamarisk removal, fish barriers)
- NDOW (e.g. tilapia control)
- **Proposed Virgin River Habitat Conservation and Recovery Program**

Proposed Virgin River Habitat Conservation and Recovery Program

- Purpose and Need
- Function
- Participants
- Process
- Funding
- Species
- Timeframe

Proposed Virgin River Habitat Conservation and Recovery Program

■ Purpose and Need

- VRRMRP in Utah identified need for NV and AZ program
- Mesquite Lands Act – called for HCP (2 fish and 2 birds)
- Clark Co. MSHCP – called for conservation assessment of imperiled species in the VR basin in NV

■ Function

- To provide ESA compliance mechanism for development
 - Section 10 – HCPs
 - Section 7 – Goal – determine if program can offset effects of projects with federal nexus
- To identify and implement recovery actions for 3 birds and 2 fish

■ Participants

- USFWS, NPS, BLM, NDOW, SNWA, Clark Co., Virgin Valley Water District, City of Mesquite

Proposed Virgin River Habitat Conservation and Recovery Program

■ Process

- Determination of Program – via NEPA process
- EC – participants
 - TC – technical experts
 - Aquatic workgroup
 - Terrestrial
 - Hydrology
 - Data management
 - Stakeholder Committee – Virgin River Conservation Partnership (e.g. County , City, NRCS etc.)

■ **Funding for Program Devt** Lands sold under Mesquite Lands Act, Southern NV Public Lands Management Act

■ **Species Considered** SWWF, YCR, YBC (C), VR chub, Woundfin

■ **Timeframe** Fall 2007

Recovery Actions

- Past
- Ongoing
- Potential



- Fish
- Birds

Past

VR chub and Woundfin

- BIO-WEST surveyed from Lake Mead to Halfway Wash in 2004 and 2005, earlier surveys of portions of this area also by BIO-WEST and the Lower Virgin River Recovery Team
- 1999-2001 – woundfin restocking in experimental reach by Recovery Team and BIO-WEST
- 1999-2001 – red shiner removal in experimental reach by Recovery Team and BIO-WEST
- 2002 – tilapia removal below Bunkerville Diversion reach in 1 mile stretch, Lower Virgin River Recovery Team and BIO-WEST

Ongoing

VR chub and Woundfin

- Monitoring of 4 reaches (Mesquite, Riverside, Experimental, Beaver Dam Wash) for native and non-native fishes
- Lower Virgin River Recovery Team sampled the Halfway Wash station, at least up to 2005, potentially still ongoing
- As of April 2007, will be constructing a non-native fish barrier on a private landowner's land in the Mesquite Reach through NDOW's Landowner Incentive Program.

Past SWWF

- **2005**
- Tamarisk mechanical removal by BLM for BLM Las Vegas fuels project (in combination with NPS, BLM, Nevada Conservation Corps, USBR, USFWS, Univ. Nevada – Reno) – 1,300 acres were treated along the Virgin River, with over 70% of public lands in the Bunkerville and Mesquite Wildland-Urban Interface areas treated
- **2000-2003**
- USGS breeding site and territory summary – includes Virgin River – Sogge et al.
- **1999-2000**
- Breeding surveys by NDOW

Ongoing SWWF

- Monitoring of 3 sites (Littlefield, Mesquite, and Mormon Mesa) which have sub-sites within each – by SWCA for USBR
 - Littlefield site – presence/absence surveys
 - Mesquite and Mormon Mesa
 - Life history studies, including depredation, brood parasitism rates, nesting success, color banded/resighted, vegetation/microclimate measurements of nest sites, non-nest sites, trapping and removal of brown-headed cowbird
- AGFD – 2006 surveys of southwestern willow flycatcher along Arizona portions of Virgin River – 3 sites – none found

Past

Yuma clapper rail and Yellow-billed cuckoo

- **2005**
- Tamarisk mechanical removal by BLM for BLM Las Vegas fuels project (in combination with NPS, BLM, Nevada Conservation Corps, USBR, USFWS, Univ. Nevada – Reno) – 1,300 acres were treated along the Virgin River, with over 70% of public lands in the Bunkerville and Mesquite Wildland-Urban Interface areas treated
- **1999-2003**
- Previous surveys also completed for these 2 species by SWCA, at same time as SWCA southwestern willow flycatcher surveys
- **1999-2000**
- Initial surveys for Yuma clapper rail by NDOW

Ongoing

Yuma clapper rail and Yellow-billed cuckoo

- Monitoring of 4 areas for presence/absence, general habitat description, and assessment of suitable habitat:

Littlefield, Mesquite, Mormon Mesa, and Virgin Delta
[Virgin River Landing and Fisherman's Cove]

Birds

Additional Information

- USBR has made acquisitions along the Virgin River in the Mormon Mesa area – likely provides habitat for one or all of these three bird species (contact John Sweat at USBR, 702-293-8574)
- Additional management recommendations in Army Corps Virgin River Watershed Assessment (S.E.)
- Some NDOW efforts have been directed at working with the landowners of the habitat south of Mesquite Bridge; an off channel habitat that is fed by waters from a golf course

FISH

Potential Recovery Actions

Baseline Conditions

- Describe and evaluate baseline conditions of the lower Virgin River and tributaries, by reach
- Describe hydrological and geomorphological conditions
- Describe habitat conditions
- Establish current population levels of woundfin and Virgin River chub for each reach of the lower Virgin River
- Description of prey source types and abundance

Instream Flows

- Provide adequate instream flows consistent with water rights
- Evaluate existing and acquired flows
- Protect instream flows consistent with water rights
- Monitor population responses

Habitat Enhancement

- Identify and define degraded aquatic habitat
- Determine effects of timing, magnitude, and duration of flows and physical habitat.
- Identify and define degraded riparian and 100-year floodplain habitat.
Develop habitat enhancement and protection plans
- Effective flows that maintain channel morphology and integrity.
- Controlling non-native vegetation that competes with native vegetation.
- Managing native plant communities in riparian zone and 100-year floodplain.

Nonnative Fish Control

- Elimination of nonnative fish species and reestablish native species communities
 - Establishment of barriers for non-native fishes – barrier plan
 - Establish fish barriers at suitable sites along the mainstem lower Virgin River
 - Construct a fish barrier at Bunkerville Diversion
 - Construct appropriate barriers on irrigation drains on the lower Virgin River mainstem to facilitate red shiner eradication
- Mechanical and chemical control of nonnative fish species
 - Eradicate or reduce nonnative fish species above Bunkerville Diversion to the Virgin River Gorge
 - Eradicate or reduce nonnative fish species in Halfway Wash
 - Re-stock reaches that have chemically eradicated nonnative species and have sufficient barriers

Stocking

- Establish additional populations of native species within historically occupied habitat.
 - Reintroduce woundfin and Virgin River chub into additional reaches once sufficient flows to maintain fish populations have been provided and nonnative species levels have been eradicated and/or controlled in those reaches.
 - Develop a viable propagation program in Nevada and Arizona

Migration and Recruitment Studies

- Determine and enhance native species migration movements
- Determine home range, seasonal movements, and habitat requirements of adult, juvenile, and young of the year (YOY) woundfin and Virgin River chub
- Evaluate impacts of barriers such as dams, diversions, and irrigation canals on native species
- Determine effect of environmental factors on recruitment
- Identify and evaluate feasibility of migration enhancement actions
- Implement migration and recruitment enhancement actions
- Determine and enhance life-stage specific habitat requirements

Monitoring

- Monitor native species populations
- Monitor existing populations of woundfin and Virgin River chub
- Monitor reintroduction of woundfin and Virgin River chub
- Monitor habitat conditions
- Prepare an annual standardized report on population and habitat trends
- Maintain and update the Virgin River Fishes Data Base
- Establish/Update Monitoring Protocols
 - Review and update existing monitoring protocols and sampling stations
 - Review and update existing population and genetic monitoring protocols and sampling stations
 - Develop protocols for monitoring habitat conditions

Open Space Protection

- Create open space opportunities along the river corridor
 - Conservation easements
 - Purchase floodplain lands to protect as open space

Education

- A component of the overall VRHCRP will include education and outreach for the public to understand the purpose and need for the VRHCRP.
- Volunteer efforts may also be sought to further engage the public in the VRHCRP

BIRDS

Potential Recovery Actions

Baseline Conditions

- Describe and evaluate baseline conditions of the lower Virgin River and tributaries' floodplains, by reach.
- Describe hydrological, geomorphological, and vegetation conditions
- Describe instream flows, by reach
- Describe current habitat conditions specific to each bird species (swwf, yucr, ybcu) , including effects of grazing (swwf, ybcu) and brood parasitism (swwf), by reach
- Establish current population levels of southwestern willow flycatcher, Yuma clapper rail, and yellow-billed cuckoo

Instream Flows

- Provide adequate instream flows consistent with water rights
- Evaluate existing and acquired flows
- Protect instream flows consistent with water rights
- Protect flows consistent with water rights
- Monitor population responses

Habitat Enhancement

- Develop habitat enhancement and protection plans, especially for reconnecting marshes and floodplains with the active channel
- Identify and define degraded riparian and 100-year floodplain habitat species to each of the three bird species
- Implement habitat enhancement actions
 - Effective flows that maintain channel morphology and integrity.
 - Managing native plant communities in riparian zone and 100-year floodplain.
 - Control non-native vegetation that competes with native vegetation. Eradicate tamarisk from floodplain of Virgin River and tributaries.
 - Reconnect marshes and floodplains with the active channel

Monitoring

- Monitor existing populations of southwestern willow flycatcher, Yuma clapper rail, and yellow-billed cuckoo
- Monitor habitat conditions, including vegetation and microclimate
- Prepare an annual standardized report on population and habitat trends
- Develop and maintain a database similar to the Virgin River Fishes Data Base for demographic and habitat information for southwestern willow flycatcher, Yuma clapper rail, and yellow-billed cuckoo

Open Space Protection

- Create open space opportunities along the river corridor.
 - Conservation easements
 - Purchase floodplain lands to protect as open space

Education

- A component of the overall VRHCRP will include education and outreach for the public to understand the purpose and need for the VRHCRP.
- Educate private landowners along the Virgin River about land management effects on southwestern willow flycatcher, Yuma clapper rail, and yellow-billed cuckoo and opportunities with NDOW's Landowner Incentive Program
- Volunteer efforts may also be sought to further engage the public in the VRHCRP.