

Virgin River Chub (*Gila seminuda*)**Species Status Statement.**Distribution

The historical range of Virgin River chub included the Virgin River and Muddy River systems in Utah, Arizona, and Nevada. In the mainstem Virgin River, its distribution extended from the confluence of the Colorado River upstream to approximately 2.9 miles above La Verkin Springs in Utah. Currently, Virgin River chub occurs in the mainstem Virgin River, from above La Verkin Springs downstream to the confluence of Beaver Dam Wash; with small numbers occurring sporadically downstream of Beaver Dam Wash.

Table 1. Utah counties currently occupied by this species.

<b>Virgin River Chub</b>
WASHINGTON

Abundance and Trends

In the mid to late 1980s, Virgin River chub declined throughout its range due to the colonization of red shiner. These declines in abundance and distribution resulted in the species' listing as endangered under the ESA in 1989 (USFWS 1994). Since this decline, Virgin River chub has continued to persist only in the upstream reach of critical habitat (La Verkin Springs to Washington Fields Diversion). Since monitoring began in 1976, Virgin River chub populations continue to fluctuate with increases in abundance correlating with above average water years; however, in 2015, populations increased despite many consecutive low water years. This increase in numbers is likely the success of ongoing management actions. Given annual fluctuations over the past 10 years, Virgin River chub monitoring data indicate that a small adult population continues to persist, and when conditions are favorable, these adult fish are able to reproduce and recruit young into the population.

**Statement of Habitat Needs and Threats to the Species.**Habitat Needs

Critical habitat for Virgin River chub is the 100-year floodplain of the Virgin River from the confluence of La Verkin Creek to Halfway Wash, Nevada. Adults prefer deep-water habitats of slow to moderate velocity, containing boulders and other in-stream cover (Hardy et al. 1989). They will also forage in run habitat. Juveniles use deep runs or shallow pools. Despite this observed segregation of age class by habitat type, there is no known preference among age class and substrate type (Golden and Holden 2005).

Virgin River chub appear to be more nocturnally active than other native Virgin River fishes. This strategy provides more opportunity for foraging and survival of young during conditions when there is low streamflow, high temperature, and high clarity.

### Threats to the Species

Primary threats to Virgin River chub include habitat loss, fragmentation, and degradation. Mechanisms include flow depletion and dewatering caused by stream diversion, prolonged drought, fire and associated ash runoff, invasive aquatic species including non-native fish, invertebrates, plants, and pathogens (Deacon and Hardy 1982; Deacon 1988; Hardy et al. 2003; USFWS 2008; Huizinga and Fridell 2012). In addition, intensive urban development within the range of species will continue to threaten the species and require intensive long-term management.

Table 2. Summary of a Utah threat assessment and prioritization completed in 2014. This assessment applies to the species' entire distribution within Utah. For species that also occur elsewhere, this assessment applies only to the portion of their distribution within Utah. The full threat assessment provides more information including lower-ranked threats, crucial data gaps, methods, and definitions (UDWR 2015; Salafsky et al. 2008).

<b>Virgin River Chub</b>
<b>Very High</b>
Agricultural / Municipal / Industrial Water Usage
Dam / Reservoir Operation
Droughts
Increasing Stream Temperatures
Invasive Wildlife Species - Non-native
Storms and Flooding
<b>High</b>
Channelization / Bank Alteration (direct, intentional)
Commercial and Industrial Areas
Earthquakes
Housing and Urban Areas
Inappropriate Fire Frequency and Intensity
Invasive Plant Species – Non-native
Small Isolated Populations
Presence of Diversions
Roads – Transportation Network
Sediment Transport Imbalance
Water Allocation Policies
<b>Medium</b>
Agricultural Pollution
OHV Motorized Recreation
Problematic Plant Species – Native Wetland
Salinity Alteration (of water)
Stormwater Runoff
Thermal Alteration of Water (e.g., by power plant)

### **Rationale for Designation.**

In 2002, the Virgin River Resource Management and Recovery Program (Program) was established to coordinate and implement conservation and recovery actions in the Virgin River Basin within Utah as identified in the Virgin River Fishes Recovery Plan (UDNR 2002; USFWS 1994). While the Program has made significant progress over the past decade on Virgin River chub recovery and conservation, the continued persistence of this species will require the active management of populations and habitat conditions for the foreseeable future. Washington County continues to experience rapid population growth and increasing demands on the Virgin River system for water development, therefore these factors will be a continuous threat that requires intensive management.

Protection and restoration of the 100-year floodplain of the Virgin River is important to recovery efforts for Virgin River chub. Re-establishing the natural function of the Virgin River would benefit all native species found within the floodplain with greater success than long-term

management. Measures to conserve Virgin River chub would also benefit woundfin, Virgin spinedace, flannelmouth sucker, and desert sucker.

### **Economic Impacts of Sensitive Species Designation.**

Sensitive species designation is intended to facilitate management of this species, which is required to reverse Endangered Species Act listing and lessen related economic impacts. Virgin River chub is currently listed as endangered under the Endangered Species Act. This listing has resulted in extensive costs to mitigate water development, urban and industrial development, and nonnative species introductions in Washington County. If the species is downlisted or delisted, continued efforts will be required to mitigate threats and maintain stronger populations.

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