

# Redbelly Dace



ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS

SOUTHERN REDBELLY DACE © JOSEPH R. TOMELLERI



redbelly dace occur in West Plum Creek, Spottlewood Creek, and Lonetree Creek. The latter two locations represent recently introduced conservation populations, which have been confirmed as self-sustaining. Southern redbelly dace have a smaller distribution but are also widely scattered into isolated populations. In Colorado, southern redbelly dace occur in five drainages: Apishapa, Chico, Fountain, Rush, and Upper Arkansas. The Low Back Creek population along with another population in an unnamed tributary nearby, both in the Upper Arkansas drainage, are the only known native stream populations. All others are introduced conservation populations in isolated ponds.

Redbelly dace (Family *Cyprinidae*) are small native fish of the Colorado plains. Their name comes from the red color of their undersides during the summer months.

## Species Description

### Identification

Two dace are included in this guild: northern redbelly dace (*Phoxinus eos*) and southern redbelly dace (*P. erythrogaster*). The southern redbelly dace can attain a length of up to 3 inches, while the northern redbelly dace is usually less than 2 inches in length. During summer, males acquire the red on their bellies that inspired their names.

### Preferred Habitats

Both dace occupy stream channels and off-channel wetlands.

### Diet

Northern redbelly dace are omnivorous, feeding on vegetation, small invertebrates, and detritus

throughout the water column. Southern redbelly dace graze from the surface of substrate, rocks and other submerged objects.

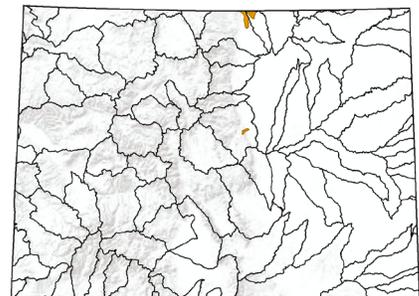
### Conservation Status

Neither dace species is Federally endangered; however, they are both considered locally uncommon. Both are endangered in Colorado, due to low population numbers, and are listed as Tier 1 Species of Greatest Conservation Need (CPW 2015).

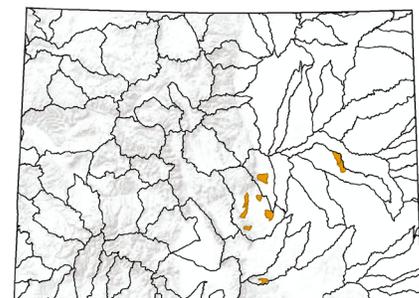
## Species Distribution

### Range

Northern redbelly dace are found in many isolated populations across the northern United States and Canada. In Colorado, northern



Northern Redbelly Dace



Southern Redbelly Dace

Colorado map based on CPW (2019) and represents the most current information on distribution by 12-digit hydrologic unit codes (HUCs), shown in orange with grey outline. Solid black lines indicate larger 8-digit HUCs.

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# Preferred Habitat Conditions

All fish must have connectivity among habitats, suitable for all life cycles, including spawning, rearing, feeding, and refuge. Dams and other barriers to fish movement can have both positive and negative effects for fishes of conservation concern. Barriers can block contact with non-native predatory fish or non-native fish that alter the gene pool of native fish, but they can also prevent desirable gene flow among populations. Due to the difficulty of generalizing effects of barriers, they are not included in the scorecard.

Dominant vegetation	plenty of vegetation, especially algae
Morphology of stream	slow-moving pools, undercut banks
Predatory fish	absence of large predatory fish
Predominant water depth	>10 inches
Sunlight	ample shade
Water origin	spring-fed water up to third-order streams
Water quality	clear and unpolluted
Water temperature	cool; 63–75°F
Woody debris	presence of woody debris as cover

# Management Recommendations

This fact sheet contains easy-to-use guidelines for understanding habitat needs of Colorado Parks and Wildlife priority wetland-dependent wildlife. Biologists with expertise in redbelly dace have suggested numerous practical steps that can be taken to improve habitat quality for these species.

## Hydrology / Stream Morphology

- Restore streams to natural function, especially dewatered streams.
- Minimize changes to natural stream functions.
- Protect springs that flow into streams.
- Prevent erosion and siltation by maintaining buffers.
- Restore and/or enhance connections for migration and dispersal.

## Contamination

- Prevent with barriers invasion by predatory and non-native fish.
- Prevent stocking of predatory fish and bullfrogs.
- Monitor streams for toxins and artificial hormones.
- Consider location of wastewater treatment facilities.

## Conservation

- Restock appropriate streams with redbelly dace from closest stream.
- Restrict harvest and enforce regulations.
- Identify suitable habitat for potential translocations.



SOUTHERN REDBELLY DACE © MPCCA PHOTOS



HABITAT © CO NATURAL HERITAGE PROGRAM



NORTHERN REDBELLY DACE © PETROGLYPH

## Acknowledgements

Boyd Wright and Paul Foutz (Colorado Parks and Wildlife) reviewed an earlier version and provided input on preferred habitat conditions.

## Suggested Reading and Citations

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# Habitat Scorecard for Redbelly Dace (v. Nov 2020)

## Assessment of habitat before and after restoration or management actions

Project Name: \_\_\_\_\_ Project Area (acres): \_\_\_\_\_ Habitat Area (acres): \_\_\_\_\_

Size of Contiguous Habitat outside Project Area (acres): \_\_\_\_\_ Ownership (circle): Same / Different / Conservation Easement

**Scorecard Instructions:** Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. **If condition is outside range or is not described, enter a zero.**

**Project Area and Habitat Area:** The project area includes the entire area affected by the project. The habitat is the area that will provide (in case of pre-project) or does provide (post-project) habitat for each potential target species within the project area. The habitat area may be the same size as the project area or it might be smaller and it may be defined differently for different target species. If there is contiguous habitat area outside the project area, note the size and whether the ownership of the contiguous areas is the same or different and whether it is under conservation easement or other habitat protection. If the habitat area within your project area is noncontiguous and/or if sections are in very different conditions, consider using multiple scorecards so that each scorecard represents the general conditions. If you use multiple scorecards, identify each habitat area on a map.

Key habitat variable and conditions	Value	Pre-Project	Expected Post-Project	Actual Post-Project
<b>Date of assessment</b>				
<b>Stream morphology</b>				
Pools, overhung banks, slow water	14.0			
<b>Water quality</b>				
No visual evidence of turbidity or other pollutants	13.3			
Some turbidity or presence of other pollutants, but limited to small and localized areas within the wetland	8.9			
Water is cloudy or has unnatural oil sheen, but the bottom is still visible. Note: If the sheen breaks apart when you run your finger through it, it is a natural bacterial process and not water pollution.	4.4			
<b>Dominant vegetation</b>				
Ample vegetation, especially algae	12.6			
<b>Sunlight availability</b>				
Full shade	12.6			
Some shade	8.4			
No shade	4.2			
<b>Water origin/stream order</b>				
<b>Answer for EITHER northern or southern redbelly dace</b>				
<b>Northern redbelly dace</b>				
Spring-fed; stream order: 1 – 2	12.6			
<b>Southern redbelly dace</b>				
Stream order: 1 – 3	12.6			
<b>Predatory fish</b>				
General absence of predatory fish	12.6			
<b>Predominant depth of water</b>				
10 inches	11.2			
>8 – 20 inches	7.5			
6 – 8 inches	3.7			
<b>Woody debris</b>				
Presence of woody debris as cover	11.2			
<b>Total (of 100 possible): add all numbers in before or after columns</b>				