# Orangethroat Darter

**ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS**



Orangethroat darters (*Etheostoma spectabile*, Family *Percidae*) are usually found in swift-flowing streams, but they can take refuge in pools during periods of low flow.

## Species Description

### Identification

Male orangethroat darters, with aqua-blue stripes and splotches on a bright orange background, have fins that match the aqua-blue and orange of their bodies. Females are patterned similarly to males but with colors in muted browns. They can grow up to 3 inches in length.

### Preferred Habitats

In Colorado, orangethroat darters are restricted to streams.

### Diet

Feeding on the bottom, orangethroat darters consume primarily macroinvertebrates, including aquatic insects, isopods, and amphipods. To a lesser degree, they eat fish eggs.

### Conservation Status

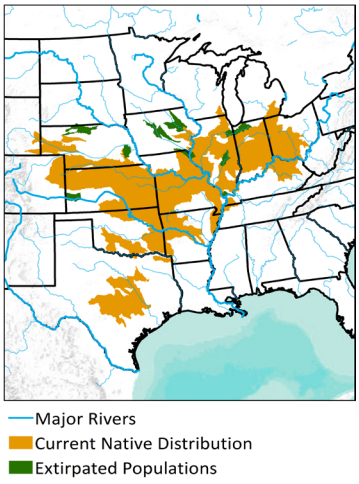
Federal: Not listed.
Colorado: Listed as Species of Concern and designated Tier 1 Species of Greatest Conservation Need.

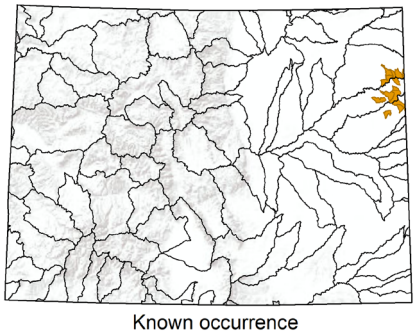
With a declining trend in Colorado, orangethroat darters were designated as a Tier 1 Species of Greatest Conservation Need, primarily because groundwater depletion in the Republican River Basin is considered an immediate threat to their preferred habitat. The International Union for Conservation of Nature places this species in the category of least concern due to large population size and abundance throughout most of their range.

## Species Distribution

### Range

Orangethroat darters occupy a large portion of central United States, with Colorado and Wyoming being on the western edge of their distribution. In Colorado, they are known only from the Republican River Basin.




Distribution of orangethroat darter in North America and in Colorado. Map of entire range based on data provided by NatureServe. 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.

Version Date: November 2020

# 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.

| | |
|---|---|
| Features within streams | riffles but can take refuge in pools during periodic dewatering |
| Cover | vegetation, undercut banks, and detritus |
| Substrate, including spawning | various mixtures of sand, gravel, and cobble; silt-free |
| Stream width | average of 10.5 feet; range: 3–20 feet |
| Water depth | 5–16 inches |
| Water velocity | swift, for example 4.3 feet/s |
| Water temperature | temperature tolerance varies among sites from 50–81 °F; at 84 °F they look for cooler water |
| Water temperature for spawning | 50–81 °F |
| Water temperature for growth | 47–75 °F |

# 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 orangethroat darter have suggested numerous practical steps that can be taken to improve habitat quality for this species.

### Hydrology

- Maintain water flow.

### Contamination

- Reduce agricultural chemicals and other toxins.
- Reduce siltation.

### Land Use

- Avoid mining gravel from entire streambed.

### Conservation

- Secure water availability through easements and agreements.
- Protect groundwater and surface water.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**Acknowledgements**

Boyd Wright (Colorado Parks and Wildlife, Fort Collins, CO) reviewed an earlier version and provided input on preferred habitat conditions.

**Suggested Reading and Citations**

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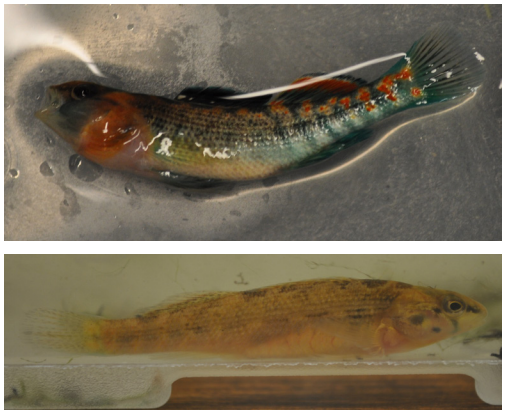

FEMALE (BELOW) AND MALE (ABOVE) © FREDLYFISH4

# Habitat Scorecard for Orangethroat Darter (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 |
|---|---|---|---|---|
| **Date of assessment** | | | | |
| **Stream feature** | | | | |
| Series of riffles and pools | 12.5 | | | |
| Condition can be described somewhere between the conditions above and below | 8.3 | | | |
| No well-defined riffles | 4.2 | | | |
| **Substrate** | | | | |
| Various mixture of gravel, sand, and cobble throughout riffle(s); silt free | 11.9 | | | |
| Mixture of gravel, sand, and cobble throughout riffle(s) with some silt | 7.9 | | | |
| No gravel or cobble in riffle(s) | 4.0 | | | |
| **Stream flow** | | | | |
| Flows all year in recent history | 11.9 | | | |
| Refuge pools that never dry up, but riffles dry occasionally and for short periods (not more than a few days or a week) | 7.9 | | | |
| Neither of above | 4.0 | | | |
| **Water depth** | | | | |
| 5–16 inches in riffle(s) | 11.3 | | | |
| > 16 inches in riffle(s) | 7.5 | | | |
| < 5 inches in riffle(s) | 3.8 | | | |
| **Water velocity** | | | | |
| Swift-flowing water in riffle(s) | 11.3 | | | |
| Slow-flowing water | 7.5 | | | |
| Almost stagnant | 3.8 | | | |
| **Cover (e.g., vegetation, undercut banks, instream debris)** | | | | |
| Cover hangs over or instream throughout riffle | 10.6 | | | |
| Cover sparse but present | 7.1 | | | |
| No well-defined cover over or instream | 3.5 | | | |
| **Riparian condition** | | | | |
| Riparian area thick with uninterrupted vegetation; livestock fully excluded | 10.6 | | | |
| Riparian area contains patchy vegetation; livestock partially excluded | 7.1 | | | |
| Riparian area contains sparse vegetation and erosive banks; livestock not excluded | 3.5 | | | |

***Continued on next page.***

# Habitat Scorecard for Orangethroat Darter (v. Nov 2020)

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

**Orangethroat Darter Scorecard *continued*.**

| Key habitat variable and conditions | Value | Pre-Project | Expected Post-Project | Actual Post-Project |
|---|---|---|---|---|
| **Landscape context** | | | | |
| Land adjacent to stream is continuously vegetated by primarily native plants and consists mostly of permeable surfaces | 10.0 | | | |
| Land adjacent to stream has a mix of vegetation with some barren areas and/or impermeable surfaces | 6.7 | | | |
| Vegetation is sparse on adjacent land with large areas of impermeable surface | 3.3 | | | |
| **Water quality** | | | | |
| No visual evidence of turbidity or pollutants | 10.0 | | | |
| Localized areas of cloudiness and contamination | 6.7 | | | |
| Water is murky or has oily sheen | 3.3 | | | |
| | | | | |
| **Total (of 100 possible): add all numbers in before or after columns** | | | | |