

Boreal Toad (S. Rocky Mtn. Population)



ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS



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Boreal toads (*Anaxyrus boreas*, Family *Bufo*) lay strands of several thousand eggs in shallow ponds. The eggs hatch after two weeks, and tadpoles remain for 60–90 days.

Species Description

Identification

With bumpy green-to-brown skin (occasionally rust or gray) and a thin white stripe along the back, boreal toads look similar to Woodhouse's toads. Boreal toads occur mostly above 8,000 feet in elevation, whereas Woodhouse's toads occur mostly below 8,000 feet. Females grow up to 4.3 inches, and males grow up to 3.7 inches. Boreal toads do not have a vocal sac; males emit only a very soft chirp.

Preferred Habitats

Boreal toads occupy numerous wetland types (emergent marshes, kettle ponds, beaver ponds, streams, lakes, reservoirs, and wet meadows), often surrounded by coniferous forests. Boreal toads travel up to 1.5 miles from their breeding and summer ranges to hibernate in microhabitats that do not freeze, including under logs and rocks,

in rodent burrows, chambers beneath large boulders, and beaver lodges.

Diet

Adult boreal toads consume a wide variety of insects, spiders, and snails. Tadpoles eat organic substances suspended in the water column or on bottom.

Conservation Status

Federal: Not listed.

Colorado: Listed as Endangered, designated Tier 1 Species of Greatest Conservation Need.

BLM: Listed as Sensitive Species.

USFS: Listed as Sensitive Species.

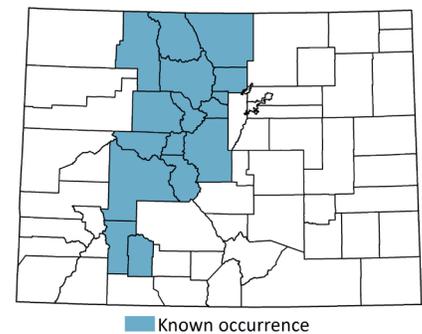
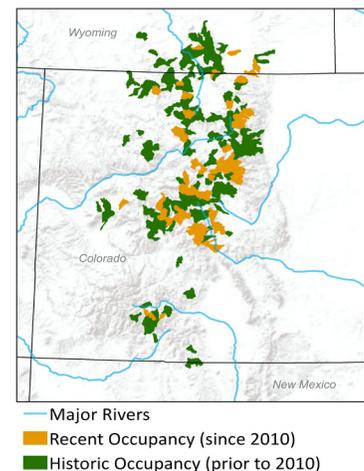
Boreal toad populations have declined for numerous reasons, including diseases, environmental stress to the immune system, ultraviolet radiation, environmental toxins, altered hydrology, and habitat disturbance. Disease caused by chytrid fungus

appears to be the main cause of declines, especially in the Southern Rocky Mountain population.

Species Distribution

Range

Historically, the Southern Rocky Mountain population of boreal toads occurred in Colorado, New Mexico, and Wyoming. Once considered common, boreal toad populations declined sharply in Colorado and Wyoming and have not been found in New Mexico since the early 1980s.



Distribution of the Southern Rocky Mountain population of the boreal toad by watershed throughout the range and by county within Colorado. Based on data from Colorado Parks and Wildlife and Colorado Natural Heritage Program.

Version Date: November 2020

Preferred Habitat Conditions

| | |
|---|---|
| Distance to upland foraging and hibernacula | within 1.5 miles |
| Elevation | 8,000–11,500 feet |
| Shoreline | gradually sloping shallows with temperature gradient for both egg and tadpole development |
| Sunlight availability | open and sunny along water edges |
| Vegetation in water | open or sparse along shore |
| Water depth | 6–12 inches |
| Water persistence | May through late September best, but growth and development is temperature-dependent |
| Water temperature | 59–70 °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 boreal toads have suggested numerous practical steps that can be taken to improve habitat quality for this species.

Hydrology

- Maintain natural hydrologic conditions that support boreal toad habitat.
- Maintain water level at one foot or more with gentle sloping banks that also provide water six inches deep.
- Avoid diverting water from occupied sites.
- Construct shallow shorelines in new impoundments.

Vegetation

- Keep open along at least partial shoreline, allowing sunlight to penetrate.

Contamination

- Do not apply pesticides or herbicides near breeding ponds.
- Reduce heavy metals and other toxins.
- Avoid spreading contamination of the chytrid fungus by not introducing water or mud from one infected wetland to another.
- Decontaminate boots, boats, and other equipment.

Land Use

- If timbering in adjacent forests, create diverse age structure.
- Restrict livestock in breeding ponds.
- Consider timbering activities that preserve boreal toad habitat.
- Avoid building new roads adjacent to boreal toad habitat.

Conservation

- Protect suitable habitat.
- Obtain required permits from CPW before stocking any fish, and consider stocking only native species.



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Acknowledgements

Bradley Lambert (Colorado Natural Heritage Program, Fort Collins, CO) and Harry Crockett (Colorado Parks and Wildlife, Fort Collins, CO) reviewed earlier versions and provided input on preferred habitat conditions.

Suggested Reading and Citations

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Habitat Scorecard for Boreal Toad (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 | | | | |
| Edge of water and water depth | | | | |
| Gradually sloping shallows with water 6–12 inches deep | 26.0 | | | |
| >3–6 inches or >12–18 inches | 17.3 | | | |
| 1–3 inches | 8.7 | | | |
| Sunlight availability | | | | |
| Open, sunny along water edges | 26.0 | | | |
| Some shade, but more sun than shade | 17.3 | | | |
| More shade than sun | 8.7 | | | |
| Water persistence | | | | |
| Present from beginning of May through end of September | 26.0 | | | |
| Present end of May through end of August | 17.3 | | | |
| Present mid-June through mid-August | 8.7 | | | |
| Vegetation in water | | | | |
| Open or sparse along shore | 22.1 | | | |
| Thick enough to produce some shade | 14.7 | | | |
| Thick enough to allow only some sunlight | 7.4 | | | |
| Total (of 100 possible): add all numbers in before or after columns | | | | |