

Boreal toad (*Bufo boreas boreas*)

Boreal toads were once considered common in the southern Rocky Mountains, but populations have declined drastically over the past 15-20 years. By 1989, boreal toads were found to be absent from 83% of historic breeding locations in Colorado and that trend continues.



The boreal toad occurs throughout most of the mountainous portion of Colorado but they appear to be absent from the Wet Mountains, Sangre de Cristo Range, and Pikes Peak region.

Various state and federal agencies have conducted surveys within suitable habitat and identified populations of boreal toads in portions of the Forest over the past several years. Specifically, intensive monitoring and survey work in Chaffee County began in 1994 and continues through 2008.

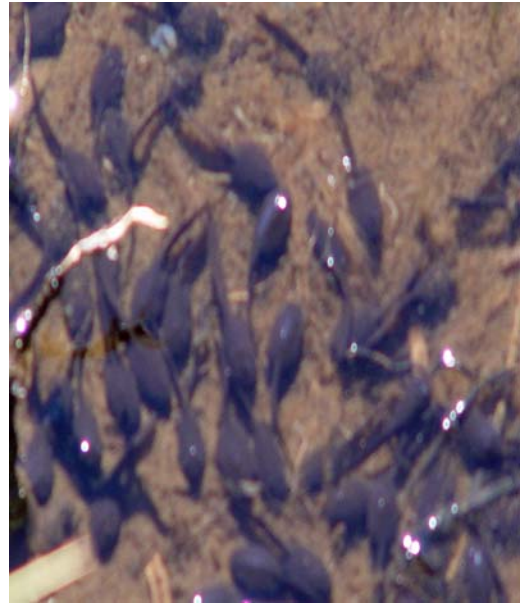
With 17 known breeding areas, Chaffee County is one of the few remaining strongholds for boreal toads in Colorado. In this region, the Collegiate Peaks in the Sawatch Range currently has fourteen known breeding sites that have been active within the last five years. Most of the breeding sites are in the Cottonwood Creek drainage west of Buena Vista, Colorado. This drainage presently has some of the largest populations of boreal toads left in the state



In Colorado, boreal toads occupy habitats between approximately 7,500 and 12,500 ft in elevation. This toad inhabits marshes, wet meadows, and the margins of streams, beaver ponds, shallow lakes, and glacial kettle ponds in subalpine areas of Colorado. In the summer, they are found in shallow water or among sedges and shrubby willows where soil is damp or wet and surrounding vegetation. Specific habitats including breeding ponds, summer range, and overwinter refugia (in rodent burrows, under rocks, etc.) are all within lodgepole pine and spruce–fir forests, and in alpine meadows. Surprisingly, over 80% of their life is spent in upland habitats. They are relatively long-lived – they can live a decade or more in the wild.



Boreal toads are the only toads found in the high elevation mountains of Colorado. They can be identified by their “bumpy skin” and a distinctive white strip down their back, contrasting against their dark black upper body. Eggs are laid in shallow water and consist of a single strand of eggs (shown below). Tadpoles are black colored and are found in shallow ponds, lakes, and other waterbodies. They are often found in shallow warmer water where they can develop quickly – sometimes in masses of several hundred individuals.



The boreal toad breeding season generally begins in late spring with eggs deposited late May and early June, but may extend into July at higher elevations where snow pack is more persistent. Adult toads, especially females, may move up to 2.5 miles to drier sites in forested habitats after the breeding season, while young toads are restricted to wetland habitat. Researchers in Chaffee County Colorado have documented female adult toads as much as 5 miles from breeding sites.

Adult boreal toads are insectivores, feeding on a variety of insects. Historically, boreal toads were known to breed at several locations in Chaffee, Park, and Lake counties. Populations in Colorado have become scarce or extinct in their high elevation sites and have experienced significant downward population trends.



One of the most pervasive factors decreasing habitat quality at the range-wide scale is the presence of a chytrid fungus *Batrachochytrium dendrobatidis* (*Bd*). This disease causes mass mortality in a wide range of amphibians, including boreal toads, and it has been found in several populations of toads throughout the West. Some populations of boreal toads infected with *Bd* have declined to near extinction within one year, and there are no documented cases of an infected population fully recovering. Environmental stress, which includes global climate change, water chemistry and temperature changes caused by humans and management activities, and undoubtedly habitat change has been linked to increased boreal toad vulnerability to this disease. Spread of this deadly disease is by transportation of water, mud, or other material from areas where these fungal spores are present to areas where they are not. *Bd* was recently documented in two new areas in Lake and Gunnison Counties (one site is less than five miles to the nearest breeding subpopulation in Chaffee County). There are also other nearby sites that have *Bd*, which increase the potential of spread to previously uninfected toad sites. Of particular importance, *Bd* has not been documented in the Chaffee County population to date, making it **one of the only viable “*Bd* negative” populations in the Southern Rocky Mountains.**

What can you do? **Stop the spread!!** Important considerations to stop or reduce the likelihood of the spread of *Bd* are:

- Stay out of the water and mud as much as possible!!!
- Decontaminating boots and equipment may help reduce the chance of introducing these pathogens into sites containing boreal toads and other amphibians.
- Thoroughly spray and wet (or dip) all outside surfaces, including soles, with a bleach solution (10% or stronger) or other approved chemicals.

**Stop the spread
of *Bd*!!**



Decontaminate *ALL* your equipment before going into waters in any new area with the bleach solution.

- **Always** decontaminate when you move from one drainage to another.
- **If possible start work at the upstream site in a drainage and work down stream.**
- While in a single drainage it is NOT necessary to decontaminate equipment when visiting multiple or adjacent sites, although decontamination is recommended between sites that are separated by 1 mile or more.
- Decontaminate any equipment that has been in contact with water or soil, including:
 - boots, waders, nets, shovels, picks, other hand tools, etc.
- Decontaminate vehicles, including ATVs, after driving in mud or streams. This should be done at car washes immediately upon leaving the forest by thoroughly washing the underside of the vehicle and the wheels and tires.
- Remove boots before cleaning.
- Remove all mud and debris from boots and equipment before applying bleach or other approved chemical solution.
- Be especially careful to remove mud from soles (use brush, screwdriver, or toothpicks if necessary).
- After disinfecting, DO NOT rinse boots or equipment with water or dry them with a cloth, instead let them air dry completely.



Helpful tools to disinfect gear and equipment include:

- Spray bottle containing 10% or stronger bleach solution
- Stiff brush
- Ice scraper
- Toothpicks or screwdriver
- Dishwashing gloves
- Alcohol wipes

What else can I do?

- Look where you walk!! Adults and young toads are difficult to see and they move slowly. They can easily be crushed by a careless footstep.
- Do not camp within 300 feet of any pond, lake, or stream that might be potential breeding areas for boreal toads.
- Avoid activities that may reduce water quality or increase sedimentation into streams or waterbodies that might affect boreal toad breeding areas like washing dishes in ponds.
- Don't walk or drive ATVs or other vehicles through ponds, lakes, or streams to protect habitat and lessen the chances of trampling.
- Keep horses and stock out of shallow ponds and lakes. Instead water stock in designated areas or hardened rocky areas with little vegetation.
- Don't collect tadpoles or adults for pets – they are uniquely adapted to live in high elevation areas only and they belong in the wild to live free!
- Do NOT touch adults, tadpoles, young, or eggs. You may cause death or spread of deadly diseases if you handle them.

When walking around ponds, lakes, and streams, be careful not to step on tadpoles and toadlets in shallow waters or on the land. They can easily be hidden by dense vegetation and because of their dark coloration, they are not easily seen. Trampling can be a major cause of mortality and substantially affect breeding success.



*Camp at least
300 feet from water*



Avoid Trampling



OTHER HABITATS

Also important are wetlands where adults and young toadlets spend much of their time out of the water



A group of tadpoles at the surface in shallow water amongst emergent vegetation

Thank you for doing your part to protect and recover the toad!!

For more information contact

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