

To: USFS Region 1 Species at Risk Task Group
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RE: Inclusion of the Boreal Toad (*Bufo boreas boreas*) on the Sensitive Species List for all
Region 1 Forests

Date: October 26, 1998

To Members of the Sensitive Species Task Group:

It has recently come to our attention that the boreal toad *Bufo boreas boreas* is under consideration for addition to the USFS Region 1 Sensitive Species List. Furthermore, we understand that sensitive status is being considered for the Beaverhead-Deerlodge, Bitterroot, Flathead, Gallatin, and Helena National Forests, while sensitive status is not being considered for the Clearwater, Nez Perce, Idaho Panhandle, Kootenai, Lolo, Lewis and Clark, and Custer National Forests.

We believe that the status of the boreal toad is largely uncertain in all Region 1 Forests. Several factors may warrant its listing as a sensitive species in all Region 1 forests. Briefly, factors which are a cause for concern over the viability of the species throughout Region 1 include: (1) a higher degree of genetic similarity within the range of Region 1 Forests relative to southern or coastal populations; (2) a general lack of both historical and current knowledge of status in the region; (3) indications of declines in areas which do have historical information; (4) low (5-10%) occupancy of seemingly suitable habitat as detected in recent surveys; (5) some evidence for recent restriction of breeding to low elevation sites and; (6) recent crashes in boreal toad populations in the southern part of its range which may indicate the species' sensitivity to a variety of anthropogenic impacts.

Sensitive species status and subsequent survey efforts are likely to identify areas within Region 1 where the boreal toad is demonstrably secure. However, our primary concern is that the species may be declining or has already declined in many areas. Without survey efforts to identify its true status and current distribution critical habitat may be mismanaged and/or our future ability to detect local or regional declines or extinctions may be completely eliminated.

We have attached a brief review of published literature, gray literature, and personal observations pertaining to the status of the boreal toad in the region. In addition, we have included a bibliography of other historical and current information on the boreal toad in the region. Finally, we have included individual contact information and invite you to contact any of us if you have remaining questions regarding the status of the species in particular areas or across Region 1 or if you need advice on how to establish survey/monitoring programs.

Sincerely,

Bryce Maxell, Steve Corn, Paul Hendricks, Ted Koch, Leo Marnell, Chuck Peterson, Kirwin Werner

cc:
Bill Ruediger, Steve Shelly, Jina Mariani

Brief Overview of Boreal Toad Status in USFS Region 1

Genetic Status

Goebel (1996) evaluated the systematics of bufonids in North America with an emphasis placed on the systematics and conservation of the *Bufo boreas* species group. She examined mitochondrial 12S ribosomal DNA of *B. boreas* across their range in the lower 48 states (including specimens from Glacier National Park, Yellowstone National Park, Beaverhead County, Montana, and Nez Perce County, Idaho) and found three main phylogenetic groups or population segments; (1) a southern Rocky Mountain group in Colorado and southern Wyoming, (2) a southern Utah group, and (3) a northwest group including all specimens in Montana, northern Idaho and northern Wyoming (Goebel 1996). Furthermore, individuals within USFS Region 1 were more similar to one another than to coastal or northern populations (Goebel 1996).

Overall historic (Pre 1980s) versus recent (1990's) status

Historic information on the distribution and status of *B. boreas boreas* is limited mostly to anecdotal qualitative accounts. In many cases the time of year in which observations were made is unknown and there may be a number of other reasons that historic records may not be indicative of the status of the species or allow comparison with recent records. However, a large proportion of historic accounts note *B. boreas boreas* to be widely distributed, common, very common, or the most common anuran in the region.

Recent surveys have been conducted in much of western and central Montana. In general, these recent surveys show *B. boreas boreas* (1) to be widely distributed but only locally common at low elevations in western Montana and apparently with limited reproductive effort (2) to be relatively rare at high elevations in western Montana and even more so in central Montana at the edge of their range (3) to have seemingly stable reproductive effort at individual localities, but apparently limited reproductive effort across the region.

Comparisons of historic and recent accounts for individual geographic areas follow.

Yellowstone National Park region:

Historically Turner (1951) noted that toads could be "commonly found throughout" Yellowstone National Park "in humid situations". Carpenter (1953) described *B. boreas boreas* as the most wide-spread amphibian in the Jackson Hole region.

Recently, Koch and Peterson (1995) found that the boreal toad "appears to be less abundant and widespread in the Greater Yellowstone Ecosystem than it was 40 years ago." Koch and Peterson (1995) also found about as many adult toads in both Yellowstone and Grand Teton National Parks in three years of intensive searching as Carpenter (1954) found at one site just downstream of Jackson Lake Dam in 1951. Similarly, Hill and Moore (1994) found *B. boreas boreas* at only 3 of 48 sites surveyed in Yellowstone's northern range in 1992.

Beaverhead-Deerlodge National Forests

Historical surveys are lacking for much of southwestern Montana. However, Black (1970) and Black and Timken (1976) noted *B. boreas* as being "common throughout western Montana" and in the 1970's Timken (No Date) reported *B. boreas* as "a very common and obvious amphibian that is found almost everywhere" in southwest Montana.

Recent surveys for the BLM by the Montana Natural Heritage Program rarely encountered *B. boreas* in unforested habitat (Kirwin Werner, personal observation). Similarly, recent surveys on USFS lands around the Big Hole valley have found toads to be rarely encountered (Bruce Roberts, Wisdom Ranger Station, personal communication). However, the prevalence of large blocks of

unforested habitat in this region may indicate that *B. boreas* is unlikely to have been common in this area.

Bitterroot National Forest:

Cooper (1869) reported *B. boreas* along the Clark Fork and Bitterroot rivers, but stated that it was “not very common”. Rogers and Jellison (1942) reported *B. boreas* as being common in the Bitterroot Valley; especially around warmer lakes in the spring.

More recently, Hendricks and Reichel (1996) found *B. boreas* breeding at 4 (one at 7,000 feet) of 27 sites surveyed in the Bitterroot National Forest and Bitterroot valley. A 1998 survey failed to find any *B. boreas* at approximately 50 high mountain lakes in the Bitterroot Mountains (Chris Funk, University of Montana graduate student, personal communication).

Flathead and Mission Valleys:

Brunson and Demaree (1951) found *B. boreas* to have as an extensive a range as the long-toed salamander *Ambystoma macrodactylum* (a species whose larvae are currently common in most fishless standing water bodies of western Montana) in the Mission Mountain Range. Franz (1971) found *B. boreas* to be “abundant in the forested areas especially near lakes and ponds” of Flathead county. Miller (1975) found *B. boreas* at 7 of 16 sites in the Flathead Valley. Anderson (1977) found *B. boreas* at 6 of 6 uncontaminated sites in Lake and Flathead counties, Montana.

More recently Werner et al. (1998) concluded that *B. boreas* has undergone a population reduction on the Flathead Indian Reservation as well as elsewhere in western Montana after they found evidence of breeding at only 6 of 203 (0 of 6 historical) sites surveyed from 1993 to 1995 in and around the Flathead Indian Reservation.

Glacier National Park and the Rocky Mountain Front

As part of their general natural history survey with the U.S. Geological Survey, Coues and Yarrow (1878) reported *B. boreas* to be “very common” around the lakes and streams of the Front Range just east of Glacier National Park. Manville (1957) reported *B. boreas* as being widely distributed throughout Glacier National Park from 3,150 to just over 7,000 feet.

More recently, Marnell (1997) found *B. boreas* to be wide ranging at both low and high elevations, but not abundant at most localities in Glacier National Park. Reichel (1996) failed to find any *B. boreas* along the Rocky Mountain Front southeast of Glacier National Park.

Helena and Lewis and Clark National Forests

Black (1970) found *B. boreas* to be common not only west of the continental divide, but in most of the central mountain ranges of Montana as well.

More recently Reichel (1996) found *B. boreas* breeding at only 2 of 47 sites surveyed in the Helena National Forest. Similarly, Reichel (1995) found *B. boreas* at only 2 sites in the Lewis and Clark National Forest and found reproduction at only 1 of 40 sites surveyed.

Kootenai National Forest

There are no historical surveys for the Kootenai Forest.

Recently Werner and Reichel (1996) found *B. boreas* to be uncommon in the Kootenai National Forest after they found only 10 breeding sites (none at elevations greater than 5,000 ft) for *B. boreas* out of 150 sites surveyed across the Kootenai National Forest from 1993-1995. Similarly, surveys of approximately 200 sites at various elevations in the Bull River drainage of the Kootenai National Forest in 1997 and 1998 found *B. boreas* at only 8 sites with breeding occurring at only 5 low elevation sites (Bryce Maxell, personal observation). Although reproductive effort seems to be substantial at certain localities it may be limited across the entire forest; there is very limited

information on breeding at elevations greater than 5,000 feet (Kirwin Werner and Bryce Maxell, personal observation).

Idaho Panhandle, Clearwater and Nez Perce National Forests:

Historical records shown in Nussbaum and Brodie (1983) indicate that toads were widespread across much of Idaho.

Recent surveys indicate that boreal toads are rare at high elevations in eastern Idaho USFS lands, but become more common in lower elevation forests to the west until the landscape becomes dominated by non-forested habitat farther west (Chuck Peterson, personal communication). The Idaho Department of Fish and Game currently considers *B. boreas boreas* a sensitive species.

Toads are widespread and considered to be abundant across a wide range of elevations at Craig Mountain adjacent to the Nez Perce National Forest; toads were present at 16 of 55 ponds ranging from 800 to 5,300 feet (Chuck Peterson, personal communication).

On the Clearwater National Forest from 1995-1998 only one toad was observed at 153 mountain lakes at 1500-2400 meters elevation (Patrick Murphy, personal communication).

On Potlatch lands south of Coeur d'alene boreal toads were found at only 9 of 199 sites surveyed and these sites tended to be clustered at a few low elevation sites between 825 and 1224 meters; this was the lowest maximum elevation of any amphibian found in the area (Chuck Peterson, personal communication).

On recent surveys of BLM lands near Coeur d'alene toads were found breeding at 2 of 14 ponds and 21 streams surveyed (Chuck Peterson, personal communication).

In the Panhandle National Forest no toads were captured in pit trap arrays at 15 sites in old growth coniferous forests, but in the Priest Lake Ranger District toads were captured at 4 out of 5 sites using pit trap arrays (Chuck Peterson, personal communication).

Recent crashes in boreal toad populations in the southern part of their range:

Bufo boreas is listed as endangered by the State of Colorado and considered a candidate species by the USFWS in the southern Rocky Mountains (Colorado, southeast Wyoming and northern New Mexico). It is no longer found in about 85% of the sites where it occurred historically (Corn et al. 1989; Carey 1993; Stuart and Painter 1994). Similar declines have been observed in Utah (Ross et al. 1995), although Utah populations are not included as candidate species because they were not included in the original petition to USFWS. Pathogens, UV radiation, acid rain and other factors have been hypothesized as a cause for these declines, but no single causative factor can be identified (Corn and Vertucci 1992; Carey 1993; Vertucci and Corn 1996; Corn 1998). In general, however, these declines may indicate sensitivity to a variety of anthropogenic impacts and may, therefore, indicate the possibility of the species likelihood of decline in other parts of its range. The documented decline of toads in the southern Rocky Mountains and possible similar trends in many areas of the northern Rockies suggests cause for concern and a need to be proactive in discovering the status of and threats to *B. boreas*.

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