Subject: [Fwd: The Impacts of Mountain Biking on Amphibians and Reptiles, 2008]
From: Brian Platts

bplatts@shaw.ca>
Date: Tue, 10 Mar 2009 12:43:36 -0700
To: Corrie Kost <corrie@kost.ca>

Subject: The Impacts of Mountain Biking on Amphibians and Reptiles, 2008 From: Monica Craver <mecraver@shaw.ca> Date: Tue, 10 Mar 2009 12:20:31 -0700 To: Council@dnv.org CC: fonvca@fonvca.org

Dear Mayor and Council:

A very good friend of mine recently got published in a scientific journal. He has been a guest of mine, and has surveyed the damage done by mountain biking activities, firsthand, on the North Shore a couple years ago. We need more conservation, and protection for species at risk and their habitat from "non-motorized" off-roading activities. <u>It is only the the right thing to do.</u> Thank you

--Monica Craver--North Vancouver, V7K 2R3 (A friend of Mountain View Park wetlands and upland, Upper Lynn Valley Neighbourhood catchment)

The article:

Vandeman, Michael J., 2008. **The Impacts of Mountain Biking on Amphibians and Reptiles.** In <u>Urban Herpetology</u>. J. C. Mitchell, R. E. Jung Brown, and B. Bartholomew, editors. Society for the Study of Amphibians and Reptiles, <u>Herpetological Conservation</u> 3:155-156

The Impacts of Mountain Biking on Amphibians and Reptiles

Michael J. Vandeman, Ph.D.

"Cities should be built on one side of the street." Bob Kaufman, 1959, p.60

"Mountain bikes' impacts on the land are large and getting worse. ... The aggressive push of mountain bike organizations to build ever-growing webs of trails poses serious problems of habitat fragmentation, increased erosion, and wildlife conflicts. As interest in extreme riding continues to grow, as trail networks burgeon, and as new technology makes it possible for ever-more mountain bicyclists to participate, even the most remote wild landscapes may become trammeled -- and trampled -- by knobby tires. ... The destruction of wilderness and the fragmentation of habitats and ecosystems is death by a thousand cuts. Will introduction of mountain bikes -- and their penetration farther into wilderness -- promote additional fragmentation and human conflicts with the natural world? Yes." O'Donnell and Carroll, 2003.

"Some things are obvious: mountain bikes do more damage to the land than hikers. To think otherwise ignores the story told by the ground." Dave Foreman, 2003

The sport of mountain biking is expanding rapidly, fueled partly by the mountain bike and tourism industries, the Olympics, and other competitive events (e.g., "adventure racing"). ("Trail use in the last ten years has seen a dramatic increase in off-road bicycles"

(Wilson and Seney, 1994, p.86). "Mountain biking in particular is one of the fastest-growing outdoor activities, with 43.3 million persons participating at least once in 2000" (Taylor and Knight, 1993, p.952). "An estimated 13.5 million mountain bicyclists visit public lands each year" (U.S. Bureau of Land Management)(Lathrop, 2003).) It is putting intense pressure on wildlife habitat, worldwide, as well as inhibiting efforts to protect additional lands. There is strong pressure to find places to ride that are convenient -- not too far from home or work. This brings bikers in direct conflict with other urban and near-urban recreationists, who want to use the same parks.

Most of the studies on mountain biking impacts attempt to compare hiking and mountain biking, and conclude that their impacts are essentially the same. However, they all ignore speed and distance travelled, and nearly all ignore impacts on wildlife; they also make no attempt to test mountain biking under realistic conditions (e.g. normal speeds). A more accurate conclusion from the data presented would be that the impacts of mountain biking are actually from two to six times those of hiking, due in part to the greater speed and distance travelled by mountain bikers. No published statistics are available, but I collected 72 mountain bikers' ride announcements, which advertise one-day rides of a minimum of 8 miles, an average of 27 miles, and a maximum of 112 miles -- much greater distances than hikers travel. (Vandeman, 2004). "Because bicyclists are capable of and, in most areas, typically do travel much farther than hikers, it is reasonable to conclude that they will create a somewhat higher total number of encounters [with animals] and flushings" (Lathrop, 2003).

Some of the other important characteristics of mountain biking that have been ignored are: the direct killing of small animals, the increase in number of visitors that bikes allow; increased trail-building, with its attendant habitat destruction; the displacement of soil (other than downhill); the killing of roots and soil organisms; most effects on wildlife; the manner of riding (skidding, braking, acceleration, turning, and whether the mountain biking tested is representative of typical mountain biking); tire tread; and noise.

Braking, accelerating, and turning all create horizontal forces that accelerate erosion. Whereas shoes tend to flatten trails, bike tires create V-shaped ruts (Chiu and Kriwoken, 2003), which channel water and further increase erosion (as well as making the trails difficult and dangerous to walk on). Bikes also throw dirt to the outside on turns, crush small plants and animals on and under the trail, facilitate increased levels of human access into wildlife habitat, and drive other trail users (many of whom are seeking the tranquility and primitiveness of natural surroundings) out of the parks.

Amphibians and reptiles that lay their eggs in the soft dirt next to the trail (e.g. fence lizards and turtles -- Gary Beeman, personal communication) or in creeks (e.g. California newts), sun themselves in the trail (e.g. fence and alligator lizards and rattlesnakes), or migrate across trails (e.g. California newts), can be expected to incur an increase in mortality wherever mountain bikes are ridden. "Mountain bikes are a significant threat to turtles as the heavily used trails can act as death traps, tempting nesting females to lay their eggs in the eroded soils in high-traffic areas. ... A newly emerged hatchling was found ... on a mountain bike trail" (SaintOurs, 2000). The killing of plants on and next to the trail can deprive amphibians and reptiles of food (for example, box turtles eat berries -- SaintOurs, 2000).

Besides increasing the presence of humans in wildlife habitat (Vandeman, 1997), mountain biking causes direct mortality and morbidity of small animals and plants ("Anecdotal evidence suggests ... that small mammals are vulnerable to impact and are not

uncommonly killed" -- Lathrop, 2003). Even on foot, it is hard to avoid stepping on a well-camouflaged California newt! Mountain bikers are higher off the ground, are travelling much faster than a hiker, and, if they don't devote most of their attention to negotiating the trail, will crash. To get an idea of what mountain biking is like, and how fast mountain bikers ride, all you have to do is watch one of their videos (search for "mountain bike video" in Google, e.g. <u>www.petefagerlin.com</u>). It is impossible to mountain bike and look out for small critters [EDITOR: this is the most appropriate word, since it includes animals and plants and conveys the appropriate emotion; but if you must change it, I suggest using "creatures"] on the trail. While hikers try to avoid getting their feet wet when crossing streams, by stepping on stones or logs, mountain bikers generally ride through the stream, crushing animals and eggs that may be there ("Most amphibians lay their eggs in fresh water" -- Stebbins, 1995, p.166). Bikes also create deep ruts in the trail. According to Robert Stebbins (personal communication), lizards and salamanders often get stuck in these ruts, following them for a long distance.

In Black Diamond Mines Regional Preserve (in the San Francisco Bay Area), one of the largest Alameda whipsnakes (<u>Masticophis lateralis euryxanthus</u>, a federally Threatened species) ever seen was apparently killed by a mountain biker (Figure 1). In Claremont Canyon Regional Preserve, a ringneck snake (<u>Diadophis punctatus</u>) was apparently killed by a mountain biker riding where bikes are not allowed (Figure 2). In both cases, the snakes were killed on unpaved roads with no visibility problems, showing that bikers are not able to avoid killing wildlife. The width of the wounds matched the width of a mountain bike tire. This also calls into question the notion current in some park systems (e.g. East Bay Regional Park District (EBRPD), in the San Francisco Bay Area) that, while it may be dangerous for bikers to share narrow trails with hikers, they are okay on wide trails. In fact, the bikes may be <u>more</u> dangerous on wide trails, since they can go faster.

Recently there has been a large increase in night riding. This has the potential to further increase threats to amphibians and reptiles, if the animals are on or near a trail. If mountain bikers can't avoid crushing snakes on a wide trail in broad daylight, I hate to think what they will do at night! Amphibians that could be most impacted by night riding include those that migrate across trails at night (e.g. California newts and other seasonal pool breeders). EBRPD closes a road to automobile traffic for five months during the newt migration. However, bicycles are still allowed on the road!

Another disturbing trend is the increasing popularity of "freeriding": riding on trails doesn't provide enough challenge or enough thrills, so bikers are riding off-trail. This can only increase the threat to wildlife. Finally, Wisdom et al (2004) found that elk's avoidance of an area extended <u>beyond the period when recreationists were actually present</u>. When mountain bikers came within 1,640 yards, elk responded by fleeing the area. If a similar effect holds for amphibians and reptiles, I would expect a significant loss of (usable) habitat and increased energy costs due to wide-ranging mountain bikers.

It is clear that the addition of bicycles to natural areas is a serious threat to amphibians and reptiles, especially in the heavily populated urban environment.

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Figure 1. Alameda whipsnake, apparently killed by a mountain biker. Photo: Christopher Conroy, Museum of Vertebrate Zoology, University of California, Berkeley

Figure 2. Ringneck snake, apparently killed by a mountain biker. Photo: Christopher Conroy, Museum of Vertebrate Zoology, University of California, Berkeley

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