

Ralph O. Bloemers, OSB No. 984172
ralph@crag.org - (503) 525-2727
Christopher G. Winter, OSB No. 984355
chris@crag.org - (503) 525-2725
Crag Law Center
917 SW Oak Street, Suite 417
Portland, OR 97205
Fax: (503) 296-5454

Attorneys for Plaintiffs

UNITED STATES DISTRICT COURT
DISTRICT OF OREGON
PORTLAND DIVISION

BARK, an Oregon non-profit corporation,
FRIENDS OF MOUNT HOOD, an Oregon
non-profit corporation, **NORTHWEST**
ENVIRONMENTAL DEFENSE CENTER,
an Oregon non-profit corporation, **SIERRA**
CLUB, a California non-profit corporation,

Plaintiffs,

v.

LISA NORTHROP, Acting Forest
Supervisor of the Mt. Hood National Forest,
BILL WESTBROOK, Zigzag District
Ranger, **KENT CONNAUGHTON**, Regional
Forester for Region 6, and the **UNITED**
STATES FOREST SERVICE, a federal
agency.

Defendants.

Case No. 3:13-cv-00828-AA

DECLARATION OF
ROBERT W. WISSEMAN

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I, ROBERT W. WISSEMAN, pursuant to the provisions of 28 U.S.C. § 1746, do hereby declare as follows:

1. My name is Robert W. Wisseman and I offer this declaration to explain technical matters to this court and to underscore what the Forest Service did not disclose and consider in approving the construction of the Timberline Downhill Mountain Bike and Skills Park. I discuss my qualifications to make the statements set forth in this declaration below and provide a copy of my curriculum vitae as **Exhibit A**.

Qualifications

2. I am an aquatic ecologist with more than 30 years of experience, with a BS in Environmental Sciences from The Evergreen State College, Olympia, WA, and a M.S. in Aquatic Entomology from Oregon State University, Corvallis, OR. The focus of my Master's thesis studies was on the caddisflies (Trichoptera) of the Pacific Northwest. Subsequently, I worked as a research assistant in aquatic entomology at Oregon State University, before starting Aquatic Biology Associates, Inc. (ABA), my own consulting business in aquatic ecology in 1986. Since 1986, ABA has been involved in hundreds of biomonitoring and faunistic survey projects in freshwater ecosystems in western North America, from the Arctic to Arizona. ABA specializes in the identification and ecology of freshwater macroinvertebrates, including caddisflies. Our clients include private industry, universities, and government agencies from municipalities, counties, states, to many of the federal agencies overseeing land management and environmental impacts; including the U.S. Geological Survey, U.S. Forest Service, National Park Service, U.S. Environmental Protection Agency, U.S. Fish & Wildlife Service, Army Corps of

Engineers, Bureau of Reclamation, Bureau of Land Management, and the National Oceanic and Atmospheric Administration.

3. Since my graduate school days I have continued studies on caddisflies of western North America, and am a recognized authority on their taxonomy, distribution and biology. After 1984 when the Endangered Species Act was passed, various National Forests in Oregon, The Nature Conservancy, The Xerces Society, and the federal Interagency Special Status/Sensitive Species Program have come to me for information, opinions and field surveys on listed caddisflies found in the Pacific Northwest.

4. My experience with freshwater habitats on the Mount Hood National Forest includes fisheries related projects in the Still Creek drainage from 1992-96 (Zigzag Ranger District), a survey for sensitive aquatic invertebrate species in the vicinity of the Mount Hood Meadows Ski Area in 1997 (Hood River Ranger District), and in 2010 a survey for sensitive aquatic invertebrate species in tributaries of Still Creek and the West Fork Salmon River in the vicinity of proposed mountain bike trails for the Timberline Lodge Winter Sports Area (Zigzag Ranger District). I have collected caddisflies on the south slopes of Mount Hood on numerous occasions over the past 30 years, and reviewed caddisfly collections made by other researchers in the area.

5. I am very familiar with the proposal to construct downhill mountain bike trails in the headwaters of Still Creek and the West Fork Salmon River because the trails were flagged prior to my August 9-10, 2010 survey of the area for *scott's apatanian caddisfly (Allomyia scotti)*.

Scope of Review

6. This declaration provides technical background information on the *scott's apatanian caddisfly* and its habitat needs. I also discuss the likely adverse impacts of the project on the caddisfly.

7. I also describe my conclusion that the project is likely to degrade habitat for the caddisfly and to contribute towards a downward population trend that could eventually lead to the listing of the species as threatened or endangered.

8. I also describe some of the substantive defects in the Timberline Ski Area Downhill Mountain Bike Trails and Skills Park Environmental Assessment ("EA"), Mount Hood National Forest ("MHNF"), dated November 2012 with respect to project impacts on the *scott's apatanian caddisfly*, which is a United States Forest Service, Region 6 Regional Forester's Special Status Sensitive Species. I do not believe that the agency has done what is necessary to ensure that it is maintaining viable populations of *scott's apatanian caddisfly*.

9. In preparing this declaration, I reviewed the Environmental Assessment, the draft Biological Assessment for the Preliminary Assessment prepared by Kathryn Arendt, the Biological Evaluation (BE) prepared by Kathryn Arendt dated July 11, 2012, the Decision Notice and the agency's stated finding in the EA and the BE that the project "May Impact Individuals or Habitat" of *scott's apatanian caddisfly*. The EA claims that: "Project elements and design criteria are in place that would greatly minimize, if not eliminate, effects to habitat or individuals in each of the four sub-watersheds." I disagree with this conclusion.

10. I also reviewed the scientific literature and museum records (Royal Ontario Museum, Smithsonian and Oregon State University) on the known distribution and biology of

scott's apatanian caddisfly. The relevant literature is cited at the end of this declaration. I also relied on my best professional judgment from 30+ years of studying caddisflies.

Discussion

11. Caddisflies is the common name for the insect order Trichoptera. An estimated 50,000 species are found in all types of freshwater habitats on every continent except Antarctica. They are known as the underwater architects (Wiggins 2004), since the larvae use silk to construct portable “houses” or cases made of mineral or plant material, or they spin elaborate nets to filter particles and small animals from the water column. Caddisflies are an important component of many freshwater ecosystems, integral in energy transfer and food webs, including being important in fish diets. They are similar to moths and butterflies, where the grub-like larva eventually transforms to a winged adult through metamorphosis.

12. *Allomyia scotti* is the scientific name for *scott's apatanian caddisfly*, belonging to the trichopteran family Apataniidae. This species was named in honor of one of the original collectors, R.S. Scott (Wiggins 1973). There are 12 described species in the genus *Allomyia* occurring in mountainous regions of western North America, with additional species found in eastern Russia and Japan (Wiggins 1996).

13. *Allomyia* larvae live in small cold, mountain streams and springs, typically in subalpine and alpine habitats. They are representatives of a glacial relict fauna that is currently restricted in their distribution to mountaintops. Populations of any of the twelve western species are fragmented and isolated, occurring on certain mountains only. Even their distribution in streams on a single mountain is patchy. They are typically found over a narrow elevation band where they do occur. Climate change is expected to put the continued viability of many of these isolated populations further at risk.

14. *Scott's apatanian caddisfly* was first discovered in 1964 by Glenn Wiggins and R.S. Scott in the West Fork Salmon River where the Timberline Lodge Road crosses at about 4500' in elevation on Mount Hood (Wiggins 1973). Larvae of the species are unique and striking because they have a flattened head and horn-like protrusions on the rear of the head. No other species in the genus has been found to have these horn-like structures, making larvae of this species easy to identify, even in the field with a magnifying glass. Mature larvae are about 10 millimeters long and construct a tapering, slightly curved, tubular case of coarse sand grains. A figure of the larvae from Wiggins (1996) is attached as **Exhibit B**.

15. Collecting crews from the Royal Ontario Museum, Oregon State University, the Smithsonian, and other freshwater invertebrate researchers have made repeated collections of the species at the original collecting site described above. Also, Mount Hood is a popular collecting locale for aquatic entomologists. Extensive collections over the years have been made wherever headwater tributaries intersect roads around the mountain. To date the species has only been found in the West Fork Salmon River between about 4000 and 5000' elevation, and a few miles east in the Iron Creek drainage, a tributary of the White River, at about 4000' elevation. At Iron Creek, only a few larvae have ever been collected, suggesting that the species is not common here.

16. The Zigzag Ranger District contracted ABA in August 2010 to conduct a survey specifically for *scott's apatanian caddisfly* in the area potentially impacted by the project in the headwaters of Still Creek and the West Fork Salmon River. A summary of the 2010 ABA report (Attached as **Exhibit C**) is included as an appendix in the EA. About 50 sites between 4000-5200' elevation, and evenly divided between Still Creek and West Fork Salmon River drainages, were examined. The species was found at only 7 of these sites, all in the West Fork Salmon

River basin, mostly in the main-stem, but also in small, perennial tributaries. Larvae were never found in abundance, only one or a few individuals at each of the seven sites.

17. To date *scott's apatanian caddisfly* has only been found in a narrow elevation band on the south slope of Mount Hood in 2 headwater drainages. *Scott's apatanian caddisfly* has not been found on any other Cascade peak. At Mount Hood, it has not been found in the extensively collected Still Creek basin (private collecting and ABA monitoring projects for the Zigzag Ranger District), Bull Run River headwaters (ABA survey and monitoring projects for the Portland Water Bureau), or headwater tributaries of the East Fork Hood River in the vicinity of Mount Hood Meadows Ski Area (Wisseman 1997).

18. Knowledge of the extent of the species distribution on Mount Hood has large gaps, as streams with possible habitat in the 4-5000' elevation band on the east, west and north slopes of the mountain have received little or no collecting effort. Wisseman (2010) stated that further surveys were required on the mountain to get an idea of just how rare this species may be. The Zigzag Ranger District plans to conduct surveys in the summer of 2013, but this is after construction activities for the downhill mountain bike trail system are planned to commence, the timing of which is too late to inform an assessment of the risk to the species.

19. The pupal and adult stage of most caddisflies is brief, a matter of weeks. Adults typically do not feed, their only role being dispersal and reproduction. Pupation occurs in cases or retreats attached to rock or wood surfaces in the water. Pupae are immobile and thus vulnerable to changes in water quality or smothering from settling and burial with fine sediment.

20. Larvae of cold-water dwelling caddisflies often require more than one year to mature, and thus must avoid predation and survive disruptive events such as floods and sediment

transport for an extended period of time. *Scott's apatanian caddisfly* is believed to require two or more years to mature (Wiggins 1973).

21. As with most species in the family Apataniidae, *scott's apatanian caddisfly* larvae are suspected to be herbivores, scraping algae from the tops of hard rock surfaces (Wiggins 1996). Excessive fine sediment in streams inhibits scrapers by smothering hard surfaces or scouring algae off of them during high water events.

22. The headwaters of Still Creek and those of the West Fork of the Salmon River in the project area are adjacent to each other, separated by a low ridge and several hundred feet distance. Management impacts over the past decade or so in these two watersheds is a study in contrast.

22. There are few road segments, no timber cutting, and no clearing for ski runs in the area where *scott's apatanian caddisfly* has been found in the West Fork of the Salmon River. Cobble substrates, the preferred habitat for the species, dominate the streambeds. This relatively undisturbed portion of this watershed is currently the only known stronghold for the species, and presently serves to define critical habitat characteristics for the species.

23. Management activity has been intense in the headwaters of Still Creek, including many unpaved road segments, extensive clearing for ski runs, and construction of a chair lift and associated lift towers. When I visited the area in August 2010 during my last survey, I noted that very little vegetative re-growth had occurred on ski runs and around the chair lift. The downhill bike trails are to be constructed in the subalpine zone where highly erodible and porous volcanic soils with little moisture retention capabilities predominate. Attempts to re-establish vegetation on disturbed areas has failed and further attempts to re-establish vegetation to counter erosion of fine sediment may take years, if not decades to accrue.

24. I found stream bottom substrates in the main-stem of Still Creek and its tributaries to be primarily sand and fine gravel in August 2010, not the coarser cobble and boulders that *scott's apatanian caddisfly* prefers. The prevalence of fine sediment on the stream bottom is probably the result of past clearing and construction activities. These are spring-fed channels that appear not to have large annual flushing events. Thus the channel has little "competence" to move fine sediment downstream and keep up with the current inputs from the surrounding landscape. Fine sediment has accumulated to the degree that it has embedded and smothered most of the hard rock surfaces.

25. Given the close proximity between Still Creek and the West Fork Salmon River watersheds and the similar underlying watershed and habitat characteristics of these two watersheds, I believe that *scott's apatanian caddisfly* historically occurred in the headwaters of Still Creek. The species may still be there in very low densities or they may have been extirpated altogether because this watershed is in a chronic non-functioning condition from the delivery of excessive fine sediment into Still Creek. The fine sediment has buried critical habitat for the species and this is probably the reason that viable population of the species have not been found in Still Creek.

26. To summarize what is known about the distribution, biology and critical habitat requirements for *scott's apatanian caddisfly*:

- A. All indications suggest that *scott's apatanian caddisfly* is truly rare and confined in distribution to Mount Hood.
- B. Larvae of the species are found in cold streams in a narrow elevation band on the mountain. Currently they are known only from the Iron Creek and West Fork Salmon

River headwaters. There may be other populations on Mount Hood or even elsewhere in the Cascades, but there is no evidence that the species does occur elsewhere.

- C. At this time, the population of *scott's apatanian caddisfly* in the headwaters of the West Fork Salmon River (in project area) is the only known robust population of the species. A few individuals have been collected at a site in the Iron Creek drainage, but it is not known if this drainage contains viable populations of *scott's apatanian caddisfly*.
- D. Larvae of the species require clean hard rock surfaces that support diatom algal growth to feed on. Pupae require hard rock surfaces with moss growth. Larvae, pupae and perhaps eggs are presumed to be very sensitive to fine sediment burying or scouring the hard rock surfaces they require.
- E. The species may have occurred or still occur in low abundance in the Still Creek drainage within the project area, a site that is adjacent to and similar in watershed characteristics to the West Fork Salmon River. Management activities in the Still Creek drainage have been intense in the past few decades, causing significant degradation of habitat with fine sediment. I suspect that these activities may have harmed or extirpated populations of the species in the Still Creek drainage.

27. *Scott's apatanian caddisfly* is a special status, sensitive species according to Region 6, U.S. Forest Service carrying an obligation on the Forest Service to protect and improve habitat that is critical to maintain the species viability. Despite this obligation, the Forest Service has not characterized or determined what habitat is needed to maintain the viability of the only known population that occurs in the West Fork of the Salmon River on Mt. Hood.

28. Given the information available to date, the last remaining habitat in the West Fork Salmon River is critical for the future viability of the species. The empirical evidence shows how management activities have degraded Still Creek and strongly indicates that increases in fine sediment delivery to the channel will likely cause irreparable harm by burying or scouring exposed cobble surfaces necessary for larval feeding, and smothering pupa.

29. Table 15 of the Forest Service EA for the project concludes that critical habitat for *scott's apatanian caddisfy* is present, that the species is indeed present in the project area, that project activities may impact individuals or habitat, "but will not likely contribute to a trend towards Federal listing, loss of viability to the population or species." I strongly disagree. As I explain below, the Forest Service has not disclosed the necessary factual information and analysis to reach this conclusion.

30. Given the available information on the species set forth above, the proposed construction and restoration activities **are likely** to impact individuals and habitat and contribute to a trend towards Federal listing as an endangered species.

31. As admitted in the Forest Service EA and the Biological Evaluation project activities in the Still and West Fork Salmon River drainages will accelerate erosion of fine sediment into stream channels and degrade habitat for the species in the short-term and for the foreseeable future. Restoration and remediation activities planned will not significantly slow erosion for years. Promised restoration in the Still Creek drainage will not provide any benefit to the West Fork Salmon River population. The current degraded habitat in the Still Creek drainage is a very good indicator of what is likely to occur in the West Fork Salmon River if this project and other projects are developed.

32. The EA states that short-term (years) increases in fine sediment impacts on critical habitat in the West Fork Salmon River channel will be mitigated in the long-term (decades) by restoration activities. If the West Fork Salmon River is the last stronghold for the species, then any short-term increase in fine sediment inputs is very likely to cause irreparable harm to the only known viable population of the species. This harm may persist for decades as the channel has limited capacity to move fine sediment downstream and the proposed trails will continue to introduce new material as admitted in the EA and the BE. The Forest Service has no idea how the only known viable population of *scott's apatanian caddisfly* will react to the predicted short-term and long-term inputs of fine sediment from the construction of the trail network and the attempted restoration of existing sources of sediment.

33. There is a high probability of the project causing irreparable harm to *scott's apatanian caddisfly*. Further survey work for the species on Mount Hood planned by the Zigzag Ranger District for summer 2013 should be conducted prior to construction activities, not while the project is under construction. The current knowledge of the species points to an obligation for an official risk assessment to be conducted, further survey work for the species to be conducted, critical habitat to be defined, and possible consideration for listing of this species under the Endangered Species Act.

I swear under the penalty of perjury that the foregoing is true and correct.

Executed in Corvallis, Oregon this 20th day of May 2013.


ROBERT W. WISSEMAN

Scientific Literature

- Wiggins, Glenn B. 1973.** Contributions to the systematics of the caddisfly family Limnephilidae (Trichoptera). I. Life Sciences Contributions, Royal Ontario Museum, Canada, Number 94, 32p.
- Wiggins, Glenn B. 1996.** Larvae of the North American Caddisfly Genera (Trichoptera), 2nd edition, University of Toronto Press, Toronto, Ontario, 457 pages.
- Wiggins, Glenn B. 2004.** Caddisflies, The Underwater Architects. University of Toronto Press, Toronto, 292 pages.
- Wiseman, Robert W. 1997.** Survey for sensitive aquatic invertebrate species, vicinity Mount Hood Meadows Ski Area. Report submitted to Oregon, Mount Hood National Forest, Hood River Ranger District. 14 pages.
- Wiseman, Robert W. 2010.** Survey for sensitive aquatic invertebrate species in tributaries of Still Creek and the West Fork Salmon River in the vicinity of proposed mountain bike trails for the Timberline Lodge Winter Sports Area, Mount Hood, Mount Hood National Forest, Oregon, August 9-10, 2010. 5 pages and data attachments.