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## Flora and Fauna of Mount Adams

Saturday, November 3, 2012 • Second Annual Science-Based Conference

Hosted by the Friends of Mount Adams in Trout Lake, WA

### ABSTRACTS

**Speaker:** Darryl Lloyd

**Title:** *Historical Perspectives and the Changing Environment of Mt. Adams*

**Abstract:** My 30-minute overview will include a wide variety of slides illustrating changes in the landscape of Mt. Adams since the late 1800s. Frequent wildfires produced park-like forested slopes with large meadows into the early 1900s. But suppression of fires over the past century, combined with climate warming and insect infestations, have resulted in dense, unhealthy forests, ripe for burning on a massive scale. Historic and pre-historic uses of Mt. Adams, from its foothills to the summit icecap, will be briefly contrasted with today's human use of the mountain. Climate warming has caused other significant changes to the Mt. Adams environment, including a loss of habitat for wildlife, shrinking glaciers and the massive debris flows of November, 2006.

**Speaker:** Keith B. Aubry, USDA Forest Service, Pacific Northwest Research Station

**Title:** *The Wolverine in Washington: History, Distributional Dynamics, and Conservation Status*

**Abstract:** The wolverine (*Gulo gulo*) is one of the rarest and least-known mammals in North America. By the 1950s, it appeared that the species had been extirpated from most or all of its historical range in the contiguous U.S. Recently, the U.S. Fish and Wildlife Service designated wolverine populations in the contiguous U.S. as candidates for listing under the federal Endangered Species Act. In the last few decades, however, an increasing number of verifiable detections indicated that wolverines were becoming re-established in the northern Cascade Range of Washington. To develop a reliable understanding of the wolverine's distribution, genetic affinities, and habitat ecology in Washington, where it had never been studied previously, we initiated a satellite-based radio-telemetry study in the North Cascades during the winter of 2005/06; in 2009, we expanded our study area into southern British Columbia and the study will continue for at least several years. To date, we have captured 9 wolverines and outfitted 8 of them (6 females and 2 males) with satellite collars. We have also documented the presence of 2 additional animals in our study area using run-pole remote camera stations designed to obtain individually diagnostic photos of wolverine throat and chest blazes. The home ranges of our study animals are large compared to other populations in North America, suggesting that resources may be more limiting in the North Cascades than in other areas where wolverines occur. Two of our radio-collared females were reproductively active this year and, for the first time, we have documented the locations of wolverine reproductive dens in Washington. DNA analyses have revealed that our study animals are genetically distinct from those occurring elsewhere in the western U.S. Thus, the North Cascade population appears to be connected with wolverine populations in Canada, rather than with those in the northern Rocky Mountains of Idaho, Montana, or Wyoming, which may have important implications for wolverine conservation in the contiguous U.S.

**Speaker:** Jocelyn Akins, Canid Diversity and Conservation Laboratory, University of California, Davis

**Title:** *Ecology and Conservation of the Cascade Red Fox in Southern Washington*

**Abstract:** The red fox (*Vulpes vulpes*) is the most widely distributed terrestrial carnivore inhabiting a diverse range of ecosystems throughout the northern hemisphere. This widespread global distribution may have resulted in wildlife researchers and managers overlooking the conservation concerns of the mountain red foxes of North America. These native subspecies – the Cascade (*V. v. cascadenis*), Sierra Nevada (*V. v. necator*), and Rocky Mountain red fox (*V. v. macroura*) – represent an evolutionarily divergent lineage, descending from red foxes that migrated across the Bering land bridge nearly half a million years before all other red foxes in North America. The Cascade red fox is endemic to Washington, and separated from the other mountain subspecies by the Columbia River. It was commonly sighted and trapped throughout the state in the 1970's and 1980's but now appears to have suffered precipitous declines in distribution and abundance in recent decades along. It is currently known to occur at Mt. Adams, in the Goat Rocks Wilderness, and at Mt. Rainier; and as sparse occurrences in northern Washington. In 2010, it was designated a Washington state candidate species for protection due to recent research that marks a new understanding of its uniqueness and the conservation concerns for its long-term persistence. Climate change is implicated as a potential driver of its decline, along with coinciding factors, however conservation efforts are currently hampered by a lack of information on the direct factors. We have initiated a project employing non-invasive survey techniques including remote cameras, hair-snagging devices, snow tracking, and trail transects to delineate its distribution and collect genetic samples. We are currently assessing the vulnerability and extinction risk of the Cascade red fox by determining the distribution, habitat associations, connectivity, and abundance of remaining populations. This information will help to determine the factors that limit its distribution and abundance, identify where connectivity can be restored, and ultimately guide management efforts to ensure the persistence of this unique carnivore.

**Speakers:** Jim Stephenson and Gabriel Swan, Yakama Nation, Wildlife Biologists, Yakama Nation Wildlife

**Title:** *Mountain Goat Ecology, Use Patterns, and Management on the East Side of Mount Adams*

**Abstract:** The mountain goat (*Oreamnos americanus*) is a truly iconic species of the high Cascades. Although the public may assume that the species is well-protected by Wilderness Areas, decline of many populations is cause for great concern. We will discuss mountain goat ecology and impacts of hunting and habitat change on numbers and genetic diversity across the Cascade Range, and our own work on mountain goat use patterns on the east slopes of Mount Adams and Klickitat River Canyon. Threats to the local population from potential disturbances such as snowmobile trespass and fire will be discussed, as well as management guidelines in place for goat protection.

**Speaker:** Susan Stevens Hummel, USDA Forest Service, Pacific Northwest Research Station, Portland Forestry Sciences Laboratory

**Title:** *The Living and the Dead: Comparing Forest Structure on Mt. Adams Using Field Work and Remote Sensing*

**Abstract:** This presentation will highlight multiple studies on Mt. Adams. Together, the studies ask how various methods for estimating forest structure can yield insight into changes associated with time or with disturbances like fire, insects, and disease. Presentation objectives are for conference participants to learn about: 1) structural dynamics occurring in burned (2008 Cold Springs fire) and unburned (Smith Butte) areas and what differences exist among sites of “low”, “moderate”, or “high” severity fire; 2) how estimates of tree mortality made by using a computer simulation model compare to estimates made by field observations after the fire; and 3) the strengths, limitations, and comparisons of “traditional” (ground-based) and “modern” (lidar) techniques for measuring structural elements like living and dead trees, shrubs, and down wood.

**Speakers:** Susan McDougall and David Biek, Authors of the 2007 book, "The Flora of Mount Adams, Washington"

**Title:** Making the First Complete Flora for Mount Adams

**Abstract:** Until we began our work at Mount Adams, the most extensive botanical studies had been carried out by pioneering botanist Wilhelm Suksdorf, between 1880 and 1920, conducted chiefly on the southeast side of the mountain. And his work was inaccessible, much of it published in his own German-language botanical journal. This talk will describe the process by which we created the first complete flora for Mount Adams, from herbarium research to extensive forays into the field, including the collection of more than 600 voucher specimens. Our aim was to write a flora of the vascular plants that was comprehensive, with keys for identification, descriptions of the species, ecological and habitat information, and information about locations where the plants can be found. During the talk, we will also illustrate some of the interesting localities we visited as well as many of the beautiful plants we found.