

MOUNTAIN BEAVER (Point Arena Mountain Beaver, Sewellel)

*APLODONTIA RUFA* (RAFINESQUE, 1817)

NATURAL HISTORY SUMMARY BY JASON PARILLO

### **Classification**

**Kingdom:** Animalia

**Phylum:** Chordata

**Class:** Mammalia

**Order:** Rodentia

**Family:** Aplodontiidae

**Genus:** *Aplodontia*

**Species:** *A. rufa*

### **Description**

Except for a very short, furry tail, the Mountain Beaver's (*Aplodontia rufa*) overall appearance is similar to that of a medium-sized Muskrat (*Ondatra zibethicus*). Displaying a dark brown coat, the Mountain Beaver is uniform in color aside from a small white spot under each small ear. The eyes, are small, the whiskers are long and the body is thick and covered in coarse, dull fur. The under fur is covered with sparse guard hairs, dark reddish or grayish brown in color. In general, the animal's ventral surface is slightly lighter than its dorsal surface. Barely extending beyond the fur, the tail is scarcely visible (20-40 mm in length). The head is flat and wide, broadened posteriorly, and the nose is slightly arched. The incisors, covered in yellowish orange enamel, are anteriorly flattened and without grooves. While the maxillary cheekteeth are arranged in straight, parallel rows, the mandibular cheek teeth are arranged in slightly concave rows. All four limbs are short and robust with five toed feet. Having plantigrade feet, the sole is naked to the heel. A partially opposable pollex ("thumb", first, or preaxial digit of a forelimb or "big toe" of the hindlimb) with a short, blunt claw is in contrast to all other toes which have strong, curved, sharp, and laterally compressed claws. The claws are cream or light tan in color. The average adult has a mass of 1065 g and an average length of 354 mm (Carraway and Verts 1993).

### **Distribution**

Found only in North America, the Mountain Beaver's range of geographic distribution has changed very little since the late Oligocene (about 33.9 to 23 million years before the present) (Arjo et al. 2007). Now restricted to the Pacific Northwest and portions of California and Nevada, the ancient lineage of *A. rufa* once inhabited the Great Basin (Piaggio and Jeffers 2013). Today, there are four distinct population ranges in North America: 1) from Merritt, British Columbia to Rio Dell, California, 2) from Mt. Shasta, California southeastward through the Sierra Nevada range of eastern California and western Nevada and two tiny coastal populations in California, 3) near Point Arena and 4) near Point Reyes (Carraway and Verts 1993). *Aplodontia rufa*'s range map is available at Fellers et al. 2016.

### **Diet**

Mountain Beavers are herbivores, eating a wide variety of plants including ferns (Polypodiopsida), salal (*Gaultheria shallon*), nettles (*Urtica dioica*), fireweed (*Chamerion angustifolium*), bleeding heart (*Lamprocapnos spectabilis*), willows (*Salix*), alders (*Alnus*), and maples (*Acer*). Having inefficient kidneys, Mountain Beavers must drink 1/3 of their body weight in water each day (Mussulman 2004). Research suggests that they forage plant species that are toxic to many other vertebrate species and have a preference for ferns. Differences in diet is related to protein requirements and food availability. In October, the male diet consists mostly of high protein red alder (*Alnus rubra*) leaves. Lactating females prefer the new growth of grasses in the spring whereas juveniles consume more young grasses June through August to obtain extra protein for growth. Mountain Beavers may eat their food on site or stash it inside their burrow system for later access (Carraway and Verts 1993).

### **Habitat and Ecology**

Mountain Beavers can be found from forested areas near sea level, up to the timberline of mountains within its range. They are found in abundance in high mountain deciduous forests and in lower concentrations in coniferous forests. Mountain Beavers build extensive burrow systems which require deep soil for their construction. Running water is considered to be of great importance for habitat selection. As a territorial animal, the Mountain Beaver rarely ventures more than a few feet from its burrow. It can be a food

source for numerous predators including coyotes (*Canis latrans*), bobcats (*Lynx rufus*), and owls (Strigiformes). The herbivorous nature of the Mountain Beaver makes it a major factor impacting plant cover within its home range. In fact, Mountain Beavers' foraging on seedlings in areas undergoing reforestation may cause extensive damage and economic loss (Carraway and Verts 1993).

### **Reproduction and life cycle**

The average lifespan of Mountain Beavers in the wild is 6-10 years. Both males and females reach sexual maturity, on average, 730 days after birth (Newell 2017). While little is known about their behavior during reproduction, it is clear that reproductive activity occurs between January and March. The females strongly display intrapopulation synchrony during their single annual estrus period. The gestation period averages 30 days, but gestations as long as eight weeks have been reported. The young are born pink, blind, and helpless, most commonly in litters of two or three (Carraway and Verts 1993).

### **Conservation Status**

The International Union for Conservation of Nature (IUCN) Red List of Threatened Species' most recent (2016) listing for *A. rufa* is: "Least Concern" (Fellers et al. 2016). In California, relict populations are protected in National Park Service land or through state endangered species listing. In fact, as of 1991, the northern California subspecies *A. rufa nigra* is protected nationally under the United States Endangered Species Act (Fellers et al., 2016). In Nevada, the Mountain Beaver's range is relatively limited, and its status is listed as "Sensitive" (Arjo et al. 2007). In Canada, it is listed as a "Species of Concern" (Piaggio and Jeffers 2013).

### **Cultural Significance**

The Chinook people used the Mountain Beaver to make robes (called sewellel) sewn together with the sinew of elk or deer. Sewellel was the name mistakenly given to *A. rufa* by Meriwether Clark in 1806 at Fort Clatsop (Mussulman 2004).

### **Specimen Specific Detail**

The Mountain Beaver (*A. rufa*) specimen from the Burton Ostenson Museum of Natural History at Pacific Lutheran University was collected on December 8, 1936, in Bothell, Washington by D.E. Brown. A female, she is 335 mm in length with dark fur, well preserved whiskers, and grayish brown guard hairs. The day on which she was collected, was the same day that the National Association for the Advancement of Colored People (NAACP) filed the first suits to equalize the pay of black and white teachers.

### Literature Cited

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