Re-introduction of California Bighorn Sheep (*Ovis canadensis californicus*) Into the Hellsgate Game Reserve and Addressing Management Needs of Existing Bighorn Sheep Within the Omak Lake Game Reserve on the Colville Reservation

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Abstract: Among the native bighorn sheep that were extirpated during the 1900's were herds that historically occurred within the boundaries of the area now known as the Colville Indian Reservation. The Traditional Territories of the Twelve Tribes of The Colville Confederated Tribes (Chief Joseph Nez Perce, Palus, Moses/Columbia, Wenatchi, Entiat, Chelan, Methow, Southern Okanogan, Nespelem, San Poil, Colville, and Lakes) would have included populations of both Rocky Mountain Bighorn Sheep and California Bighorn Sheep.

The existing California bighorn sheep (*Ovis canadensis californicus*) occurring within the Omak Lake Game Reserve on the Colville Reservation have remained un-hunted, yet stagnant with observed numbers never exceeding 20 animals since the early 1980's. Free-ranging domestic sheep and goats, and the increased potential for disease transmission to occur in their presence, has limited the possibility of augmentation to increase genetic variation or improve population composition. In 2009 and 2010 a total of eight bighorn sheep were captured in the Omak Lake Game Reserve, and fitted with 5 VHF and 2 GPS collars, to establish home range analysis, habitat selection and primary cause of mortality. Blood samples, fecal samples, pharyngeal swabs, and ear swabs were collected from six of the Omak Lake bighorn sheep for genetic analysis, bacteriology, parasitology, and toxicology. In an effort to re-establish a healthy population of bighorn sheep on the Colville Reservation and to provide a source herd for future augmentation of the Omak lake bighorn population, eighty-five California bighorn sheep in four captures were transplanted into historical range in the Hellsgate Game Reserve in 2009 and 2010. Bighorn sheep transplanted into the Hellsgate Game Reserve were released in suitable habitat at two locations approximately seven river miles apart that have experienced varying levels of fire frequency. The first release site experienced a wildland fire event in 2005 and the second release site has not burned for several decades. Twenty three of the transplanted Hellsgate bighorn sheep were fitted with VHF collars and two with GPS collars to measure the possible responses of transplanted bighorn sheep in similar habitats with varying fire frequency using home range analysis, habitat selection, population composition, and cause of mortality.

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