



# USDA-ARS Poisonous Plant Research Laboratory: History and Current Research on Western North American Rangelands

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## On the Ground

- Poisonous plants on western North American rangelands have historically been troublesome to livestock producers.
- Research on toxic plants was initiated by the United States Department of Agriculture in the late 1890s to solve problems for the livestock industry.
- The United States Department of Agriculture Agricultural Resource Service Poisonous Plant Research Laboratory in Logan, Utah continues to provide research-based solutions to poisonous plant problems besetting livestock producers, hobby farmers and small holders, veterinarians, and extension personnel.
- Principal plants of current research interest include larkspur, lupine, locoweed, selenium accumulating plants, pyrrolizidine alkaloid-containing plants, and ponderosa pine.

**Keywords:** poisonous plants, cattle, sheep, livestock, toxic, plant secondary compounds.

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The colonization of western North America brought domestic livestock to this continent in the early 1500s, when cattle were introduced into Mexico by Gregorio Villalobos in 1521. Cattle, sheep, and horses were introduced into the western United States by Coronado in 1540. However, the real beginning of the range livestock industry in the western United States is attributed to the movement of settlers and livestock into the

Mississippi Valley, and these herds merged with livestock moving from Texas northward to other states. From about 1865 to 1895, 5 million head of cattle were moved north out of Texas. Forage on rangelands was considered to be limitless, and predators and thieves were the major worries for livestock producers. Poisonous plants were not a major concern given the extensive animal husbandry practices during that era.

Settlers in the Midwest had some experience with plant toxicity in humans and livestock from milk cows eating white snakeroot (*Ageratina altissima*), but large-scale losses of livestock to poisonous plants were rare on eastern rangelands. The range livestock industry in the United States boomed after the Civil War as large numbers of cattle and sheep were trailed onto expansive western rangelands. Soon thereafter, large losses of livestock from poisonous plants were reported as ranchers encountered unknown plants such as locoweeds (*Astragalus* and *Oxytropis* spp.) and larkspurs (*Delphinium* spp.), among others (Fig. 1).

## History of the Poisonous Plant Research Laboratory, Logan, Utah<sup>i</sup>

Spurred on by numerous accounts of field losses, United States Department of Agriculture (USDA) officials decided to act. V. K. Chesnut, assistant botanist for the USDA, was assigned to begin field investigations in 1895 in the western US, including Utah. Chesnut and his associate, E.O. Wilcox, made field investigations in Utah and other states focusing on locoweeds and larkspurs (Figs. 2 and 3). In 1901, six different divisions (Botany,

<sup>i</sup> The 70th Annual Society of Range Management Annual Meeting will be held in St. George, Utah 29 January–2 February 2017. This article highlights Utah range science and management. For more information on SRM Red Rock & Rangelands 2017 see <http://rangelands.org/srm17/>.