

William Gambel: New Mexico Plant Specimens

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Virtually any botanist in New Mexico would recognize the name *Quercus gambelii*. Fewer would likely recognize the name *Callipepla gambelii*. The first is, of course, the ubiquitous montane species, Gambel oak. The second, Gambel's quail. Both are named for William Gambel, M. D. Gambel is commonly credited with being the first trained botanist to reach Santa Fe (1841). By passion more devoted to ornithology, Gambel also collected the mountain chickadee (*Poecile gambeli*) from the area. Although not a prodigious botanical collector, he gathered several type specimens from New Mexico.

The Man

William Gambel was actually born William Gamble Jr. in June 1823, in Philadelphia. William Gamble Sr. had immigrated to Lancaster County Pennsylvania from Northern Ireland. He served in the War of 1812. He left Lancaster County after the death of his wife and moved to Philadelphia. The elder William remarried in August 1822 and, a few months later, William Jr. was born. Two daughters followed. Tragically, William Sr. died of pneumonia in 1832. Elizabeth Gamble (1802 – 1867) managed to provide for the family by teaching.

Perhaps as a result of his mother's involvement with education, young William displayed a talent for study and progressed rapidly. He also began spelling his last name as Gambel. In 1838 William made the acquaintance of Thomas Nuttall, perhaps the greatest field naturalist in the United States at that time. Gambel and Nuttall became friends. Late in 1838, Gambel left with Nuttall on a trip to the Carolinas and southern Appalachians. Like many naturalists of the time, Nuttall's interests were diverse, including not just botany, but mineralogy and ornithology, sciences that quickly captivated the young Gambel. They returned briefly to Philadelphia in April 1839, before going mineralizing in the pre-Cambrian limestone in Northern New Jersey.

Both men attended the October 15, 1839 meeting of the Philadelphia Academy of Natural Sciences. Gambel presented a specimen of gold from North Carolina. In December 1839, Nuttall was contacted by John Amory Lowell, the son of an old friend of his from his days on the faculty of Harvard University as curator of the Botanic Garden and Professor of Botany. Lowell asked Nuttall to present a set of lectures on botany at the Lowell Institute in Boston beginning in the spring of 1840. Nuttall invited Gambel to accompany him. The pair left Philadelphia in late February 1840, setting up shop in Cambridge.

They stayed in Cambridge for over four months. Nuttall delivered the lectures and renewed acquaintances. Gambel essentially served as his apprentice. Nuttall did considerable work in ornithology during this time and actually named a species of western sparrow for his young protégé (*Zonotrichia gambeli*).

The two found opportunities to go on mineralizing trips. In April they journeyed to Portland, Maine and walked about 50 miles to the vicinity of Paris to collect tourmaline and beryl. In May, their goal was the area of Bath and the Kennebec River in Maine, again for minerals. By the end of their stay, Gambel was well schooled in not only botany, but mineralogy and ornithology as well. They were back in Philadelphia in early August.

During the following winter, Gambel wrote to Edward Tuckerman, his new friend from Cambridge, that he was going to California via the Santa Fe Trail to collect specimens for Nuttall. He left Philadelphia in March 1841 at the age of 18. After making his way to Independence, Missouri, he joined a group of traders bound for Santa Fe. The band departed in early May and arrived in Santa Fe in June. From Independence the route proceeded westward for about four hundred miles to the vicinity of Dodge City, Kansas. From this point, there were two possible routes to Santa Fe. One veered southward, across the Arkansas river, overland to the Dry Cimarron river which drains into the Arkansas River near Tulsa, Oklahoma, then westward along the Dry Cimarron into what is now northeastern New Mexico. The route then crossed the plain between the Dry Cimarron and the Canadian Rivers, crossing the Canadian near what is now Wagon Mound, then heading south and west to Santa Fe along roughly the route of I-25. The second route followed the Arkansas River from Dodge City to the area of La Junta, Colorado, then turning south through Raton Pass and on to Wagon Mound and Santa Fe. There is uncertainty about which route Gambel's party took, but evidence seems to favor the Raton Pass route.

Gambel spent July and August of 1841 exploring, birding, and making a few collections in the Santa Fe area and along the "Rio del Norte", as the Rio Grande was commonly called in the 1840s. In early September, he joined an expedition organized by William Workman and John Rowland and headed for California. The group of 25 left

Abiquiu and followed a trail blazed in the winter of 1830-31 by a group of trappers and their leader, William Wolfskill. From Taos they headed northwest crossing the upper Colorado (then called the Grand) River below its junction with the Dolores River, then following the Colorado southwest to the junction with the Green River. Turning northwest after crossing both rivers, they proceeded to the Sevier Valley in southern San Pete County, Utah, entering the valley about 100 miles south of present day Salt Lake City. Moving southwest down the Sevier Valley, they made their way to the Virgin River in the extreme southwest corner of Utah. After crossing the Mojave Desert, they traversed Cajon Pass, arriving in Los Angeles in late November 1841.

Gambel traveled about and collected bird and plant specimens in southern California in 1841-42. He was the first botanist to reach California from the east and the first to explore Santa Catalina Island. During 1842, he became pressed for funds and became a clerk on the United States Navy ship *Cyane* under Commander T.A. Catesby Jones. During the next three years, Gambel continued his naval service on several ships, visiting and making some minor collections on the western coasts of both North and South America and also in the Sandwich (Hawaiian) Islands. He returned to the Philadelphia area in July 1845 via Cape Horn.

Gambel entered medical school at the University of Pennsylvania in 1845 and received his M.D. in 1848. He became Recording Secretary at the Academy of Natural Sciences and married Catherine Towson, a childhood friend. Establishing a medical practice in popular Philadelphia, however, was a daunting task. This, combined with his wanderlust and the discovery of gold at Sutter's mill, led to his decision to try his hand at establishing himself in a medical profession in California. He resigned his position at the Academy, shipped his medical library and equipment to San Francisco, and on April 5, 1849 left for Independence with Isaac Jones Wistar (1827-1905), future Civil War general and great-nephew of Caspar Wistar, and a group of young companions. They planned to take the Oregon Trail. Leaving Independence on April 25, they followed the Kansas River to the junction of the Little Blue River. The group was afflicted with cholera, small pox, and pneumonia. Gambel became a practicing physician sooner than he had imagined. They crossed from the headwaters of the Little Blue to the Platte River on May 30. According to Wistar, "Gambel being desirous of traveling more leisurely and comfortably" left the group on June 2, joining a party led by a Captain Boone.

Boone's plan was to take a somewhat more southerly course in order to cross the Sierra near the upper end of the Sacramento Valley. The company continued along the Oregon Trail until it entered the Snake River Valley, then turned southwest across Nevada. Sand, drought, and lack of grass turned the expedition into a disaster. Many animals died. Wagons were abandoned. So much time was lost that the ragged band got caught in snows in the Sierra. Few survived.

Gambel somehow made it across the Sierra. He emerged in poor condition near present-day Quincy in Plumas County, California. Placer miners were actively seeking gold in the Yuba and Feather Rivers in the vicinity. Mining camps were set up on large sand bars in the rivers. Typhoid fever was rampant. Gambel began treating the desperately ill miners, but contracted the disease himself, dying December 13, 1849 at Rose's Bar. It is probable that some historians have a completely inaccurate impression of Gambel's final hours.

The Plants

During his first excursion to the West, Gambel maintained contact with Nuttall by means of occasional letters. In 1842, Nuttall accepted an inheritance from his family in England. Terms of the inheritance required that he reside at the family estate at least nine months a year, requiring his repatriation.

This further slowed the communication. In England late in 1842 Nuttall received a letter Gambel had written in early 1842 from Pueblo Los Angeles, which included Gambel's manuscript describing eleven new species of birds from the southwest. Nuttall forwarded the manuscript to the Philadelphia Academy. The paper was read at the April 1843 meeting and published in the *Proceedings*. In August, Gambel was elected in absentia to the Academy.

After Gambel's return to New England in 1845, he sent a letter to Nuttall indicating that he had returned, but that his plant collection, which he had placed on a whaling ship bound for Massachusetts, had not. At the August meeting of the Academy, Gambel presented a paper describing 5 species of western birds. By the middle of 1846, the collection of roughly 350 species had arrived and Gambel forwarded it to Nuttall in England. Although Nuttall reportedly brought a set of specimens to John Amory Lowell in Cambridge, no record of them has been located there. The rest of Gambel's specimens are at the British Museum. Nuttall examined the collection and prepared a report describing about 115 species, the majority collected by Gambel, but roughly 40 percent plants collected by Nuttall himself in the West. Nuttall decided to take a brief trip to the United States late in 1847. On February 1, 1848, he read his paper at a meeting of the Academy. The paper was subsequently published in the *Journal*. Nuttall honored Gambel by designating a new genus, *Gambelia*, for one of Gambel's plants from Santa Catalina Island in California. Asa Gray later reduced it to a species of *Antirrhinum* [*Antirrhinum speciosum* (Nutt.) Gray]. Nuttall's paper shows 11 new species gathered by Gambel from the Santa Fe area and along the Rio del Norte (Rio Grande).

Paul C. Standley, in *Type Localities of Plants First Described from New Mexico*, corrected the listing of *Bulbostylis annua* as being from New Mexico, noting in regard to Nuttall's specified locality: "Such is the locality given by Nuttall, but there is reason to believe that it is incorrect. The plant seems not to have been collected in New Mexico since, and the genus is one which reaches its fullest development farther west. This species occurs in Utah and Arizona and westward." Nuttall's list is summarized in the table below, along with a summary of more recent taxonomic treatments.

New Mexico Type Specimens Collected by William Gambel			
Nuttall (1848)	Wooton & Standley (1915)	Martin & Hutchins (1980, 81)	Allred (2003)
<i>Phlox nana</i> Nutt.	<i>Phlox nana</i> Nutt.	<i>Phlox nana</i> Nutt.	<i>Phlox nana</i> Nutt.
<i>Gilia multiflora</i> Nutt.	<i>Gilia multiflora</i> Nutt.	<i>Ipomopsis multiflora</i> (Nutt.) V. Grant	<i>Ipomopsis multiflora</i> (Nutt.) V. Grant
<i>Dieteria gracilis</i> (Nutt.)	<i>Sideranthus gracilis</i> (Nutt.) Rydb.	<i>Haplopappus gracilis</i> (Nutt.) Gray	<i>Machaeranthera gracilis</i> (Nutt.) Shinners
<i>Bulbosytis annua</i> Nutt.	<i>Psathyrotes annua</i> (Nutt.) A. Gray		Not present in NM; reported by W&S based on erroneous info in type locality
<i>Quercus gambelii</i> Nutt.	<i>Quercus gambelii</i> Nutt.	<i>Quercus gambelii</i> Nutt.	<i>Quercus gambelii</i> Nutt.
<i>Orobanche multiflora</i> Nutt.	<i>Myzorrhiza multiflora</i> (Nutt.) Rydb.	<i>Orobanche multiflora</i> Nutt. var. <i>multiflora</i>	<i>Orobanche ludoviciana</i> Nutt. subsp. <i>multiflora</i> (Nutt.) Collins ex H.L. White & W.C. Holmes
<i>Bartonia multiflora</i> Nutt.	<i>Nuttallia multiflora</i> (Nutt.) Greene	<i>Mentzelia pumila</i> var. <i>multiflora</i> (Nutt.) Urb & Gilg	<i>Mentzelia multiflora</i> (Nutt.) Gray
<i>Monarda pectinata</i> Nutt.	<i>Monarda pectinata</i> Nutt.	<i>Monarda pectinata</i> Nutt.	<i>Monarda pectinata</i> Nutt.
<i>Hedeoma ciliata</i> Nutt.	<i>Hedeoma ciliata</i> Nutt.	<i>Hedeoma drummondii</i> Benth.	<i>Hedeoma drummondii</i> Benth
<i>Calycodon montanum</i> Nutt.	<i>Muhlenbergia subalpina</i> Vasey	<i>Muhlenbergia subalpina</i> Vasey	<i>Muhlenbergia subalpina</i> Vasey
<i>Pleopogon setosum</i> Nutt.	<i>Lycurus phleoides</i> H.B.K.	<i>Lycurus phleoides</i> H.B.K.	<i>Lycurus setosus</i> (Nutt.) C. Reeder

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