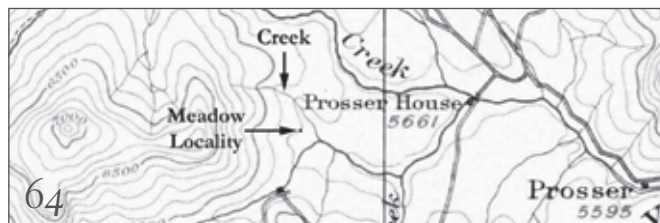
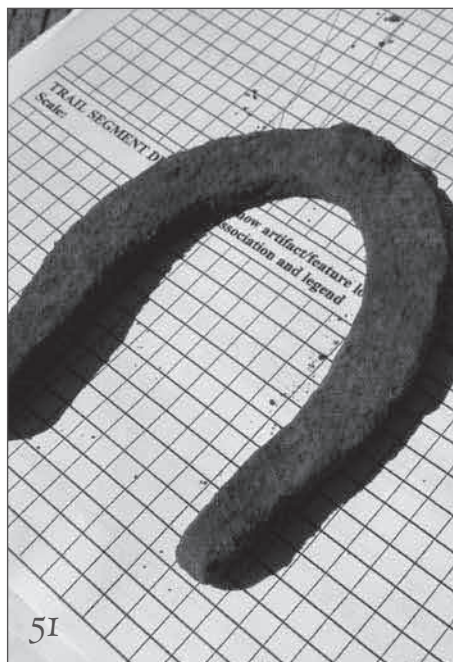


# OVERLAND JOURNAL

QUARTERLY JOURNAL OF THE OREGON-CALIFORNIA TRAILS ASSOCIATION  
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P.O. Box 1019 · Independence, MO 64051 · [www.octa-trails.org](http://www.octa-trails.org) · (816) 252-2276 · [octa@indepmo.org](mailto:octa@indepmo.org)

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- Initiating legislation designating the California and Santa Fe trails as National Historic trails.
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The purposes for which the Association is organized are as follows:

1. To initiate and coordinate activities relating to the identification, preservation, interpretation, and improved accessibility of extant rut segments, trail remains, graves and associated historic trail sites, landmarks, artifacts, and objects along the overland western historic trails, roads, routes, branches, and cutoffs of the Trans-Mississippi region.
2. To prevent further deterioration of the foregoing and to take or pursue whatever measures necessary or advisable to cause more of the same to become accessible or more so to the general public.
3. To implement these purposes by acquiring either alone or through or jointly with other—federal, state, local, or private—title to the land or lands on which any of the same is located or a preservation or other easements with regard to the same—by purchase, gift, or otherwise—and by cooperating with or initiating, coordinating, and assisting the efforts of such others to do so.
4. To publicize and seek public exposure of the goals and activities of the Association so as to create popular awareness of and concern for the necessity of preserving the foregoing.
5. To facilitate research projects about the aforesaid and to publish a journal as a forum for scholarly articles adding to the sum of knowledge about the same.

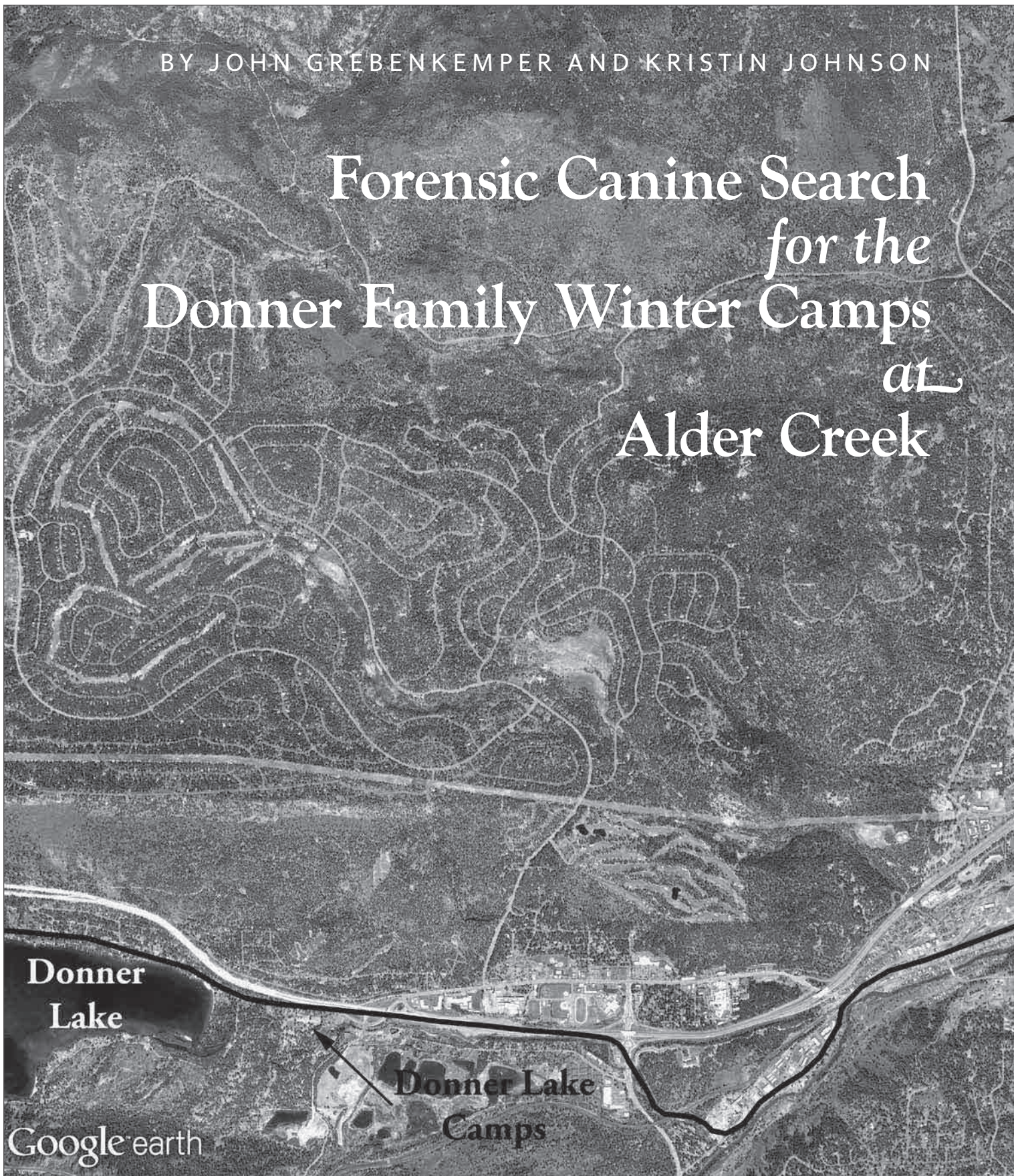
It shall be the further purpose of the Association to be exclusively charitable and educational within the meaning of Section 501(c)(3) of the Internal Revenue Code.

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BY JOHN GREBENKEMPER AND KRISTIN JOHNSON

# Forensic Canine Search *for the* Donner Family Winter Camps *at* Alder Creek







## THE DONNER PARTY HISTORY

—OF AN EMIGRANT TRAIN ON ITS WAY TO CALIFORNIA WHEN IT BECAME SNOW-BOUND IN THE SIERRA NEVADA DURING THE WINTER OF 1846–47—IS LEGENDARY.

*Overland Journal* readers and others who read western U.S. history are likely to be very familiar with the basic facts of the tragedy. Of the eighty-one emigrants in the party, forty-five lived to reach their destination; about half of the survivors had resorted to eating the bodies of those who had died of cold and starvation.

The events of that winter are memorialized in the landscape and place names around Truckee, California—Donner Lake, Donner Pass, Donner Peak—but ironically, George Donner, the man for whom the wagon train was known, never saw the landmarks that now bear his name. George Donner and his brother Jacob, along with their families and a handful of other emigrants, spent the winter in the Alder Creek Valley. The main body of emigrants who took refuge near Donner Lake<sup>1</sup> were camped about eight miles farther west along the Emigrant Trail. The sixty people staying

1 Donner Lake was known as Truckee's Lake in emigrant diaries.

FIGURE 1. The Donner Party campsites were separated by about 8 miles traveling along the Emigrant Trail. Most of the Donner Party camped east of Donner Lake. The George and Jacob Donner families and their associates camped near Alder Creek. The approximate route of the Emigrant Trail in 1846 is shown by the dark line. It is impossible to determine the exact route due to one and a half centuries of human development. Modern State Route 89 and I-80 can be seen in the satellite picture. The scale shown in the lower right corner is 1 mile. *Satellite photograph from Google Earth.*

at the lake camp included the extended families of Breen, Eddy, Graves, Keseberg, McCutchen, Murphy, and Reed, along with various single men and hired help. They all lived in three structures today called the Murphy, Breen, and Graves cabin sites.

The camp at the lake is well known, but the exact locations of the Donner families' winter camps have been lost for a century and half, despite numerous attempts to find them. After reviewing the historical data of the Donner Party's movements in this area, the fate of the emigrants, and the attempts by later individuals to locate the Donner camps, this paper describes the most recent search at the Alder Creek site, which, using old-fashioned documentary research and low-tech investigative methods, has resulted in new and exciting conclusions that warrant further exploration.

#### THE DONNER FAMILIES AT ALDER CREEK<sup>2</sup>

The Donners of the Donner Party were two brothers from Springfield, Illinois, and their families. George, about age sixty, was a prosperous farmer, traveling with his wife, Tamzene, and five daughters. Jacob Donner, about fifty-six, took his wife, Elizabeth, and seven children. Each man had three ox-drawn wagons, one for his family and two for provisions, equipment, and trade goods, driven by hired teamsters. The brothers took a number of horses, some beeves, milch cows, and at least one dog when they left Springfield on April 14, 1846. The James F. Reed family also accompanied them.

George Donner abandoned one wagon in Utah and cached property in the barren, alkali Forty Mile Desert in Nevada. Both brothers lost

a number of animals to Paiutes while traveling along the Humboldt River in October. By the time they reached the foot of the Sierra Nevada at the end of the month, the Donners and their companions were bringing up the rear of the wagon train.

Leaving the Truckee River Canyon near the site of present-day Verdi, Nevada, the Donners crossed the ridge and started down into Dog Valley. Here the group was halted by an accident, described by Elitha Donner Wilder in a letter to her younger sister many years later:

We were 12 to 16 miles from the place where we camped for the winter[.] Coming down a long sliding hill, father was driving, you [Eliza] and Georgia were in the wagon, your mother and Frances were walking ahead when near the bottom the axel of the fore wheel broke, and the wagon tipped down tumbling everything over you two children. Father and Uncle Jake rushed to get you out[.] . . .

While father and uncle were hawing a new axel tree, here came two men from our old company ahead of us told of the snow.<sup>3</sup>

The "company ahead" had failed to scale the pass and the emigrants settled into three cabins near the eastern end of the lake, hoping they could cross the pass when the snow ceased. The two men evidently visited on November 2, 1846, the date that Jacob Donner wrote a note authorizing Milt Elliott, an emigrant from the forward group, to purchase supplies on his behalf in California. Elitha continued,

It was a sad bit of news, and our folks concluded to look for a place to camp. They fixed up and started on until we came to a place that suited for a camp. . . The snow covered the Mts. but Alder Creek Valley was free.<sup>4</sup>

2 Much of the information in the section is given in more detail in Kristin Johnson, "The Aftermath of Tragedy: The Donner Camps in Later Years," in Kelly J. Dixon, Julie M. Schablitsky, and Shannon A. Novak, eds., *An Archaeology of Desperation* (Norman: University of Oklahoma Press, 2011), p. 63–86.

3 Elitha Donner Wilder, Eliza Poor Donner Houghton Papers, HM 58183, Huntington Library (hereafter HL), San Marino, Calif.

4 *Ibid.*, HM 58183, HL.



This statement answers a question that historians have asked for years: Why did the Donners camp in Alder Creek Valley, approximately two miles west of the emigrant trail?

The two Donner families, four adults and twelve children ranging in age from three to fourteen, camped with several other people. There were exchanges of personnel between the two groups of emigrants at the beginning of the entrapment, but the permanent residents of Alder Creek numbered twenty-two. Fifty-nine emigrants lived at the lake.

Of the Alder Creek camps, we know most about George Donner's. It consisted of an A-frame tent erected under a pine tree, its door near the trunk and facing east. The emigrants created an annex by leaning poles and branches around the north side of the tree and covering them with cloth, quilts, buffalo robes, and similar items, leaving a vent for the hearth, which was scraped into the soil near the tree. This camp was home to George, Tamzene, Elitha, Leanna, Frances, Georgia, and Eliza Donner, Dorothea Wolfinger, Joseph Reinhardt, and John Baptiste.<sup>5</sup>

Jacob Donner's camp, about 300 yards away,<sup>6</sup> consisted of a similar tent built against a fallen tree and reinforced with brush. In it lived Jacob, Elizabeth, George, Mary, Isaac, Lewis, and Samuel Donner, and Elizabeth's sons from a previous marriage, Solomon and William Hook. We have one description of the camp, seen through the eyes of young John Breen, from the lake camp, who visited Alder Creek during a lull between snowstorms in mid-November:

I do not know that I could locate the site of the Doner tent, as I was at the tent but once after we

camped for the winter; with my minds eye I can see the place quite plainly. The camp was some distance from the road, on the left side as you go down the river, in a small valley on the north side and near a shallow ravine and some distance from the timber, which I thought singular on account of the labor in geting firewood. There was no real tent the structure was mostly of limbs of trees.

When I was there, the ground was mostly free from snow, which I at the time thought strange as the snow was quite deep at our camp. I saw no one at the tent, but Jacob Doners wife, and a small boy who was crying for something to eat. Mrs. Doner told the boy that it would soon be supper time and the[n] he would get something to eat. What a supper the poor woman looked forward to, probably one fourth what would satisfy [sic] their hunger. It makes me shiver to think of it, long as the time is past.<sup>7</sup>

No written documents exist from the survivors of the Jacob Donner camp, but the five daughters of George Donner wrote about their experiences at Alder Creek in numerous letters, many of which have survived in various archives. The best known account of Alder Creek is by the youngest daughter, Eliza Donner Houghton, who published a book in 1911, more than sixty years after her rescue at age four. One of the more intriguing statements in her book refers to a third shelter at Alder Creek. Eliza wrote that "The teamsters, Samuel Shoemaker, Joseph Rhinehart, James Smith, and John Baptiste, built their hut in Indian wigwam fashion,"<sup>8</sup> but this is not documented in any surviving letter from her older sisters. The teamster camp, if there was one,

5 Georgia Donner Babcock to C. F. McGlashan, March 27, 1879, McGlashan Papers, folder (henceforth fd) 2, Bancroft Library (hereafter BL); Frances Donner Wilder to C. F. McGlashan, April 17, 1879. McGlashan Papers, fd 54.

6 Leanna Donner App (per Rebecca App) to C.F. McGlashan, April 27, 1879, McGlashan Papers, fd 1, BL.

7 John Breen to C. F. McGlashan, May 18, 1879, McGlashan Papers, fd 11, BL. In all quoted material, original spellings are retained.

8 Eliza P. Donner Houghton, *The Expedition of the Donner Party and Its Tragic Fate* (Chicago: McClurg, 1911), p. 62. Co-author Kristin Johnson notes that Eliza's statement is the only known reference to a teamsters' camp and John Baptise reported that Baptise and Reinhardt lived in George Donner's camp.

did not last long, since three of the four members listed by Eliza were dead before December 20. The existence of a third camp can only be proven using modern archaeological methods.

Teamster James Smith arrived at Alder Creek about November 28 and died there less than a month later. Milt Elliott and Noah James came on December 9 and remained for days, trapped by a snowstorm. There is no mention of where Milt and Noah stayed during this period. Noah stayed behind when Milt returned to the lake camp on December 20. Patrick Breen recorded in his diary that

Mond. 21 Milt. got back last night from Donos camp sad news. Jake Donno Sam Shoemaker Rinehart, & Smith are dead the rest of them in a low situation . . .<sup>9</sup>

Jacob Donner was reportedly the first to die; he was buried in the snow near his camp. Joseph Reinhardt died at the camp of George Donner, with whom he had been traveling. Georgia Donner Babcock later wrote that

After Rhinehart died in our tent he was wrapped in a sheet carried out in a blanket burried in the snow with a feeling that one of their number had been laid to rest. The bodies of all that died in my uncle's camp were buried[.] From the trouble they afterward had in searching for these bodies it is evident that their graves were not marked . . .<sup>10</sup>

There are no direct quotes about where Shoemaker died, but several statements by Georgia Donner Babcock suggest his body was buried in the snow near the Jacob Donner camp. It is unclear where James Smith died.

9 Breen, *Diary of Patrick Breen*. In Dale L. Morgan, *Overland in 1846: Diaries and Letters of the Oregon-California Trail*, 2 vols. (Georgetown, Calif.: Talisman Press, 1963; reprint, Lincoln: University of Nebraska Press, 1993), p. 313.

10 Georgia Donner Babcock to C. F. McGlashan, May 2, 1879, McGlashan Papers, fd 2, BL.

Life at Alder Creek dragged on. Getting firewood in the deep snow was extremely difficult for the famished emigrants. The emigrants ate meat, hides, bones, whatever they had, and somehow managed to stay alive. There had been no further deaths at Alder Creek when the First Relief (rescue party) arrived from Johnson's Ranch<sup>11</sup> on February 20, 1847. One of the men described the desperate situation he encountered:

20th Myself and two others went to Donners camp 8 miles and found them in a starving condition the most of the men had died and one of them leaving a wife and 8 children, the two families had but one beef head amongst them, there was two cows buried in the snow but it was doubtful if they would be able to find them we left them telling them that they would soon have assistance if possible.<sup>12</sup>

The rescuers took three people from George's camp and three from Jacob's. At the lake camp, on February 26, Patrick Breen recorded what the rescuers had said about Alder Creek:

[Frid 26th] . . . The Donnos told the California folks that they [would] commence to eat the dead people 4 days ago, if they did not succeed that day or next in finding their cattle then under ten or twelve feet of snow & did not know the spot or near it, I suppose they have done so ere this time.<sup>13</sup>

Years later Georgia Donner Babcock wrote to McGlashan about this period.

11 The ranch of William Johnson was the terminus of the Truckee Route across the Sierra Nevada. The rescue parties organized themselves at Johnson's Ranch and the Donner Party survivors stayed there before continuing on to Sutter's Fort. See Jack and Richard Steed, "The Rediscovery of Johnson's Ranch," *Overland Journal* 4 no. 1 (Winter 1986): 18–32.

12 Reason P. Tucker, *First Relief Diary*, in Dale L. Morgan, *Overland in 1846: Diaries and Letters of the Oregon-California Trail*, 2 vols. (Georgetown, Calif.: Talisman Press, 1963; reprint, Lincoln: University of Nebraska Press, 1993), p. 333.

13 Breen, *Diary of Patrick Breen*, p. 313.

. . . they went in search for these bodies, my uncle's was the only one they could find for some time. His wife expressed her wish to [un]bury the body, so that the limbs might be used. And from these food was prepared for the little ones in both camps. While eating I chanced to look up. My mother had turned a way and fa[ther] was crying. . . . Samuel Shoemaker is the only one that I know of being found afterward.<sup>14</sup>

Jacob Donners wife came down the steps one day saying to mother "What do you think I cooked this morning?" Then answered her own question herself, "Shoemaker's arm."<sup>15</sup>

Two men of the Second Relief, Charles Cady and Charles Stone, reached the Alder Creek camps on February 28, followed by James F. Reed and three others on March 1. Cady and Stone reported that they had seen John Baptiste leaving Jacob's camp with a leg over his shoulder, and Jacob's children sitting on a log eating their father's heart and liver. They also stated that:

Mrs. Jacob Donner was in a helpless condition, without any thing whatever to eat except the body of her husband, and she declared that she would die before she would eat of this. . . . Mr. Reed and party, after removing the tent to another place, and making Mrs. Donner as comfortable as possible, retired for the purpose of being relieved for a brief period from sights so terrible and revolting. They had not gone far when they came to the snow-grave of Jacob Donner. His head was cut off, and was lying with the face up, the snow and cold having preserved all the features unaltered. His limbs and arms had been severed from the body which was cut open—the heart and liver

being taken out. . . . Other graves were seen, but nothing remained in them but a few fragments.<sup>16</sup>

The Second Relief rescued a number of people from the lake camp and six from Alder Creek. This left George and Tamzene Donner, their three youngest children, Frances, Georgia and Eliza; Elizabeth Donner and her two youngest, Lewis and Samuel; and John Baptiste at Alder Creek, with Charles Cady and Nicholas Clark of the Second Relief to assist them.

A few days later, Charles Stone, who was tending the few remaining emigrants at the lake camp, walked over to Alder Creek and convinced Cady to leave the mountains with him. Tamzene Donner hired them to take her three little girls across the mountains, but they left the children at the Breen cabin near the lake, where the remaining emigrants had moved.<sup>17</sup>

As the winter closed, Elizabeth Donner "brought her baby [Samuel] over to mother [Tamzene Donner] to try & take care of it, as . . . she was most dead" and returned to Lewis.<sup>18</sup> He died in Jacob Donner's tent, now at its second location. Elizabeth reportedly carried her little boy's body to George's camp, where it was buried in the snow.<sup>19</sup> If so, she may have remained with the George Donners; it is not clear in which camp she died about March 12. On March 13, the Third Relief paid a quick visit to the lake camp, taking the three little Donners with them when they left. Clark and Baptiste left Alder Creek about the

14 Georgia Donner Babcock to C. F. McGlashan, May 2, 1879, McGlashan Papers, fd 2, BL.

15 Georgia Donner Babcock to C. F. McGlashan, June 15, 1879, McGlashan Papers, fd 3, BL.

16 J. Quinn Thornton, *Oregon and California in 1848* (1849). In Kristin Johnson, ed., "Unfortunate Emigrants": *Narratives of the Donner Party* (Logan: Utah State University Press, 1996), p. 91.

17 C. F. McGlashan, *History of the Donner Party: A Tragedy of the Sierra* (1879; San Francisco: A. L. Bancroft, 1880), 165.

18 Frances Donner Wilder to C. F. McGlashan, April 17, 1879, McGlashan Papers, fd 54, BL.

19 C. F. McGlashan reported that Elizabeth took Lewis's body to George's camp, but there is no known source for this statement. C. F. McGlashan, *History of the Donner Party: A Tragedy of the Sierra* (1880 ed.; repr. Stanford: Stanford University Press, 1940), 166.



same time. The only living people at Alder Creek were George, Samuel, and Tamzene Donner. After Samuel and George died, Tamzene traveled to the lake camp where she, too, perished. When the Fourth Relief arrived on April 17, they found only Louis Keseberg alive at the lake camp and “property of every description” strewn about Jacob Donner’s camp in the melting snow.<sup>20</sup>

#### ALDER CREEK AFTER THE DONNERS’ DEPARTURE

The Donner Party camps were deserted after the Fourth Relief left on April 21. Salvagers retrieving property from the lake camp may have visited Alder Creek in May or June, but the next known visit to the Donner Family camp at Alder Creek was that of General Stephen W. Kearny’s east-bound party. On June 22, when they arrived at the lake camp, the men were appalled at the sight of mutilated and scattered human remains. At the general’s order, some of his party buried the remains in the Breen cabin, then set it afire.<sup>21</sup>

Kearny’s company moved on to Alder Creek. “The body of George Donner was found at his camp, about eight or ten miles distant, wrapped in a sheet. He was buried by a party of men detailed for that purpose,” Edwin Bryant recorded,<sup>22</sup> but one of his companions contradicts him. Nathaniel Jones wrote that after leaving the lake, he traveled seven miles and camped; a mile above (north of) where he stopped was “another cabin and more dead bodies but the General did not order them

buried.”<sup>23</sup> None of Kearny’s party left a detailed description of this visit.

In September 1847, Mormon Battalion veterans traveling east en route to Utah reached the lake camp and noted the derelict cabins, the tall stumps of trees cut while the snow was deep, and the mutilated human remains that had greeted Kearny. Henry W. Bigler recorded on September 7 that some of “our boys” returned from hunting and told of finding “a shanty and several dead human bodies, some of them were whole and completely dried, others cut up, men and women with their legs cut off, their ribs sawed from their bodies and their skulls sawed open and their brains taken out.”<sup>24</sup> This was presumably an Alder Creek camp, but the details seem exaggerated.

Few overlanders set out for California in 1847 and 1848, but the following year thousands flooded westward to the gold fields. There were new trails over the Sierra by 1849, but the Truckee Route, as it began to be called, was still used, leading about a third of the goldrushers past the sites of the Donner disaster.<sup>25</sup> Dozens of “forty-niners” recorded the grisly sights at the lake but almost none mentioned the Alder Creek camps; unlike the log cabins at the lake, the Donner shelters were some distance from the road and the canvas and brush structures would not have been very visible, if they still stood at all. A few gold rush accounts contain hints of possible visits to the Donner family camps, but these are intriguing rather than useful.<sup>26</sup>

The only known gold rush diarist who unequivocally mentions the Donner Family camps was

20 William O. Fallon, “Extracts From a Journal,” in Morgan, *Overland in 1846*, p. 361.

21 People assumed for years that the burial was at the Murphy cabin, but emigrant diaries from 1849 make it clear that the Breen cabin had been burned while the Murphy and Graves cabins still stood.

22 Edwin Bryant, *What I Saw in California* (1848; Lincoln: University of Nebraska, 1985), 263.

23 Nathaniel V. Jones and Rebecca M. Jones, “Extracts from the Life Sketch of Nathaniel V. Jones by His Wife Rebecca M. Jones,” *Utah Historical Quarterly* 4, no. 1 (1931): 17–19.

24 Henry W. Bigler, “Extracts from the Journal of Henry W. Bigler,” *Utah Historical Quarterly* 5, no. 3 (1932): 90–92.

25 Will Bagley, “All Remember the Fate of the Donner Party,” in *An Archaeology of Desperation*, p. 309.

26 Johnson, “Aftermath of Tragedy,” 67–68.

John A. Markle. He reached the Alder Creek Valley on August 20, 1849. "One mile more brought us opposite to where [the Donners'] cabins were, which were situated about 1 or 2 miles from the road on the right hand side. There were a number of fragments left, but more human bones than anything else," he wrote.<sup>27</sup> Markle probably would not have seen or visited the camp if he had not been traveling with Donner Party survivor William C. Graves, who had gone east with General Kearny and was returning to California.

During the years after the gold rush, lumbering and the transcontinental railroad brought many changes to the landscape the Donner Party had known. In 1872 teacher Charles Fayette McGlashan came to Truckee, a small community three miles east of Donner Lake. He practiced law after passing the bar in 1875, and later became co-owner and editor of the *Truckee Republican*. McGlashan became interested in the Donner Party in December 1878 and for the first six months of 1879 he worked feverishly on a series of newspaper articles about the ill-fated wagon train. He exchanged letters with most of the survivors and rescuers and others who could inform him about the incident. By the time McGlashan started this project, however, only six of the eleven who had survived at Alder Creek were still alive. All three of Jacob Donner's children who had survived the ordeal were dead, as were Noah James and Mrs. Wolfinger. Two others, Elitha Donner Wilder and John Baptiste, were unavailable for comment. The only former residents of Alder Creek still alive to tell him their story were the four youngest, all daughters of George Donner.

In addition to his correspondence and research, McGlashan also sought out the physical remains of the tragedy. He was successful at the Graves and Breen cabin sites, where he recovered numerous

artifacts, but the locations of the Donner camps at the Alder Creek camps were a mystery, despite his efforts. He said:

One entire day this week I walked about the site of the Donner tents unable to locate the spot precisely. I nevertheless felt certain that I was within a few yards of the place.<sup>28</sup>

The tall stumps . . . which are particularly numerous around the site of the Donner tents at Alder Creek, are of themselves remarkable relics. Many of them were cut by persons who stood on the top of very deep snow.<sup>29</sup>

The location of the camps continued to elude McGlashan for decades. The few possible witnesses who emerged—W. C. Graves and Nicholas Clark in 1879,<sup>30</sup> John Baptiste in 1884,<sup>31</sup> and John Breen in 1892<sup>32</sup>—shed no light on the mystery. As his newspaper series ended, McGlashan rewrote his articles, gathering and publishing them in book form as *History of the Donner Party: A Tragedy of the Sierras*<sup>33</sup> in July 1879. The *Republican*

28 McGlashan to Houghton, April 24, 1879, in C. F. McGlashan, eds. M. Nona McGlashan and Betty H. McGlashan, *From the Desk of Truckee's C. F. McGlashan* (Truckee, Calif.: Truckee-Donner Historical Society, 1986), 30.

29 McGlashan, *History of the Donner Party*, 261. This statement does not appear in the first (1879) edition of the work. The tall stumps near Donner Lake and Alder Creek were created when trees were cut by a person standing on top of deep snow. The snow at Alder Creek likely exceeded 6 feet after the large storm that started at the end of November. For the next three months, all of the trees that were cut for firewood would leave a tall stump that would be visible after the snow melted. These tall stumps are an indicator for the location of the Donner camps, and two of these stumps would survive until 1962.

30 "One of the Survivors," *Truckee Republican*, 23 April 1879; C. F. McGlashan to Eliza Donner Houghton, October 30, 1879, in *From the Desk of Truckee's C. F. McGlashan*, 63.

31 McGlashan to Houghton, 18 November 1884, in *From the Desk of Truckee's C. F. McGlashan*, 100.

32 "A Survivor [sic] of the Donner Party. On a Visit to the Scene of the Horrors of 1847," *Daily Nevada State Journal*, July 6, 1892, 3.

33 The newspaper series and the first (1879) edition had "Sierras" in the subtitle, but in subsequent editions this was changed to "Sierra."

27 John A. Markle, *Diary*. Typescript, Special Collections, California State Library.



continued to print information about the Donner Party, such as the discovery of a human skull “near the spot where stood the tents of George and Jacob Donner,”<sup>34</sup> although McGlashan very much doubted the story.<sup>35</sup>

The first report of the possible discovery of a Donner camp at Alder Creek dates from 1891. In May of that year, Edward Reynolds unearthed a number of coins near the shore of Donner Lake, none dated after 1845. The cache was immediately assumed to be money concealed by Mrs. Graves of the Donner Party in 1847. This sensational find inspired Reynolds to investigate at Alder Creek in June. He found a number of relics—“pieces of bone, broken crockery, a cedar box, a few trinkets and a bronze coin used in the Presidential campaign of Harrison and Tyler”—but no coins.<sup>36</sup> Although Reynolds hoped for “more valuable” objects, the knowledge of where he discovered these items might have proven invaluable to later researchers.

In the early twentieth century, interest in the site and the history continued. Between 1921 and his death in 1952, San Jose schoolteacher Peter M. Weddell spent his summers marking the emigrant trail in the Truckee area. He identified a large, living yellow pine—not associated with tall stumps. Weddell nailed a sign to it: “Probable Site of Capt. Geo. Donner’s Tent, 1846–47” as the probable site of the George Donner camp, with Jacob’s not far away, misleading researchers for the better part of a century.<sup>37</sup> In his description of meeting seventy-three-year-old C. F. McGlashan on July 29, 1921, Weddell wrote that

in 1879, just after [McGlashan’s] book had been written, Nicholas Clarke, who had been in the Donner Family Camp for three weeks in the winter of 1846–47, made a visit to the scene of the tragedy and had led a party on horseback, composed of Mr. McGlashan and other prominent people of Truckee, over the trail to the head of Alder Creek Valley, where he located the Donner Family Camp. This location was explained to me with particular care and accuracy. . . . Not long afterwards I identified the site as he had described it, and marked it with sign boards.<sup>38</sup>

On July 15, 1927, six years after their first meeting, Weddell and McGlashan motored as close as possible to the head of Alder Creek Valley and walked to Weddell’s Donner Family camp. Weddell wrote that McGlashan supported his work.<sup>39</sup>

Weddell’s version of these events is completely at variance with what McGlashan had written in 1879. McGlashan’s letters to Eliza Houghton make it clear that neither W. C. Graves nor McGlashan had been able to find the exact location in 1879, though he believed he knew the general area, nor had Nicholas Clark. McGlashan did not know the camps’ location in 1884, when Baptiste surfaced, nor again in 1892 when John Breen visited Truckee. It appears that either McGlashan’s notion of the camps’ locations had become a certainty or that Weddell misunderstood what he heard.

Alder Creek remained quiet for many years after Weddell’s investigations, as the area of the Donner Family camps was not easy to reach. Dirt roads led north from Truckee, approaching the south side of Alder Creek near the historic site of the Roberson Mill. Prosser House, a prominent feature on the early USGS maps near the junction of Alder and Prosser creeks along old

34 “A Human Skull,” *Truckee Republican*, September 10, 1879.

35 McGlashan to Houghton, 15 September 1879, in *From the Desk of Truckee’s C. F. McGlashan*, 59.

36 “Finding More Relics,” *Daily Nevada State Journal*, June 21, 1891, 3.

37 This is the infamous George Donner Tree. The upper portion of the tree broke off in a storm more than a decade ago, but the lower 10 feet with the Weddell sign still stands.

38 P. M. Weddell, “Location of the Donner Family Camp,” *California Historical Society Quarterly* 24 (March 1945): 75.

39 *Ibid.*

State Route 89, was located about two miles east of Alder Creek.

Isolation protected the site from damage, for few people had the knowledge or desire to visit the area. As time passed, most of the tall stumps noted by McGlashan had disappeared, but two remained 114 years later. In the early 1960s the area began to change. A new dam, built below the junction of Prosser and Alder creeks, flooded a large area reaching to within one-third of a mile of Weddell's "George Donner Tree." This reservoir also flooded State Route 89 where it ran by Prosser House and the road was rerouted to run only one-quarter mile west of the tree. As part of these changes, the U.S. Forest Service built a historic interpretation area called the Donner Camp Picnic Area, with a trail leading around a meadow to the George Donner Tree.

With the signage and trail in place, the expected influx of visitors to the area created concern that the two surviving tall stumps might be vandalized. The Forest Service removed them for preservation and they are currently on display in the Emigrant Trail Museum at Donner Memorial State Park. A helper post that supported one of the stumps was left in place and can still be seen east of the George Donner Tree.

#### ARCHAEOLOGY AT ALDER CREEK

Investigation into the Donner camps at Alder Creek ceased for several decades. The first serious archaeological excavation at Alder Creek was led by Dr. Donald L. Hardesty of the University of Nevada, Reno.<sup>40</sup> Among their many objectives, he and his team hoped to determine where the camps were located; how many camps there were; how the camp was laid out; whether there was cannibalism. Answers to these standard archaeological

questions would help reveal the story from the physical evidence. Hardesty recognized that most of the material about the Donner Party is contained in the historical written record.

Field work started in the summer of 1989 and continued through 1993. Excavations were done at Weddell's "George Donner Camp" next to a large yellow pine tree often called the "George Donner Tree," "Jacob Donner Camp," and several other sites located in this vicinity.

The 1989 excavation at the Jacob Donner locality, to use the archaeological term for the location, and the 1990 excavation near the George Donner locality yielded no artifacts associated with the Donner Party. After these disappointing results, investigators used metal detectors to survey a much larger area. Whenever a metal detector indicated the presence of an object, an archaeologist would excavate it. Many of the items recovered had been left by twentieth-century visitors, but some were contemporaneous with the Donner period.

Two "hotspots" were excavated more thoroughly. The anthill stump locality, named by its location next to a decaying tree stump with an anthill southwest of the George Donner locality, yielded a number of Donner period artifacts clustered within one area, but there was no evidence of a shelter. Hardesty concluded that the artifact cluster may represent the spot where a wagon once stood.<sup>41</sup> Excavation at the meadow locality, which is east of the Jacob Donner locality, revealed numerous artifacts including lead balls, fragments of ceramic tableware and glass bottles, cut nails and wood-working tools from the Donner period. There was also dispersed fragmented burned bone, ash, and charcoal, but there was no evidence of a fire hearth, which would indicate a shelter at this location.

The overall evidence at the site suggested that there might have been a Donner camp in the

<sup>40</sup> Donald L. Hardesty, *The Archaeology of the Donner Party* (Reno: University of Nevada Press, 1997), 62–72.

<sup>41</sup> *Ibid.*, 72.



meadow locality, which is about 40 meters<sup>42</sup> from what Weddell called the “Jacob Donner Camp.” In 2003 and 2004 Drs. Kelly J. Dixon and Julie M. Schablitsky led a team that extended Hardesty’s searches in the meadow, attempting to find a fire hearth.<sup>43</sup>

Ground penetrating radar (GPR) did not locate any underground features consistent with a camp. Several test pits yielded more Donner period artifacts similar to Hardesty’s finds. A bone fragment with obvious processing scars, associated with a thin deposit of gray-colored ash, was the find that ended the 2003 field season with a cliffhanger that required the research team to return the following summer.

The 2004 field season started with an unusual search. Kenneth Dunn, a private investigator, had recommended that the archaeological team contact the Institute for Canine Forensics (ICF),<sup>44</sup> which trains dogs to locate old human burials. ICF-trained dogs have successfully located unknown burials more than a thousand years old and are increasingly used in the United States for archaeological projects. When a dog detects the scent of decomposed human remains, it performs a trained action, usually a sit or a down, to indicate that it has found its trained scent. This action is called an alert.

Dr. Dixon generously provided the authors with her Archaeological Field Notes for ICF’s 2004 work at Alder Creek.<sup>45</sup> Excerpts from these notes describe the canine search on May 28, 2004, from the archaeologists’ viewpoint:

42 Meters are approximately the same as yards increased by 10 percent. Forty meters is about 44 yards.

43 Dixon et al., *Archaeology of Desperation* (Norman: University of Oklahoma Press, 2011); Kelly J. Dixon et al., “Men, Women, and Children Starving: Archaeology of the Donner Family Camp,” *American Antiquity* 75, no. 3 (2010): 627–656.

44 Institute for Canine Forensics website can be reviewed at <http://www.kgforensic.org>

45 Kelly J. Dixon, private communication, 2014.

After the dogs become familiar to the area, a handler gives a signal to his/her respective canine and the work begins. Each dog and its respective handler work independently of the others to prevent dogs and handlers from being biased by others working an area before them. For example, while one dog is working the area where we and Don Hardesty’s crew dug in the past, the others work other surrounding locales; this serves as control testing of the dogs’ abilities.

When a dog is at “work” here, it is walking slowly, methodically, with its nose down, sniffing the ground. . . . If a dog alerts (by sitting or lying down), then the handlers ask their canines to approach the area a second time, from another angle, to see if the dog replicates the alert. It is essential for the handlers to refrain from directing the dog. Rather, they survey the area by allowing the dogs’ own senses to lead them toward buried remains.

If a dog continues to alert in a certain area, then it is taken away and another animal commences to work that area, following the same steps noted above. . . .

While the canines are going about their work, they end up marking boundaries, or to borrow a remote sensing term, “hot spots.” Hardesty’s meadow locale appears to be one such area according to the dogs testing thus far. As a matter of fact, three dogs, following the above protocol, alerted to one area just outside of the meadow locale. Their alerts were independent of one another. We will ground truth the area when the crew arrives in July. We also plan to have the Institute for Canine Forensics return at that time to have the dogs re-examine the area under different conditions.

The dogs searched the areas of the George Donner locality, the anthill stump locality, the Jacob Donner locality, and much of the meadow area within the interpretive loop trail. Their alerts were scattered, but generally within a few tens

of meters of Hardesty's meadow locality. The ICF dogs returned to Alder Creek in July 2004 after the excavations had been initiated. Several of the dogs alerted in the vicinity of the fire hearth that had been uncovered. Aware of the earlier scientific work, in 2007, author John Grebenkemper started searching in the southern part of the Alder Creek meadow as a training exercise for his dog. At the time, he did not know the exact location of the excavation that had located the fire hearth. The scent from unburied scattered human remains more than 160 years old is quite weak and a challenge for the dog to detect. As part of this exercise, he recorded some of the alert positions with a handheld GPS unit.

The map at right represents the area that Hardesty investigated in the early 1990s and is drawn with the grid used in his book.<sup>46</sup> The prominent locations that Hardesty identified are shown as black squares and labeled with their name. The hexagons are the locations of the canine alerts in 2004 as recorded by Kelly Dixon. The triangles are canine alerts recorded in 2007–2010 by the author.

The July 2004 excavations revealed a definitive fire hearth. Burned and calcined bone lay above a concentration of charred wood and a fine, powdery ash. The excavation collected more than seven hundred artifacts consistent with a nineteenth-century emigrant party and more than sixteen thousand intensively processed bone fragments with a mass of 2.3 kg. The bones were from a variety of animals, including cattle, horse, deer, rodent, and dog. The variety and intensive processing of the bones is consistent with a starvation camp where whatever can be caught is consumed and the bones are processed to remove all possible nutrients.<sup>47</sup>

Overall, the results of the excavation suggest

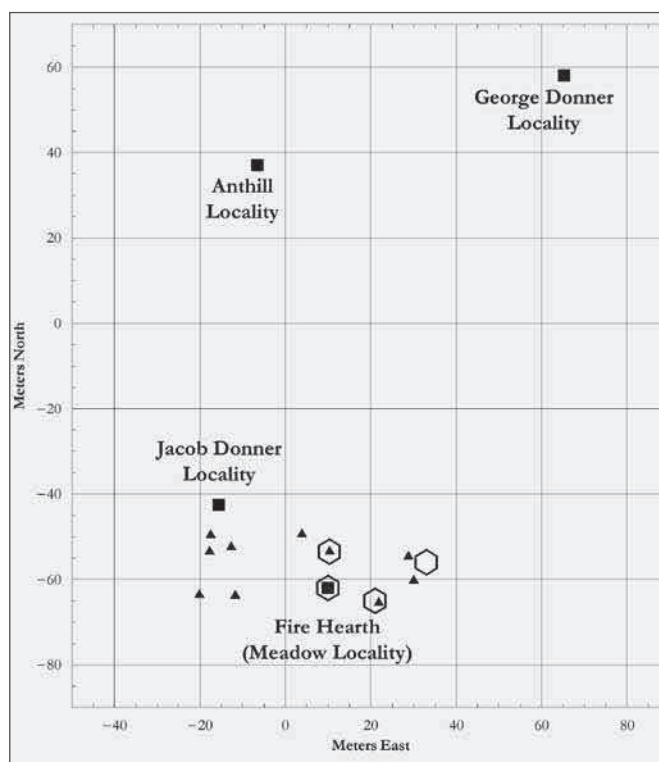


FIGURE 2. Map of canine alerts near the Meadow Locality. The hexagons represent the areas where the ICF dogs alerted during the 2004 field season. Each triangle represents a canine alert to human remains scent during searches in 2007–2010. Kelly Dixon provided the 2004 alert results. The 2007–2010 positions were determined from the alerts of author John Grebenkemper's two search dogs, Tali and Kayle.

that the archaeological remains represent an emigrant camp that had a relatively extended period of occupation. The timeframe of the recovered artifacts is consistent with a site that was occupied during the mid-to late 1840s.<sup>48</sup> The numerous dog alerts around the hearth indicate that one or more

46 Hardesty, *Archaeology of the Donner Party*, 66–67.

47 Dixon et al., "Men, Women, and Children Starving: Archaeology of the Donner Family Camp," *American Antiquity* 75, no. 3, 627–656, 2010.

48 Dixon et al., *An Archaeology of Desperation*, 113.



people died nearby and were not buried. Animal activity would have scattered the remains over an extended area from the hearth.

But which Donner camp was this? The historical record indicates that there were at least two camps separated by several hundred yards, and possibly a third teamsters' camp. If there were multiple camps, then the ICF dogs first used in this search would provide a unique tool to locate other areas at Alder Creek where people died.

#### CANINE SEARCHES

Three elements that do not require expensive equipment can help locate the Donner camps. First, documentary evidence: The authors examined and discussed the writings of survivors and others who visited the campsites, photographs, maps, and other documents, some previously unknown. Some of the eyewitness testimony is ambiguous or unclear, but any proposed Donner campsite should show some agreement with the sources.

Second, the location of the tall tree stumps,<sup>49</sup> some of which survived into the twentieth century: Walking through or over the snow, 8 to 12 feet deep at times, and cutting firewood required a large expenditure of energy on the part of people weakened from starvation; they would naturally cut down the closest suitable tree. A map of tall stump locations could provide clues about the camps' locations.

Third, burial locations: Weak, starving people would also spend the least amount of energy necessary to bury their dead, so burial sites might also indicate campsites. The location of bodies or body parts can be detected with a low-tech method—the nose of a specially trained dog.<sup>50</sup>

One major difference between most burial site searches and Alder Creek is that here the bodies were not buried in earth, but in snow, which preserved the bodies until the spring melt and then exposed them to decompose on the ground. The Bigler and Markle diaries describe bones as scattered on the ground. Foraging animals would have spread body parts about, and each separate body part would create an area of human-decomposition scent that saturated the bone and the adjacent soil. This scattering of material greatly increases the detection problem, since it leaves no area of *concentrated* scent and the scent given off by each individual fragment is weaker. The strength of the scent depends on many factors: ground and air temperatures, humidity, soil moisture, and wind. As they change, so does the scent level, which may drop below the dog's threshold of detection. This, in fact, happened several times at Alder Creek, when a dog would alert to scent at a particular location on one day but not at that place on another.

The various factors of site characteristics described above meant that the search for human remains decomposition scent at Alder Creek had to be conducted differently than a search for human burials. It required many dogs to search the likely area of Donner camps over several years of work, recording the position of each alert, and analyzing the results for alert concentrations.

Our initial search strategy was simple: first, it involved only me (John) and canine Kayle. Also, we did not “reinvent the wheel,” so to speak. From 1989 through 1993, Don Hardesty and his team members had rather thoroughly searched the area from Weddell's George Donner Tree to the south side of the meadow near Weddell's Jacob Donner Camp. Kelly Dixon's team, in 2003/04, had identified a fire hearth associated with a likely Donner camp. That entire meadow area had been thoroughly searched and we wouldn't repeat it. Instead, we would look for flat areas suitable for camping outside those boundaries.

49 At present, surviving photographs show four tall tree stumps, but other pictures that come to light might show even more.

50 For a more detailed description, see John Grebenkemper, Kristin Johnson, and Adela Morris, “Locating the Grave of John Snyder,” *Overland Journal* 30, no. 3 (2013): 92–108.

The authors of this article, Kristin Johnson and John Grebenkemper, had been corresponding for several years about using the dogs to search for additional Donner camps. In early 2010 co-author Kristin Johnson sent me (John) a 1944 photograph, photographer unknown, taken of the George Donner Tree, as Weddell had named it, including two tall stumps in the background. Some simple geometrical analyses yield a rough range and bearing to the two stumps, whose presence implied that a Donner camp was probably nearby.

I notified the Tahoe National Forest in Nevada City that I planned to search the Donner Camp Picnic Area with my dog looking for human remains scent from the Donner Party. They informed me that I was free to search the area as long as I didn't excavate. With that, on June 14, 2010, I took Kayle to Alder Creek to see if she could find human remains scent.

I spent the morning walking around the loop trail at the Donner Camp Picnic Area, checking the bearing at the George Donner Tree to the possible location of the two tall stumps that had been removed, and working Kayle near the meadow locality to see if she could detect the known scent there. I viewed this trip as an initial exploration and didn't really expect to find human remains scent from an unknown camp.

At noon, we left the George Donner Tree heading in an easterly direction toward what I believed was the former location of the two tall stumps shown in the photograph that Kristin had sent. At 12:45 P.M. Kayle alerted to human remains scent in a grove of trees a little more than 200 meters east of the George Donner Tree. She quickly alerted again in the same area. After a break for a swim in the reservoir to cool off, she alerted at a third spot. The summer afternoon was hot and Kayle was tired, so we quit for the day. Kayle and I had found human remains scent well outside Weddell's traditional area for the Donner camps.

Two weeks later, I returned with Kayle, this



FIGURE 3. Kayle alerting in June 2010 to human remains scent east of the Donner Tree. Kayle sits to indicate the presence of human remains scent. *Photograph by John Grebenkemper.*

time to search an area marked on Weddell's 1947 map<sup>51</sup> as two "CUT STUMPS 6' HIGH." This location is shown as northeast of the George Donner Tree (see Figure 9). Kayle had three more alerts in this area. Given Kayle's alerts over the past two weeks, it was time to bring in another dog to see if we got agreement.

Two weeks later, on July 5, Adela Morris and her two dogs, Rhea and Eros, returned with me. In order to perform a blind search, Adela worked a section that extended beyond the two separate areas where Kayle had alerted in June. The area was a little large to cover in the summer heat, so it took two days to complete. Four more alerts from Adela's two dogs, for a total of ten alerts in four days of searching, roughly confirmed areas that Kayle had found. But the slow pace of alerts and the time required for the dogs to find the weak scent convinced me that we would need more searches with more dogs.

<sup>51</sup> Dixon et al., *An Archaeology of Desperation*, 108.



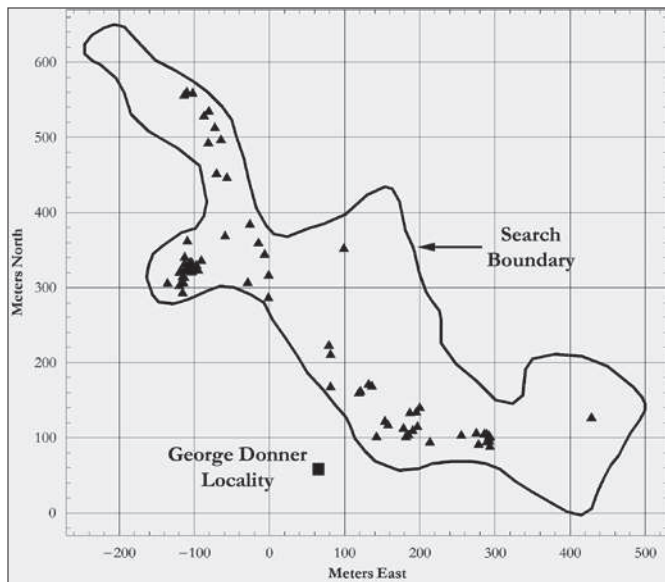


FIGURE 4. All Dog Alerts at Alder Creek. Each triangle represents an alert for human remains scent. The positions of the alerts was determined by handheld GPS with an accuracy of 5–10 meters. The solid line bounds the 32 acres that were searched by 12 dogs.

The next major search, in November 2010, involved five handlers and their dogs. By this time I had reviewed Charles E. Davis’s photographs, taken in 1927, at Alder Creek.<sup>52</sup> Davis’s photograph no. 196,<sup>53</sup> seemed to show three tall stumps in the distant background, apparently northwest of the George Donner Tree in an area that had not been previously searched. This new area was assigned to Adela Morris and her dog Rhea.

52 Sutter’s Fort Archives, California State Parks, Sacramento, California.

53 It took five years to determine the exact location of this photograph. The printed image is mirror reversed, which confused the location calculation software. The stump height was calculated to be about 3 feet, too short for a definitive Donner stump.

Rhea picked up scent downwind and followed it 50 meters before alerting. She gave three alerts in this area; later that day Kayle alerted twice there. This was clearly the strongest scent source we had found so far at Alder Creek.

Five handlers with their dogs were brought back to search in May 2011, and six handlers and dogs participated on a search in October 2012. We also conducted a number of smaller searches with just one or two dogs to check specific areas.

The accumulated data outside the traditional Donner camps in the meadow, from 2010 through 2013, showed human remains scent scattered over a large area, with a few groups of concentrated canine alerts (see fig. 4). By the end of 2013, we had accumulated a total of 40 dog-days of search time at Alder Creek, including one trip in light snow, resulting in 80 alerts from 12 different dogs. The total area we searched at Alder Creek was 32 acres. This included both the flat areas and the surrounding hills. The search area was 1 kilometer long, and the farthest portion searched was 750 meters from the fire hearth at the meadow locality.

The map recording these alerts uses the same coordinates that appear in Hardesty’s book.<sup>54</sup> The area we searched included all of the flatter areas suitable for camping north and east of the George Donner Tree. On the east this area is bounded near the high water limits of Prosser Reservoir and on the northwest by State Route 89.

We recorded a few scattered alerts in the hilly terrain north and east of the likely Donner camping places; all the others were in the flat lands, spread over a large area with several concentrations of alerts. To show the area of concentrated alerts, we established a filtering process to determine alert clusters: to form a cluster, a canine alert had to be within 20 meters of two other canine alerts—if three dogs alerted in the same area, the scent was likely stronger and more persistent. We

54 Hardesty, *Archaeology of the Donner Party*, 66–67.

selected the 20-meter distance based on the positional accuracy of our handheld GPS units in the hilly and forested terrain at Alder Creek. That is, if two dogs alerted at the same spot, the GPS readings might differ by 20 meters.

This simple filtering procedure was effective at eliminating most of the scattered alerts, leaving two major clusters of alerts. The ellipsoids around each major cluster are the statistical limit that should contain 99 percent of the scent alerts.

The map (see fig. 5) shows the canine alert clusters after filtering. The significant clusters are called Canine Localities and are numbered in the order found. Canine One locality is Hardesty's Meadow locality shown on the map. This area was originally searched in 2004 with some follow-up searches in 2007 to 2010 before this project was started. The canine alerts are not shown since this area was not searched as part of this project.

Canine Two locality is where Kayle first alerted in June 2010. We eventually had five dogs search this area and four of them alerted to human remains scent. There was one spot in this cluster at which all four dogs alerted. This is an indication of stronger scent at this point.

Canine Three locality was an even stronger cluster, with 27 alerts or 34 percent of all alerts in the entire search area. This is the area that was originally detected by Rhea when she was 50 meters downwind. A total of eight dogs searched this area and six of them alerted near the same set of rocks.

There were also two minor clusters of alerts east of Canine Two locality. Less than half the dogs who searched these areas alerted and there were only four alerts in each cluster. The scent in these two minor clusters is transitory and much weaker than the over canine locales.

Canine handlers can judge the intensity of the alerts by watching the dog's body language as it detects scent. Canine Three locality has the strongest scent signature and is easy for dogs to find even under difficult conditions, as long as the dog walks

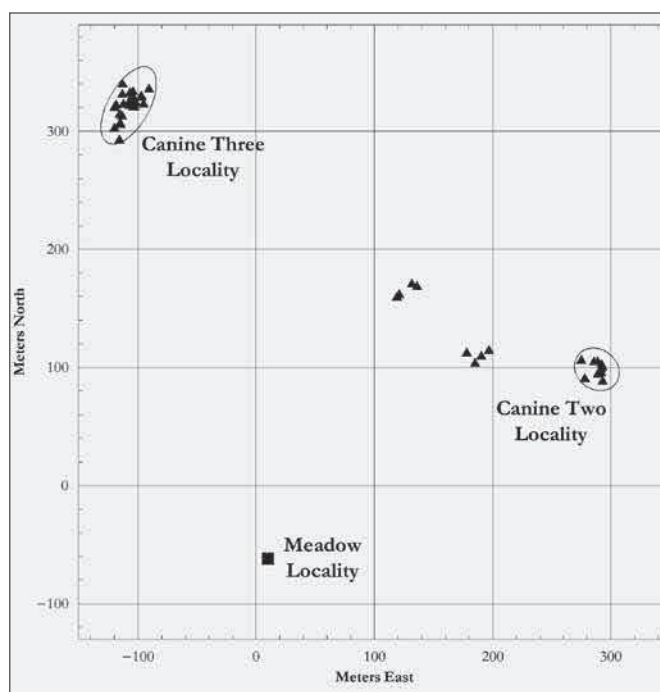


FIGURE 5. Filtered Canine Alerts at Alder Creek. There were two main clusters of alerts at Canine Two and Canine Three localities. The two other clusters were alerts by only three dogs and less likely to be a significant scent feature.

over the areas of stronger scent.<sup>55</sup> The Meadow locality has the weakest scent and it can be difficult to detect on bright sunny days with high ground temperatures that cause scent to dissipate faster.

These locales clearly represent three separate areas with scattered human remains scent, indicating that someone died and decomposed near each of them. The body—or bodies—were either not buried or were disinterred by animal activity.

55 Scent conditions are significantly impacted by the local weather. When the ground is cool and there is a light wind, the scent can travel just above the ground and be detected hundreds of feet away. When the ground is hot with no wind, the scent rapidly rises and can only be detected when the dog walks directly over the scent column.





FIGURE 6. Tall Tree Stump removed from Alder Creek in 1962. A saw cut was done below the top and stopped before completed. The tree was later cut by a saw a foot higher. Over a hundred years of weathering on the top roughened that saw cut. *Photograph by John Grebenkemper.*

Based on archaeological excavation, the alerts at the meadow locality are already associated with the Donner Alder Creek camps. The most likely deaths at this location are one or more of the eight people who died at Alder Creek. The other two locales have never been archaeologically investigated and will require other means to establish their link to the Donner Family camps.

#### TALL TREE STUMPS

The location of tall stumps at Alder Creek will also provide the location of the Donner Family winter camps. P. M. Weddell said this well in his 1945 article:

The greatest snowfall in the known history of the Sierra Nevada took place in that winter of 1846–47. Trees, cut at the surface of the snow for wood at the Donner Camp, left stumps 22 feet high, indicating the depth of snow at the foot of Donner Lake. Those cut for the same purpose at the Donner Family Camp left stumps twelve feet high, showing the extent of snowfall at the head of Alder Creek Valley. These high stumps have been and are now valuable relics, fixing the place of each camp.

There are but two of the old, high stumps now standing, and they are in the Donner Family Camp. When I began marking this camp and the emigrant trail 20 or more years ago, there were other high stumps in different places within the Donner Family Camp, but they have fallen from decay and disappeared. It is reasonable to assume that the trees, cut for wood, were near the tents occupied by the two Donner families, because people suffering and weakened for want of food would scarcely go a long way from camp for fuel, when other trees were close at hand. It seems, therefore, that these stumps alone suffice as evidence to fix the location.<sup>56</sup>

<sup>56</sup> P. M. Weddell, "Location of the Donner Family Camp," *California Historical Society Quarterly* 24, no. 1 (1945): 73–76.

Neither Weddell nor anyone else made a map in the early twentieth century of the remaining tall stumps at Alder Creek. Such a map would have given us a good start to locating the Donner winter camps. The only map with marked tall stump locations was drawn by Weddell in 1947.<sup>57</sup> It shows only two tall stumps that are northeast of the George Donner Tree.

The only way to locate vanished tall stumps today is to find old pictures of tall stumps at Alder Creek and use the background terrain in the photograph to unambiguously locate their position. While we have found many pictures of tall stumps in various archives, only a few of them have enough background terrain to determine their position.

What does an Alder Creek tall stump look like? The last surviving two tall stumps at Alder Creek, as noted earlier, were removed in 1962 and are now preserved in the Emigrant Trail Museum at Donner Memorial State Park. The assumption is that these two tall stumps were cut by the Donner Party, but these stumps have never been dated using tree ring studies by a dendroecologist. Each tall stump has a height greater than 8 feet and shows a flat top as if cut with a saw. One of the trees shows a partial saw cut about a foot below the final cut. It looks as if the wood cutter had to stop part way through and when he resumed, he had to cut at a higher level on the trunk. This implies that any trees cut at Alder Creek were cut with a saw. This leaves a flat top which is distinctly different than a tree cut with an axe or one that has fallen over.

There are numerous images of the two tall tree stumps in the museum, taken at Alder Creek from many different angles. The position of these two stumps is about 150 meters east and 48 meters north on the Hardesty grid.

The 1927 Davis photographs contain a number of images taken at Alder Creek, some showing taller than normal stumps. The Davis photographs are

unique because we know they were taken with a Kodak 3A Autograph camera, whose images measured 3¼ by 5½ inches and whose lens provides a field of view of 44.5 degrees in the landscape orientation. With this information it was possible to match the background topography and determine the point from which several of the Davis photographs were taken.

Davis photograph no. 211 shows the meadow locality in 1927. The camera was aimed in a southerly direction and was taken at approximately 57 meters east and 62 meters north on the Hardesty grid. The black square in the photo, to the left of and behind the tall tree trunk (see fig. 7) indicates the fire hearth found in 2004. This photograph cannot be replicated today because of the many trees now standing between the 1927 camera position and the meadow. There are no tall stumps visible in this photograph, but that is not proof that there weren't tall stumps in this area prior to 1927.

Davis photograph no. 142 shows an area northeast of the George Donner Tree. In the center of the photograph are two tall tree stumps characterized by their flat tops when cut by a saw during the winter of 1846–47. The tree stump in the right rear of the photograph is not a stump from the Donner period, but is a tree that fell later, evidenced by the rest of the tree lying on the ground, as seen in the right of the photograph. This photograph can be matched today as shown in the bottom half of the figure. The location of the camera in the 2014 photograph can be used to calculate the position of each of the tall stumps. The calculated positions are within a few tens of feet of the location of the two tall stumps on Weddell's 1947 map. The Davis photograph taken in 1927 shows the same two stumps that were marked on Weddell's 1947 map.

Overall, we have determined the location of four tall tree stumps at Alder Creek. Some of the other Davis photographs that show other tall stumps have insufficient background topography to identify their location and height. Other early

<sup>57</sup> Dixon et al., *An Archaeology of Desperation*, 108.





FIGURE 7. Charles E. Davis photograph no. 211 taken in 1927.

The photograph is looking in a southerly direction with the Meadow locality on the left side. The black square on the left side of the photograph shows the location of the fire hearth found in 2004. *Courtesy of Sutter's Fort State Historic Park, California State Parks.*

twentieth century photographs that show additional tall stumps at Alder Creek may exist, but we have not yet located any that can be positioned using the background topography.

Mapping the four tall tree stumps with the dogs' human remains scent alerts shows that these four tall stumps are not far from Canine Two locality in an area in which the dogs had a some scattered alerts. We can reasonably expect that the canine alerts and the tall stumps would be in the same vicinity if they were associated with Donner deaths.

#### A CREEK FLOWS THROUGH THE CAMPS

Three of George Donner's daughters placed both Donner camps near a creek, as did Nicholas Clark.<sup>58</sup> Other than during the spring snowmelt, today there is no flowing water north of Alder

Creek in the vicinity of the Donner camps—but there used to be.

The original General Land Office (GLO) survey of this area, done in 1865, is shown as Township 18N Range 16E.<sup>59</sup> The Donner camps lie in Sections 26 and 27. The map shows Alder Creek coming in from the west; north of it is a brook that joins Alder Creek in Section 26, east of the meadow locality. The GLO maps, created for surveying of townships so the land could be recorded and sold, were not concerned with accurately recording geographic features.

<sup>58</sup> Leanna Donner App (per Rebecca App) to C. F. McGlashan, April 27, 1879, McGlashan Papers, fd 1, 8L; Frances Donner Wilder to C. F. McGlashan, April 17, 1879; Eliza Donner Houghton, *The Expedition of the Donner Party*, pp. 62, 71, 72; McGlashan, *History of the Donner Party*, p. 164.

<sup>59</sup> Bureau of Land Management, 2800 Cottage Way, Sacramento, California.

TABLE 1. PROBABLE BURIAL LOCATIONS

NAME	DATE OF DEATH	FINAL BURIAL LOCATION
Jacob Donner	Before Dec. 20, 1846	Jacob Donner Camp
Joseph Reinhardt	Before Dec. 20, 1846	George Donner Camp
Samuel Shoemaker	Before Dec. 20, 1846	Jacob Donner Camp
James Smith	Before Dec. 20, 1846	Unknown
Lewis Donner	March 1847	George Donner Camp
Elizabeth Donner	March 1847	George Donner Camp
Samuel Donner	March 1847	George Donner Camp
George Donner	March-April 1847	George Donner Camp

The 1895 USGS map of the Truckee Quadrangle, surveyed in 1889, shows a permanent creek north of Alder Creek in the area of the Donner camps. These maps were surveyed more precisely than the earlier GLO maps, but they are still not as accurate as modern maps. The creek does not appear in maps after the next survey in 1932. The early GLO and USGS maps indicate that a permanent stream ceased flowing in the early twentieth century. The heavy logging in the late nineteenth century and subsequent erosion presumably deposited significant silt in the small stream, causing it to disappear.

The 1895 creek flows down the valley past the Canine Three locality. A rise in the land forces it to diverge from the course shown on the topographic map into a more easterly route past the Canine Two locality before it resumes a southeasterly direction to meet Alder Creek.

This drainage path can still be seen when the winter snowpack melts and sends water down the valley past the Canine Three locality, east past the northern pair of tall tree stumps and on the north side of Canine Two locality. Farther east of Canine Two locality, the creek has scoured some places down to a rocky bed that is one to two feet below the surrounding grasslands. These areas have the appearance of a rocky creek bed. As the snowmelt creek approaches Alder Creek,

it has created a drainage that is more than three feet deep.

The earlier historic passages indicate that the same creek flowed by both the George and Jacob Donner camps. The creek on the 1895 topographic map definitely flowed by Canine Three locality and probably followed the snowmelt drainage near Canine Two locality. No creek flows by the meadow locality, though there is some standing water about 50 meters north of it.

#### INTERPRETATION

The evidence presented in this paper is circumstantial. We have no physical proof that the Donner families inhabited any camps near the Canine Two and Canine Three localities. That proof will have to come from archaeological excavations that uncover physical artifacts associated with the Donner families. However, we can make some suggestions, assuming the three areas of human remains scent are associated with the Donner Party.

It is important to know where people were buried in the snow, since the dogs detect human decomposition. The historical record is not always clear about where people were laid to rest, but we can make some educated estimates for most of them. (See Table 1.)





FIGURE 8. *Top*, Charles E. Davis photograph no. 142 taken in 1927.  
*Courtesy of Sutter's Fort State Historic Park, California State Parks.*  
*Bottom*, A photograph taken in 2014 at nearly the same location.  
*Photograph by John Grebenkemper.*

The best evidence for the location of the deaths in the final days comes from Nicholas Clark, as recorded by C. F. McGlashan. At the beginning of a snowstorm in early March, there were seven people living at Alder Creek. McGlashan recorded that

When Nicholas Clark awoke on the morning of the third day, the tent was literally buried in freshly fallen snow. He was in what is known as Jacob Donner's tent. Its only occupants besides himself were Mrs. Elizabeth Donner, her son Lewis, and the Spanish boy, John Baptiste. George Donner and wife were in their own tent, and with them was Mrs. Elizabeth Donner's youngest child, Samuel. . . . Just as the storm was closing, Lewis Donner died, and the poor mother was well-nigh frantic with grief. As soon as she could make her way to the other tent, she carried her dead babe over and laid it in Mrs. George Donner's lap. With Clark's assistance, they finally laid the child away in a grave cut out of the solid snow.<sup>60</sup>

Clark then went over to the lake camp. Only George, Tamzene, Elizabeth, Samuel, and Baptiste were left at Alder Creek. While it is possible that Elizabeth returned to the Jacob Donner tent, it seems unlikely, given the difficulty in maintaining two tents with firewood. Clark writes that when he returned two days later Elizabeth was dead.

I found Mrs. Jacob Donner dead. I told Bitsy [Tamzene] Doner that Keesburg was talking about killing here [her] daughters to eat and that she had better go over and see to it. She left next morning and walked over there. The second day after that there being nothing to eat in the camp John Matise [Baptiste] and I left leaving George Donner and his son [nephew] in the camp. The second day of our journey we met at Donner Lake Eddy Miller & Foster.<sup>61</sup>

<sup>60</sup> McGlashan, *History of the Donner Party*, 165–166.

<sup>61</sup> Nicholas Clark to C. F. McGlashan, November 16, 1879, McGlashan Papers, fd 13, BL.

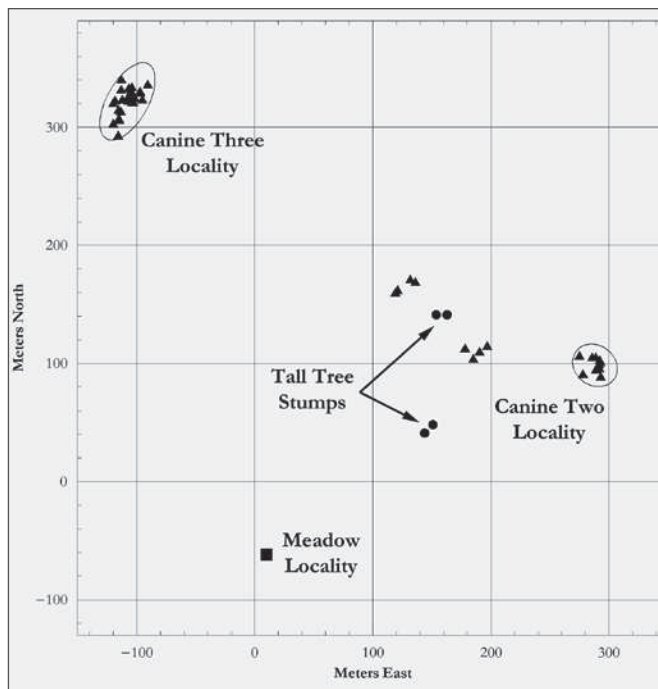
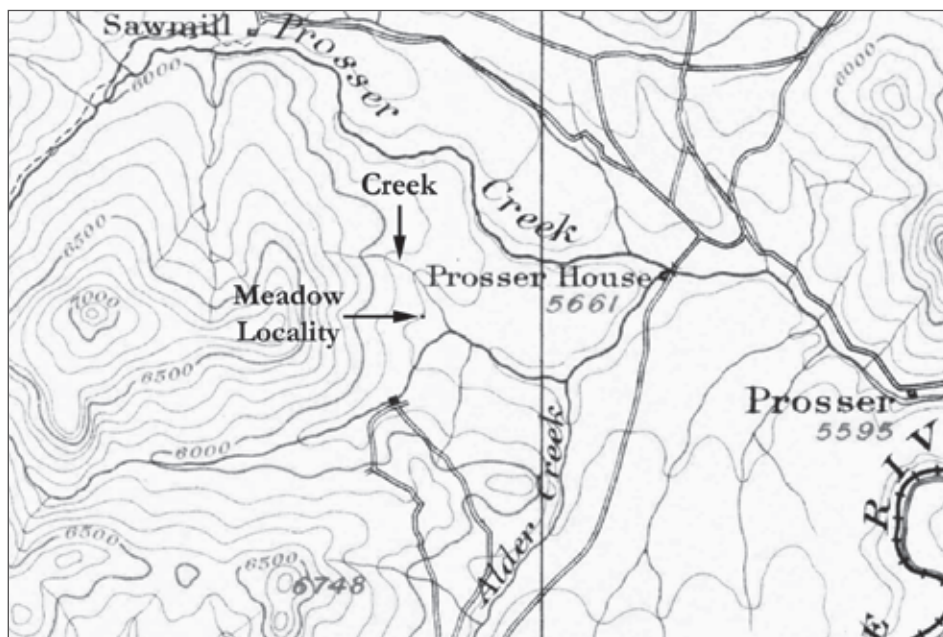


FIGURE 9. Tall Tree Stumps. The four circles west of Canine Two show the location of the four tall tree stumps that were located on historic photographs and maps. The separation of the two pairs of tall stumps is exaggerated. The stumps were probably left when trees were cut for firewood in the deep snow. *Courtesy of the author.*

George Donner and Jacob's son, Samuel Donner, were the only ones left at Alder Creek when Clark departed. Tamzene returned from the lake camp soon thereafter. After George and Samuel's deaths, dates unknown, she walked to the lake camp, where she too perished. The most likely accounting puts five deaths at George Donner's camp, two deaths at Jacob's first campsite, and one at an unknown location. During our investigations, the dogs detected three areas of human remains scent, which implies that James Smith did not die in either of these two camps. As stated in



FIGURE 10. Alder Creek Area in 1895. The USGS map of 1895 was surveyed in 1889. The arrow shows the location of the Meadow Locality on this map. The stream coming from the west on the left side of the map is Alder Creek, not the one labeled as Alder Creek flowing in from the south. The creek highlighted by the arrow flows near Canine Two and Canine Three Localities. North is up on the map. *Courtesy USGS website.*



Eliza Donner Houghton's book, there was probably a third camp at Alder Creek.

Cannibalism impacts the distribution of human death scent. Parts of Jacob Donner's body were consumed at both camps, which would add to the scent at his brother's shelter; Samuel Shoemaker's body was consumed at Jacob's camp and perhaps at George's as well.

The area with the strongest human remains scent is the Canine Three locality. Since the greatest number of deaths occurred at George Donner's camp, this suggests that Canine Three would more likely be his camp. Other factors support this interpretation.

At different times, John Breen, James F. Reed, and the Fourth Relief traveled to Alder Creek from the lake and reported arriving at Jacob Donner's camp. Breen did not mention George's camp, which would have been out of sight around a bend in the creek. Reed, however, described continuing on to visit his former traveling companion. Jacob Donner's camp was obviously the first one reached by travelers from the lake, George's being

farther away. Canine Three is most distant on the route traveled from the lake.

Frances Donner Wilder's visit to Alder Creek in 1905 also tends to confirm this interpretation. Her sister Eliza asked McGlashan,

Did you see my sister Frances and daughter when they were in Truckee last July? She thinks she has located the tree under which our tent was pitched. She claims that is [it] was further back than the location supposed by others; and drove on, until she came to a familiar spot; had Georgia [her daughter] get out of the buggy and look around the trunk of the tree for coals; found them, and believes them proof she is right.<sup>62</sup>

Even today the Canine Three area is well off the beaten track and infrequently visited.

If the Canine Three area is George Donner's camp, then Canine Two is likely Jacob's, which is beside the same stream that flows by Canine Three.

<sup>62</sup> Eliza Donner Houghton to C. F. McGlashan, December 5, 1905, McGlashan Papers, fd 23, BL.

Leanna Donner had written that her Uncle Jacob lived about 300 yards away, which is a not unreasonable estimate for the actual distance of 500 yards.

The four known tall tree stump locations are in the general vicinity of Canine Two, but not very close. This agrees with John Breen's statement that Jacob's camp was some distance from sources of wood.

Breen also mentions that the Jacob Donner camp was on the north side of the valley near a shallow ravine. A drainage gully about 3 feet deep, visible from satellite images, flows down the side of the hill into the likely nineteenth-century creek about 25 meters from the center of Canine Two, which is on the north side of the Alder Creek Valley.

There is one caveat about this location for the Jacob Donner camp, however. That camp is located directly along the path of a modern snowmelt creek. Unusually heavy water runoff from the spring snowmelt flowing down this creek could move human remains downstream. Since the dogs find human remains scent, they would be more likely to indicate the final resting point of the human remains, not the original location where the people died. There were a significant number of scattered alerts in the area of the creek upstream from Canine Two, but no alerts downstream. This possibility should be considered in any future archaeological investigations.

This leaves the meadow locality as a third camp where James Smith may have died. The dogs have indicated that this area contains the weakest human remains scent, which is consistent with a single death rather than the multiple deaths at the George and Jacob Donner camps.

Some of the artifacts recovered from archaeological digs at the meadow locality are more indicative of an occupation by a family rather than by the single men. It is possible that the teamsters were provided with or brought the articles in question. The meadow locality may represent a site where the Donner families camped when they first

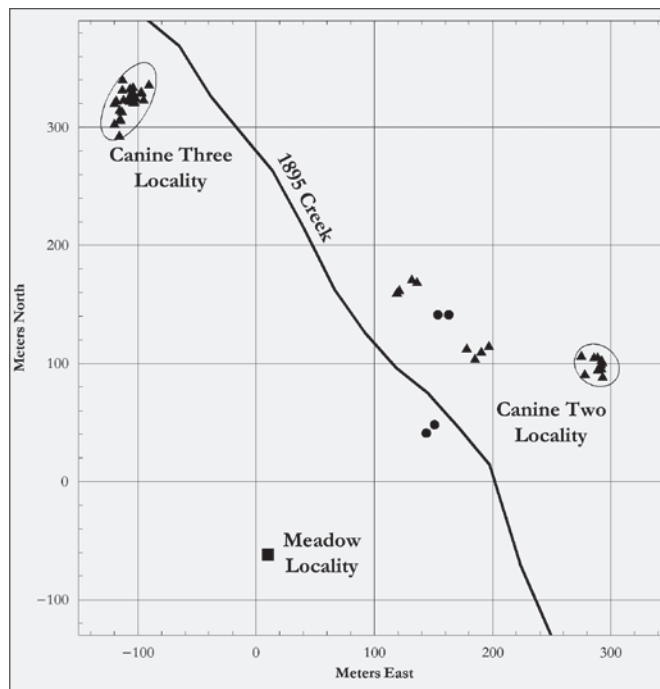


FIGURE II. Path of 1895 Creek. The black line is the path of a permanent creek shown on the 1895 USGS map of the Truckee quadrangle. The 1895 Truckee map was converted to the modern WGS84 coordinate system and the digitized stream path was used to plot its course.

arrived at Alder Creek while setting up their tents. The scent of human remains at the hearth suggests cannibalism, but it may simply represent the body of someone who died near it, or body parts redistributed by later animal scavenging.

Finally, the dogs may have provided an answer to the question of whether or not George Donner was buried at Alder Creek. A team of handlers and dogs each performed a blind, detailed search at the Canine Three, each handler working his or her dog over a specific area and marking each alert to human remains scent with a pin flag. If there was a burial, there should be a small area of concentrated alerts.

# Buried Human Bones at Alder Creek

CANNIBALISM HAS ALWAYS BEEN THE PART OF THE DONNER STORY THAT HAS GENERATED THE MOST INTENSE INTEREST AMONG THE PUBLIC.

When the bone surveys for the 2004 excavation were released, the press headlines read that there was no cannibalism at Alder Creek. This is a gross distortion; the archaeologists stated that no human bones were found at the hearth. If human bones had been found, they would have been carefully analyzed for cut marks and other indications that human flesh had been processed for consumption.

Specially trained historic human remains detection (HHRD) canines do not find human bones; they find the scent from human decomposition. When a person dies, their body starts immediately decomposing. An experiment done with the cooperation of the Santa Clara County Medical Examiner's Office show that a trained dog can detect human decomposition within eight hours of death.

Experiments performed at other locations show that the human body decomposes into hundreds of different molecules.<sup>1</sup> Many of the same molecules are present in non-human decomposition, but the ratios of these molecules

differ by species.<sup>2</sup> A dog's nose works much differently than a human nose; a human nose can be overwhelmed by a single scent, but a dog's nose can detect each component of the scent even when the intensity varies by orders of magnitude. It is likely that a dog can distinguish human death from animal death based on the ratios of the decomposition scent molecules.

The decomposition fluids leach into the bones and ground surrounding a body. This is the scent that the dogs detect in human bones, but they can also detect this scent

1 Arpad A. Vass et al., "Odor Analysis of Decomposing Buried Human Remains," *Journal of Forensic Science* 53, no. 2 (2008): pp. 384-391.

2 M. E. Cablk et al., "Characterization of the Volatile Organic Compounds Present in the Headpace of Decomposing Animal Remains, and Compared With Human Remains," *Forensic Science International* (2012), online at <http://www.doi:10.1016/j.forsciint.2012.02.007>

A total of seven dogs worked the detailed search. Each flagged alert was measured with a tape relative to two reference points to provide sub-meter positional accuracy of the alert positions. There were scattered alerts at the site, but there was one area of concentrated flags where five of the seven dogs alerted within a five-meter radius. This radius of alerts is larger than would be expected for a single burial in a normal cemetery. The area of concentrated alerts is about 10 meters from the base of a 130-foot tall lodgepole pine (*Pinus contorta* var *murrayana*), whose circumference suggests that it is several hundred years old. It would have been a large tree when the Donner families camped at Alder Creek in 1846.

## ACKNOWLEDGEMENTS

There were many people who contributed time and effort to this search. Foremost among those are the dog handlers who volunteered to drive four or more hours each way to Alder Creek. Those handlers and their dogs include Adela Morris with Rhea, Eros, and Jasper; Jocie Davidson and Maya; Lynne Angeloro and Berkeley; Barbara Pence and Bailey; Eva Cecil and Nessie; Elise Lalor and Rocky; Chris Dillier and Jess; Lynne Engelbert and Piper; and Jerrold Christensen, who served as a field coordinator.



in soil. A simple experiment can be run by taking a soil sample from near a burial in a cemetery, which is then placed with a number of soil samples from areas with no human burials. The HHRD dogs can detect with a high degree of accuracy which soil sample came from the cemetery. This soil contains no bones but only the scent that is emanating from the buried body.

The same process occurs if a body is not buried, but is left on the surface of the ground. As decomposition proceeds, the decomposition fluids flow into the ground below the body. If the body is dismembered, each part will create decomposition fluids that have a weaker scent pattern.

This process even occurs with a single human tooth. For training purposes, we often get human teeth that have been removed by a dentist. The person has not died, but the tooth has. There is incredibly little material inside a tooth to decompose. Yet, the dogs can find a single human tooth on the surface of the ground. One of the tests that they have to pass for certification is to find 10 teeth on the surface of the ground within 15 minutes. The best dogs can complete this test in less than 5 minutes.

At Alder Creek, the dogs found numerous areas of human remains scent. These do not necessarily represent buried human bones; they could be locations where a scavenger dropped part of a body with a bone in it. The flesh decomposed, but the bone left on the surface disintegrated within a few decades as the collagen holding it together broke down in the sun and weather. It might represent soil

containing human remains scent transported by rodent activity or a bone from a human body buried by humans or animals.

One concern, that acidic soil at Alder Creek might dissolve bones, can be resolved. In some areas of New England, the soil has a pH of 4 (highly acidic) and bones in human burials disappear in decades. Our pH tests of soil samples from all three locales where the dogs had detected human remains scent all showed slightly acidic soil with a pH between 6.5 to 6.75. A study measuring bone preservation versus soil pH showed that bone fragments from 700 to 1200 years old could be expected to remain in soils with a pH of 6.5.<sup>3</sup> The much younger Alder Creek site would have much better bone preservation.

No identifiable human bones were found in the area of the hearth uncovered during the 2004 excavation. If we are correct that only one person died near the hearth, months before cannibalism commenced, it is unlikely that there would be a concentration of human bones there.

Human bones buried in the earth at Alder Creek would probably have been preserved. The most likely site to find them is near the suspected George Donner camp, as the scent is stronger than at the other locations and this site appears to have had little disturbance over the last 170 years.

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3 Claire C. Gordon and Jane E. Buikstra, "Soil pH, Bone Preservation, and Sampling Bias at Mortuary Sites," *American Antiquity* 46, no. 3 (July 1981): 556-571.

*KRISTIN JOHNSON is a librarian at Salt Lake Community College. She has been researching the Donner Party for twenty years. She is a contributing author of An Archaeology of Desperation: Exploring the Donner Party's Alder Creek Camp (Norman: University of Oklahoma Press, 2011); the editor of "Unfortunate Emigrants": Narratives of the Donner Party (Logan: Utah State University Press, 1996); the proprietor of the New Light on the Donner Party website, and was the historian for the Donner Party Archaeology Project. In 2014 she was a Spur Award finalist for her short non-fiction article on the Donner Party, "Donner Party Cannibalism: Did They or Didn't They?" published in 2013.*

*JOHN GREBENKEMPER has been a member of OCTA for two decades. He received a Ph.D. from Stanford University in the field of Radio Astronomy. He retired in 2007 after working for various technology companies over three decades. He then joined the Institute for Canine Forensics. He trained his first Border Collie to find old human burials but she died shortly after her certification as a Historic Human Remains Detection Dog. He began training his current Border Collie at eight weeks and she certified on her second birthday. They travel extensively on burial projects that have taken them from Alaska to the Mexican border, into Nevada, Wyoming, Colorado, the Plains states, the Midwest, and east as far as Georgia. John has visited and hiked sections of the emigrant trails from the Missouri River to California and Oregon. 📍*