

Peppersauce Cave Graffiti Removal and Restoration

April 13-15, 2018

Restoration Trip 4

Ray Keeler, NSS 23245

Summary:

A total of 23 participants helped over the weekend plus five more coming out to the cave or with preparations; 3 on Friday, 20 on Saturday, 16 on Sunday. The volunteers were primarily from the Central Arizona Grotto, southern Arizona cavers and ASU Outdoor Club participants. An Arizona Daily Star reporter Mike Christy came on Saturday which led to an excellent article in Sunday's Tucson newspaper. The online photos are at http://tucson.com/news/local/photos-graffiti-clean-up-in-historic-peppersauce-cave-in-the/collection_03e234ae-4035-11e8-871a-ab5b694d40a1.html

- None of the 40 “OUT →” signs or “→” arrows placed in November and February were tampered with.
- **There was one and possibly new tags noted in the cave since the installing arrows in November.**
- Some graffiti was harder to get off than expected, and worse than inventoried in September.
- An additional \$11,222.47 of volunteer value was added to the project with the total estimated **volunteer value through April, 2018 at \$57,481.25**. Since October 1, 2017 we have generated \$41,236.60 in volunteer value. Do we use \$0.18/mile or \$0.55/mile for value calculations?
- The major accomplishments for the weekend were:
 1. An area reported as cleaned near the First Lake had not been cleaned. The area contained some 60 tags and teams were successful in removing the tags.
 2. The main effort was cleaning graffiti at the end of the Main Corridor, all of the Subway and Upper Passage and parts of the Big Room. Some of these were very large. About 150 tags were removed, with another 30ish at various phases of completion. The running tags removed total count is between 650 and 700 to this point. Essentially, all of the tags have been removed from the Entrance, through the Subway, and parts of the Big Room.
 3. More highly reflective, white → arrows were placed between the Big Room and Entrance. Special thanks go to Jeff Stevens. The goal is to help those exploring off the main routes to get back on route.
 4. The CNF press release resulted in The Arizona Daily Star sending reporter Mike Christy. A very good and lengthy article was in the Sunday paper.
 5. Several areas needing additional work were addressed.
- As previously reported some paints come off better with sandblasting. Some paints come off better with solvents. A wheel grinder has been used for some very hard tags when wire brushes, sandblasting and solvents do not work.
- There are a few additional tags in the areas already cleaned that need additional work.
- Four buckets (200 pounds) of glass beads were used for sandblasting, with collection of spent media on tarps and then filtering in the cave for reuse. About 150 pounds of blast media were removed from the cave at the end of the weekend.
- Approximately 1.5 gallons of bio-degradable solvent were used.
- The equipment performed very well for the entire weekend. Improvements that were identified from the first trip had been addressed.
- No injuries were reported.

No signs reserving the Peppersauce Group Campground had been placed but no one was occupying the group site when we arrived on Friday at noon.

Friday's group was painfully small with just three helping. Last minute cancellations and schedule conflicts contributed to the shortfall. We put in high pressure hose and 200 pounds of blast media to the Subway.

Saturday and Sunday's safety briefings were at 8:00 am, teams assigned and work began. Assignments included:

- Surface: communications (telephone into cave), gas for compressor, sign-up sheets, equipment prep. for transport to cave, community relations (telling visitors what was being done)
- Three sand blast teams: with necessary tarps, safety and sand blasting equipment were used. The Subway, Higher Passage and Balcony beyond the Subway were completed. Two tags took three hours each.
- The Big Room and crawlway to the Main Lake were started and worked both Saturday and Sunday. A large effort remains.
- Six solvent Teams: with necessary tarps, safety equipment, brushes and towels. Cave water was used to dilute worked areas, towed off and removed.
- Electric and battery powered grinders were used on some tags.
- One team placed 11 more reflective "➡" arrows in the front part of the cave.
- Saturday work ended at 5:30ish pm and Sunday at 2pm.

Progress: **Figure 1** shows the areas cleaned in from Trip 4. Areas in **PINK** were cleaned in April 2018. Areas in **TAN** were cleaned in February. **BLUE** areas were cleaned in November. **GREEN** areas were cleaned in September. Graffiti has been removed from these passages.

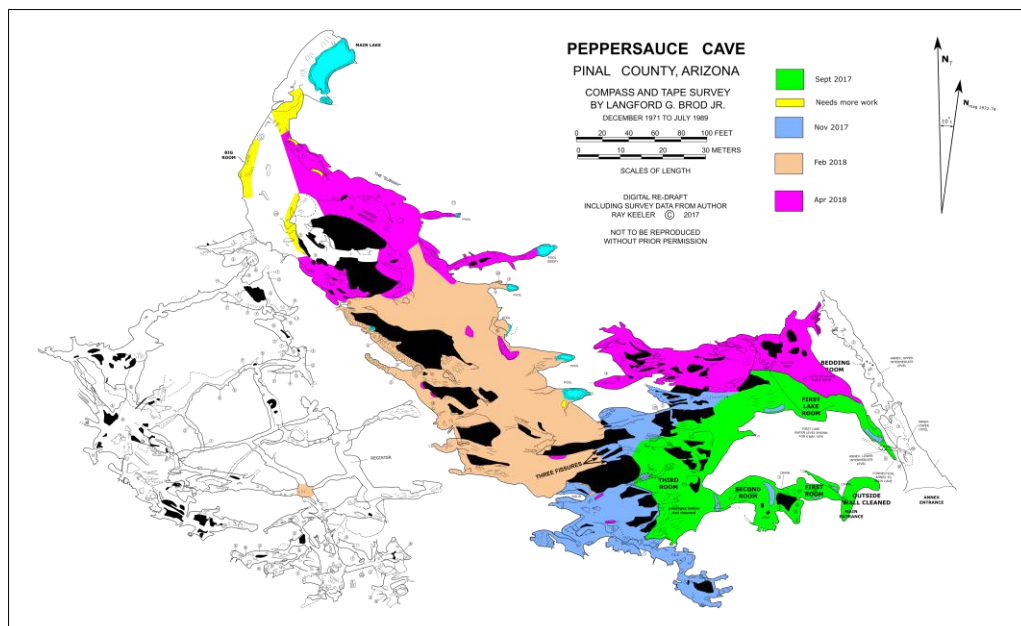


Figure 1: Peppersauce graffiti removal progress. Tan areas had tags removed in February 2018. Blue areas had tags removed in November 2017. Green areas cleaned from the September 2017 trip. (map by R. Keeler)

In September 2017 tag inventories were taken throughout the cave. “S” for **small** is about 1 foot x 1 foot and less. “M” for **medium** is up to about 4 feet by 2 feet. “L” for **large** are for anything larger.

Problems:

The number of existing tags is higher than initially thought. Tag inventories taken in September 2017, even with as many as they found, significantly under counted the number of tags in the cave. **Figure 2:** is an example of the areas just started. The crawlway to the Main Lake shows five medium tags. There are about 30. The Main Lake has at least 43 below the ladder. We removed 50ish from the Subway and Higher passage (30 noted). There are still over 100 tags to remove in these rooms. It appears the graffiti removal will continue into the Fall.

The weight of the sandblasting related equipment and blast media are becoming restrictive. We will use sandblasting, battery powered brushing and wire brushing over the over the Main Lake (no solvents or electricity) and the Big Room. With these rooms finished the remaining parts of the graffiti in the Rabbit Hole Maze will be addressed with wire brushing, electric brushing and solvents.

Schedule change: It appears that personnel schedules will require moving the June cleaning to a different weekend.

Lessons Learned

- We need to secure commitments for Fridays work days. We were short help on this trip.
- The equipment improvements continue to work well and will be repeated. The personnel were more efficient in the field (and happier) and more was completed per person.
- The sequence of wire brushing first, then sandblasting, then solvent, then electric brushing seems to have the least impact on the cave. Some paint did not come off with either sandblasting or solvent. A grinding wheel is required.
- The telephone to the surface helps substantially with coordination of equipment and personnel.
- Sandblasting equipment and blast media weights are substantial. We will probably not be using sandblasting beyond the Rabbit Hole

Schedule:

June, 2018 Plans: Weekend change coming due to key personnel schedule needs. Continue removing tags in the Big Room and Main Lake, and possibly start into Rabbit Hole Maze.

August 10-12, 2018 Plans: Continue removing tags in the Rabbit Hole Maze.

September, 2018: Continue removing tags in the Rabbit Hole Maze.

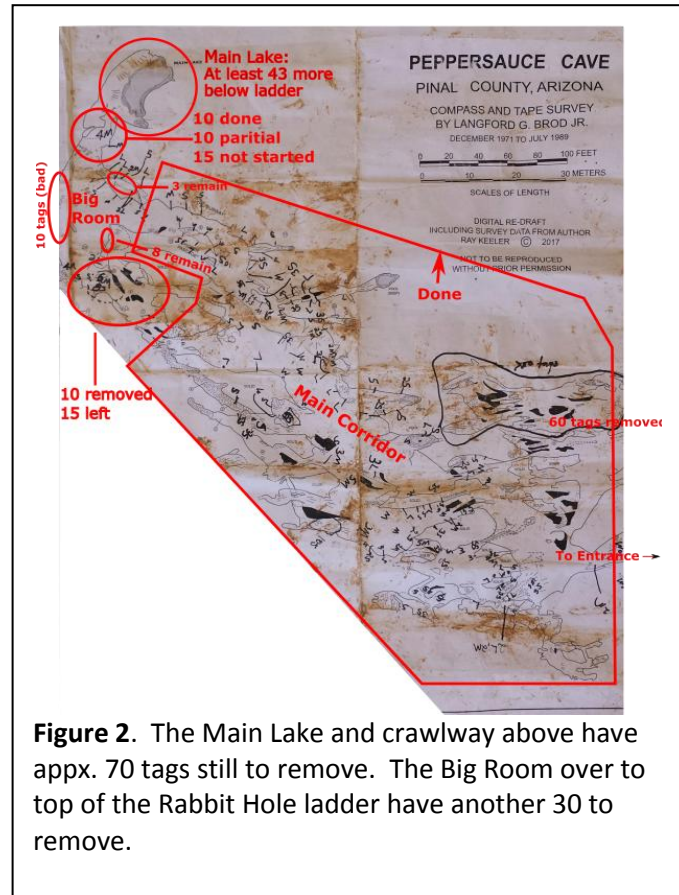
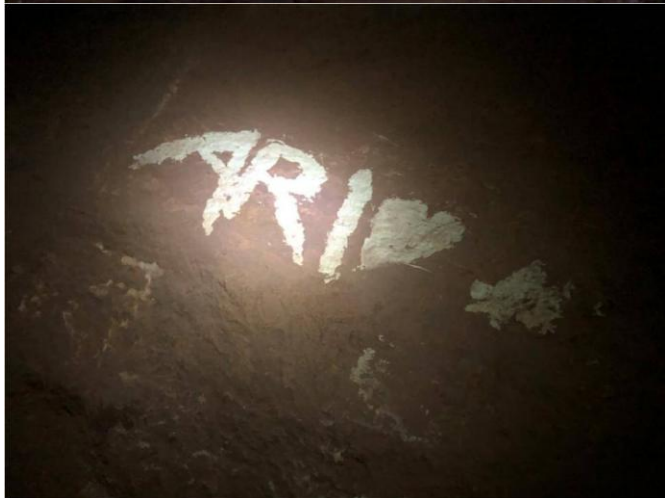


Figure 2. The Main Lake and crawlway above have appx. 70 tags still to remove. The Big Room over to top of the Rabbit Hole ladder have another 30 to remove.

Before



After



Portos by Harrison Tamayo



Gear: photo Marlene Sweeney



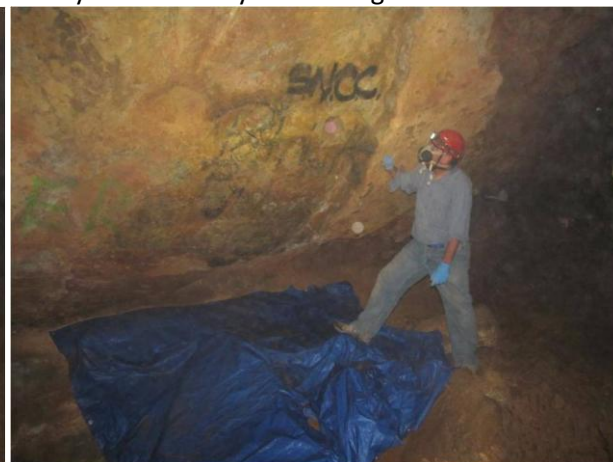
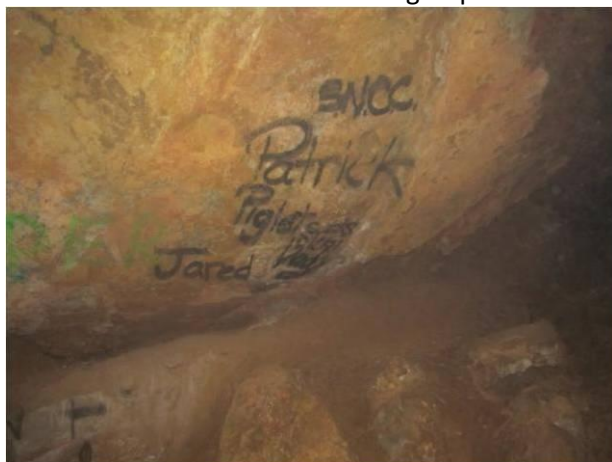
Kristnan Scott wire brushing photo Mike Christy



Peter Kane wire brushing photos Mike Christy



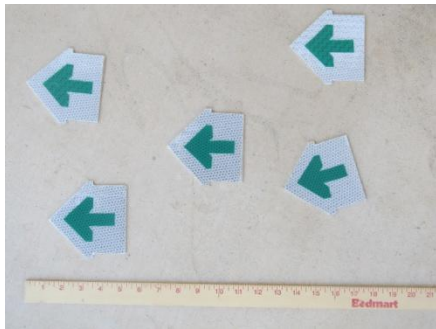
Devra Heyer blending with brush



Steve Smith in Big Room: Before and in progress (out of time on Sunday). Photos by author



Devra Heyer blending with brush
photo Mike Christy



4" x 4" arrows



Reflective "OUT" arrows

9" x 4" OUT arrows

These arrows are securely nailed into the cave walls. None have been tampered with since placements started in November. People are using these as guides instead of spray painting their own arrows. We have 51 placed out arrows in the cave. These direct visitors to the main routes, and then out. Along with the cave rules posted outside saying "No Spray Paint", new tags have all but stopped.