Recommendations for the Ape Cave – Trail of Two Forests Recreation Area Management Improvements

MOUNT ST. HELENS NATIONAL VOLCANIC MONUMENT
Gifford Pinchot National Forest, Washington

Willamette Valley Grotto and the Oregon Grotto of the National Speleological Society
July 29, 2015

Ape Cave – Trail of Two Forests
Management Recommendations
Mt. St. Helens Natl. Volcanic Monument
Gifford Pinchot National Forest

July 2015

Oregon Grotto
Willamette Valley Grotto
of the National Speleological Society

edited by Ray Keeler
Summary
Visiting the Ape Cave – Trail of Two Forests Recreation Area has become an extremely popular activity. The numbers are increasing each year. Solid infrastructure improvements have been made, but have not kept up with the increasing visitation. Visitor counts are expected to continue to increase. This has led to concerns for visitor safety both on the surface and inside Ape Cave and other nearby caves. These include traffic congestion, parking shortages, foot traffic safety, cave resource degradation and the increasing costs.

There is also a disease that has killed, and is killing millions of bats in the eastern United States since 2006 called White Nose Syndrome (WNS). The disease has not yet reached the western states but there is serious concern that people may be a transport mechanism of the spores. Small numbers of bats are using Ape Cave. Larger numbers of bats are using nearby caves that visited by the same Ape Cave visitors. There are currently no WNS decontamination procedures for the more than 100,000 Ape Cave visitors each year. This is a concern particularly for people who have recently visited eastern U.S. caves and then come to visit Ape Cave.

The purpose of this report is to list Ape Cave – Trail of Two Forests Recreation (ToTF) Area issues, and provide recommendations for the following areas.

- Improve Ape Cave, and nearby caves’ management
- Reduce the possibility of WNS reaching the western United States via Ape Cave human traffic
- Improve the Ape Cave and the Trail of Two Forests Recreation Area infrastructure in several areas, including cost estimates
- Include funding recommendations for the infrastructure and management operations.
- Improve the visitor experience
- Include the authorities for the Gifford Pinchot actions

This report does not address activities farther away from the Ape Cave – Trail of Two Forests Recreation Area including snow tubing and other winter activities, hiking outside of the immediate area, or activities farther up FR-83 and FR-8100.

Authorities
The principal laws and regulations affecting management of caves on National Forest System Lands are listed below. Improvements for Ape Cave – Trail of Two Forests, including White Nose Syndrome protective measures are approved in the first document listed.

2. **Federal Cave Resources Protection Act of 1988** (16 U.S.C. 4301-4309; 102 Stat. 4546). The purposes of this Act are to secure, protect, and preserve significant caves on Federal lands for the perpetual use, enjoyment, and benefit of all people. To foster increased cooperation and
exchange of information between governmental authorities and those who utilize caves located on Federal land for scientific, education, or recreational purposes. The act sets forth management actions, confidentiality of significant cave locations, describes permitting, prohibited acts, and penalties.

3. **CFR Title 36: Parks, Forest and Public Property, Part 290 Cave Resources Management.** June 17, 1994. These are the implementing regulations applying to cave management on National Forest System lands. The regulations provide definitions; the process for nomination, evaluation and designation of significant caves sets forth rules regarding confidentiality of cave location information and collection of cave information.

4. **The Organic Administration Act of June 4, 1897.** (16 U.S.C. 551). This Act authorizes the Secretary of Agriculture to regulate occupancy and use of the National Forests. Regulations issued under the Act authorize protection of cave resources from theft and destruction (36 CFR 261.9a, 9b, 9g, and 9h). Under 36 CFR 294.1, classification is authorized for special interest areas that are managed for recreation use substantially in their natural condition. Special closures are authorized under 36 CFR 261.53 to protect threatened cave resources. 1

5. **Antiquities Act of 1906 (34 Stat. 225; 16 U.S.C. 431 et seq.).** This Act provides for the protection of historic or prehistoric remains or any object of antiquity on Federal land. Criminal sanctions are authorized for destruction or appropriation of antiquities. Scientific investigations of antiquities on Federal lands are permissible subject to permit and regulations. Uniform rules and regulations pursuant to this Act are in FSM 1530.12. 2

6. **The National Environmental Policy (NEPA) Act of 1969** itself is only a couple of pages long and simply compels all Federal Agencies to do the following prior to undertaking an activity:
   
   A. Consider environmental impacts (Environmental Impact Statement) in their decision making,
   
   B. Involve the public, and
   
   C. Document the process by which the agency made its informed decision.

   The NEPA also designated a Council on Environmental Quality (CEQ) who published the Council on Environmental Quality Regulations for Implementing NEPA (40 CFR Parts 1500-1508) which introduced the concept of an Environmental Assessment and a Categorically Excluded activity and then called for each Federal agency to issue its own individual implementing regulations (Department of Energy (DOE) NEPA Regulations (10 CFR Part 1021). The DOE NEPA Regulations list categories of actions which DOE determined did not individually or cumulatively have a significant effect on the human environment and would not normally require an Environmental Assessment (EA) or Environmental Impact Statement (EIS), therefore, they are considered categorically excluded (CX) from the need to develop an EA or EIS. Even when an activity is covered by a CX, the process must still be documented (except for routine administrative activities covered in Appendix A of the DOE NEPA Regulations) and DOE requires that the documentation be submitted to them for concurrence, which is why we send a NEPA

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1 FSM 2356 authority
2 FSM 2356 authority
Environmental Evaluation Notification Form (EENF) for all of our proposed actions (prototypes, experiments, projects, etc.), along with a CX recommendation, to the FSO.³

7. **Archaeological Resources Protection Act (ARPA) October 31, 1979** (16 U.S.C. 470aa). This Act clarifies and defines "archaeological resources," prohibits the removal, sale, receipt, and interstate transport of archaeological resources obtained illegally from public lands. The Act authorizes confidentiality of site location information, authorizes permit procedures to enable study and investigation of archeological resources on public lands by qualified individuals; provides for substantial criminal and civil penalties, forfeiture of equipment used in the crime, and rewards for citizens who report the crime. The Act supplements but does not replace the Antiquities Act of 1906.⁴


**FOREST SERVICE MANUAL DIRECTION**

The responsibilities of the Washington Office Director, Minerals and Geology Management as it pertains to caves are:

Coordinate lead responsibility for cave and cave ecosystem management on National Forest System lands with the Washington Office Director, Recreation, Heritage, and Wilderness Resources. Forest Service Manual 2356 provides the direction for significant caves and karst features developed for recreational use; FSM 2880 provides direction for protection and management of non-recreational significant caves and their associated ecosystems.

**FSM 2800 Minerals and Geology**

Chapter 2880 Geologic Resources, Hazards and Services – extensively discusses management of cave and karst resources and their ecosystems.

**FSM 2300 Recreation, Wilderness and related Resource Management**

Chapter 2356 Cave Management. Policy and direction relating to cave management. Pages 12-18.

**Management Issues and Concerns**

There are several areas of concern with the increasing visitation to the Ape Cave – Trail of Two Forests Recreation Area. Many of these can be addressed at reasonably small costs. The concerns include:

- The need of an Ape Cave – Trail of Two Forests Recreation Area Management Plan. The plan needs to include the recreation area management, and cave management guidelines for all of the caves affected by Ape Cave recreational visitor traffic.
- The lack of WNS decontamination procedures for visitors

⁴ FSM 2356 authority
⁵ FSM 2356 authority
• Local economic impacts if the Ape Cave – Trail of Two Forests Recreation Area is closed due to WNS reaching Region 6.
• Nearby significant caves remain easily accessible and are not protected when staff is not present including:
  o During winter months when there is no snow.
  o During the evenings and nights in the summer months after staff leaves.
• When the area becomes over crowded, there is no limiting mechanism to restrict additional visitors into the recreation area while allowing visitors already in the recreation area to exit.
• Traffic congestion, parking and Visitor Safety issues.
• Evaluate the visitor recreation and education experience with respect to too many people in the caves, and degradation of the cave resources.

Background and Current Conditions

Ape Cave was discovered in 1946 with a current surveyed length of 12,810 feet. The cave has two entrances with the Lower Entrance being the primary entry point using a hand-railled stairway for access. A visitor greeting station with restrooms and lantern rentals is open during the spring, summer, and early fall months. There are two visitor parking areas at the Ape Cave lower entrance; one is paved and one is gravel. There is a third parking area for the Trail of Two Forests portion of the recreation area.

Generally snow restricts access during the winter months. When there is no blocking snow, and at night, the area is left open, unmanaged, with easy access. Recreation area fee stations are in place at $5 per carload. A Nonprofit company, Discover Your Northwest (DYNW), is used for summer activity and selling cave related items to visitors. Forest staff is on-site during busy periods in the spring and summer.

Selected Ape Cave – Trail of Two Forests Recreation Area events:
• 1946: Ape Cave discovered by Lawrence Johnson
• Early 1960s: USFS acquires Ape Cave. Lower Entrance stairway installed.
• Summer 1967: Parking lot near Lower Entrance developed.
• 1980: Prior to Mount St. Helens eruption, 26,000\textsuperscript{6} visitors per year.
• 1982: FR-8303 moved away from lower Ape Cave entrance.
• 1983: visitation immediately increased to over 60,000\textsuperscript{7} visitors per year.
• 1988: surface trail between upper and lower entrances and a new parking lot constructed.
• 1988: Trail of Two Forests (ToTF) construction

\textsuperscript{6} Selected Caves of Southwest Washington, Guidebook for the 2012 Northwest Caving Association Annual Meeting. This number cannot be confirmed.
\textsuperscript{7} Ibid. This number may be high. It has not been confirmed.
• 1992: **120,000**\(^8\) visitors, second most visitation in the north western United States (Sea Lion Cave, OR estimated to have 1 million visitors)
• 1994: Ape Cave nominated for Significant Cave status under the Federal Caves Resources Protection Act (FCRPA) 1988
• 2006-present: WNS is discovered in the eastern United States. More than 5,000,000 bats die. No cure has yet been found.
• **Need year** to present: Discover your Northwest (DYNW) takes over Ape Cave – Trail of Two Forests on-site management.
• 2011: Second parking area constructed (lower entrance, gravel) for 30 vehicles
• 2012: MSHNVM Citizen Advisory Committee’s Recommendations Status Report (started 2009) containing WNS concern
• 2013: Viewpoint Trail construction completed.
• 2013: Ape Cave Recreation Action Plan created (pre-decisional document).

The April 2013 Ape Cave Recreation Action Plan provides site specific background for management. However, the document is more of a background, recommendations, and possibilities document than an action plan. The document also does not discuss the associated costs with the improvements presented. For example, there are no cost estimates for the bus shuttle service, the New Canopy Tour proposal or Ape cave entrance gate. The document does not mention the local economic impacts if the Region 6 caves are closed due to WNS.

The result of the improvements over the last 50 years are summarized in **Figure 1**. Ape Cave – Trail of Two Forests Recreation Area Infrastructure

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\(^8\) Ibid. This number is considered too high, but represents the higher level of traffic.
Figure 1. – Ape Cave – Trail of Two Forests Recreation Area Infrastructure.
Current Infrastructure, Parking and Staffing

Improvements for access to the recreation area have been made over the last fifty years. The improvements are concentrated around the Ape Cave Lower Entrance, the Trail of Two Forests, and the corridor between. Restrooms are at both the Ape Cave Lower Entrance trail head and the Trail of Two Forests parking lot. Iron Rangers are at both locations. The Iron Ranger at the Trail of Two Forests is only at one of two trail heads. There is no Iron Ranger by the trail head by the rest room.

With the increased visitor count, the improvements have not kept up with the need. The basic parking areas are shown in Figure 2 and Figure 3. These primary parking areas total to the following:

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Abbrev</th>
<th>Total Parking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars</td>
<td>C</td>
<td>139</td>
</tr>
<tr>
<td>Motorcycles</td>
<td>M</td>
<td>5+?</td>
</tr>
<tr>
<td>Handy capped</td>
<td>HC</td>
<td>4</td>
</tr>
<tr>
<td>RVs &amp; busses</td>
<td>RV</td>
<td>6</td>
</tr>
<tr>
<td>Cars – unmarked slots</td>
<td>UC</td>
<td>14+?</td>
</tr>
</tbody>
</table>

By all accounts, during the busy periods during the summer months, these totals are exceeded substantially. One Discover Your Northwest (DYNW) employee described it as “crazy busy.” Parking becomes a park-in-any-flat-space available.

Staffing and costs: Currently two DYNW employees are on-site from 10 am to 5:30 pm during summer weekends and other higher use days. They are on 4-10 hour days. They are located at the small building at the start of the path to the Ape Cave lower entrance. GPNF also schedules an onsite employee.

At 5:30 pm the staff leaves. Access remains open to the Ape Cave – Trail of Two Forests Recreation Area during nights and early mornings. The cave is not monitored or protected during all non-staffed periods. During the snow months FR-8303 is closed and gated just beyond the Trail of Two Forests parking lot.

The DYNW personnel sell forest recreation passes, lantern rentals, merchandise, bookstore items, snacks and water. The collections are in the $60K to $70K9 area. Expenditures include payroll, lantern maintenance, and merchandise costs. The collections do not pay for the expenditures. This staffing and collection arrangement “leaves a lot of money on the table.”10 Currently, many people are not paying the recreation permit fee.

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9 DYNW – Jim Adams in Seattle can provide more accurate numbers
10 Interview quote
Issues and Recommendations

Many of the Management Issues and Concerns listed above can be positively addressed by implementing the management improvements listed below. The April 2013 Ape Cave Recreation Action Plan also discussed several of these same topics.

Create an Ape Cave – Trail of Two Forests Cave Management Plan

Issue: There is currently no Ape Cave – Trail of Two Forests Cave Recreation Area Management Plan.

Recommendation: The plan needs to include the surface management guidelines and all of the FCRPA categories. For the surface activities, the primary focus is recreation. For the cave related items, the recreation management plan can make top level summary visitor management policies, and refer to either the Cave Management Plan for the Mount St. Helens National Volcanic Monument, or create a Gifford Pinchot National Forest Cave and Karst Management Plan. The Monument’s cave management plan needs updating (1994) but currently contains the primary caves and their FCRPA category ratings and management classifications.

White Nose Syndrome (WNS) decontamination procedures for Ape Cave visitors

Issue: Currently there are no WNS decontamination procedures for Ape Cave visitors. The WNS concern was listed in the GIFFORD PINCHOT NATIONAL FOREST MOUNT ST. HELENS NATIONAL VOLCANIC MONUMENT July 2009 Citizen Advisory Committee Recommendations & Forest Service, Community, and Partner Accomplishments on page 12.

Figure 2 shows the WNS occurrence in 2010, over a year after the above recommendations were made. Figure 3 shows the current spread of the disease and shows the increase of the risk. Research has confirmed that humans can transport the WNS spores on their shoes and equipment, though it has not yet been verified in the field. Bat-to-bat is by far the primary transmission mechanism. WNS decontamination procedures for Mammoth Cave National Park, Kentucky visitors have been in use since 2013. WNS is spreading in the eastern United States. Some Ape Cave visitors are coming after recently visiting eastern U.S. caves in WNS infected areas (USFS Regions 8 and 9). The USFS caves have been closed at the regional levels, for the most of the 25 states in WNS affected areas. These cave closures have had local economic impacts. Blanchard Springs Caverns, Arkansas is the largest USFS managed tourist cave. Blanchard Springs Caverns was closed for five years as part of the WNS cave closures in USFS Region 8. Blanchard Springs...
Caverns has now reopened, in part because of decontamination procedures. It was not included in the Region 8 WNS closure extensions. “Blanchard Springs Caverns has their visitors decon after all offered tours – forest staff decon suits, etc. after the wild cave tour.”

**Recommendation:** Install a WNS visitor decontamination station near the lantern rental/visitor greeting station on the trail to the Ape Cave Lower Entrance. The associated visitors’ education, understanding, and overall acceptance of the decontamination procedures at Mammoth Cave have had a very, very positive. This activity provides a focal point for improving visitor awareness of the impacts of their activities in Ape Cave. The Mammoth Cave NP WNS visitor station associated costs and additional information are provided in **Appendix A Mammoth Cave Decontamination Station.**

### Local Economic Impact if the Gifford Pinchot NF Caves are Closed

**Issue:** If caves are closed in Region 6, the closures will not only be in the recreation area, but will also include other areas of the Forest and Region. Thousands of caves in USFS Region 8 and Region 9 in the east have been closed due to WNS. Also, Region 2 closed their caves in 2010 just from the threat of WNS approaching. A follow up EA in Region 2 has allowed caves to be open under a permitting system. The Ape Cave – Trail of Two Forests Recreation Area gets over 100,000 visitors each year. These people spend money on gasoline, food, lodging, equipment, and more. There will be an impact to local businesses. This impact will extend farther than the local communities because in each case the caves have been closed at a regional level. USFS economists can provide better impact estimates for the equation:

\[
\text{Total Dollars Lost} = 100,000 \text{ visitors} \times \$??? \text{ Average dollars per visitor} + \text{Other trips to other caves not visited.}
\]

**Recommendation:** Implement WNS prevention measures. This will be much less costly than the closing caves regionally. The increased public awareness will be the additional long term benefit.

### Traffic Congestion, Parking, Road Accessibility

**Issue:** When FR-8303 is closed due to snow, access to Ape Cave and nearby caves is very limited. When snow is not restricting access there are two categories of issues. During heavy visitation months during the days, there are sometimes severe traffic congestion and safety issues. At night, there are no restrictions to Ape Cave’s Lower Entrance. In the spring, summer and fall months when the road is completely unregulated when there is no snow blockage.

**Recommendations:** The most needed visitor management tools (in addition to the WNS decon station) for the Ape Cave – Trail of Two Forests Recreation Area are the following: **Just before** the Trail of Two Forests parking area:

- Install a new, closable entry gate
- Install an in-ground, exit-only gate (tire spikes). Include a separately closable bar above this gate. (needed during winter months when snow covers the road)

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11 Interview quote
Figure 4. Trail of Two Forests Improvements in Green.

- **Install a visitor greeting station** in the road between the two gates. When the visitor station is manned it is a safety point. When it is not manned fee envelopes would be available.
- **Create a large vehicle turn around area** immediately to the east of the greeting station. Include “No Parking” signs. When the recreation area is full or the entry gate is closed, vehicles can turn around and return to FR-83. A chain and closure sign can be used in the winter to restrict access.
- **Remove the current FR-8303 gate** at the Trail of Two Forests. The gate is in the wrong place to protect Lake Cave.
- **Close the entry gate at 8 pm** each night. This should reduce abuse of the cave and infrastructure.
- **Notify the visitors** during the previous season that the improvements are coming and why.

**Recreation Fee Collection Improvements**

**Issue:** “Money left on the table”

There is a substantial amount of unpaid fees. This will help to reduce the loss.

**Recommendations:**

- **Staff the visitor greeting station on summer weekends and summer holidays.** This is Option 2 in Appendix B Summary of Infrastructure Cost Estimates.
- Continue to hand out the fee collection envelopes so visitors can place the receipts on their dash boards. This will substantially reduce the “non-paid” fees.
- Include recreation fee envelopes at the ToTF visitor greeting station for easy access when driving into the recreation area.
- Include an Iron Ranger at the visitor greeting station when for when the station is not occupied.
- Include instructions that there are also fee deposit boxes for the envelopes at each trail head.
- The driver should be able to reach out and pick up an envelope.

A current fee irritant that is the visitor must go “somewhere”, pick up the envelope and return to the vehicle to leave the receipt on the dash. Make it easier for the visitors to pay the fee. When the recreation area is busy, this walk can be quite long and “not worth the extra effort to go get the envelope and come back.

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12 Phrase used by Sheryl Haase, Discover Your Northwest Branch Manager during Interview
These fee collection procedure changes will reduce the loss. It is this report’s position that these fee collection changes will pay for both the infrastructure improvements (one time cost), and will also pay for the recommended two person increased staff time.

![Figure 5. Trail of Two Forest Improvements](image)

The recreation area infrastructure improvements, two additional staff, and additional hours have associated costs. Currently when staff is present, fee collections are not being enforced in the non-designated parking areas. This is substantial amount. When staff is not present, fee collections are voluntary. Estimates vary, but conservatively, here is the math for the “money left on the table” and currently not being collected:

- $100,000 at $5 per vehicle = 20,000 vehicles
- 20,000 vehicles in 5 months (May-September) = 4,000 vehicles per month
- 4,000 vehicles per month / 4 weeks = 1,000 vehicles per week
- 1,000 vehicles per week / 7 days = 140ish vehicles per day

During busy times this could be a substantially low estimate. During slow times such as week days and poor weather, staffing the ToTF visitor station would be less productive for the costs. Start with ToTF staffing on just summer weekends and holidays. Note that these numbers are only for five months of the year.

An example: On Saturday, March 7, 2015 at 9 pm, Skamania County deputy George Barker counted 23 vehicles in the main Ape Cave parking lot during a routine patrol. ¹³

Also, if the recreation fee is increased, the vehicle count needed to completely pay for the improvement will be substantially reduced.

The two person shifts can be offset such that the Trail of Two Forests station is manned only when both shifts are present. When one shift is present, the staffing is at the current Ape Cave trailhead.

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¹³ From interview, March 8, 2015
When leaving the later shift closes and locks the entry gate.

If staff is short, or duties require the Trail of Two Forests staff to be elsewhere, the station can be closed. The Iron Ranger located at the station will suffice.

**In-Cave Management for Ape Cave and Nearby Caves and the Visitor Experience**

There are extremely large numbers of visitors currently going through the recreation area caves. There are impacts to the caves. The primary cave trips taken are:

- Lower Ape Cave
- Lower to Upper Ape Cave – return on the surface trail
- Lake Cave
- Ole’s Cave (multiple entrances)
- There is a forth, small cave along the Ape Cave surface trail that gets substantial traffic.

**Issues:** The issues include:

- Possible cave gate installations of Ape Cave and Lake Cave as management tools.
- Impacts of the large visitor volume to the cave resources. These include:
  - Graffiti including spray paint and scratching into softer surfaces
  - Litter and broken glass
  - Biota impacts (for example, bats)
  - Visits to other nearby caves besides those listed above
- Too many in-cave visitors at one time reduce the visitor’s experience of “aloneness.” During busy times in the summer there is a continuous flow of visitors going through the cave.
- On the Ape through trip (lower to upper), long lines form at one specific short climb (lava falls).
- Sometimes a gas smell from the lanterns

**Recommendations:**

Cave Gates are controversial subject. There are safety considerations, direct impacts to the cave environment and visual impacts. **It is the position of this paper that installing the Trail of Two Forests road access control gates are a much better protection method for the caves** the following reasons:

- Safety: Any cave gate needs to allow all visitors to be able to exit the cave, without a key, at all times. Trapping someone inside a cave who is unable to open the gate from the inside (for whatever reason) may be life threatening. If the gate is inside the entrance sink and the one-


Direction turn-style cages are used, two stations must be installed in case one exit fails and gets stuck.

- If the gate design is the surface around the entrance sinks, two turn-style exit cages need to be installed in case one exit fails and gets stuck.
- There will be a significant visual impact with either in-cave or surface gates.
- If the Lower Ape Cave Entrance is gated, visitor traffic to Lake Cave will increase. Then the Lake Cave Entrance would need a similar gate. There are several who are actively against this action.
- Visitors will take the surface trail to the Upper Ape Cave Entrance, and make the through trip to the Lower Ape Cave Entrance. Visitors need to be able to exit from through trips.
- A NEPA process will be needed for each gate.

For the remaining “In-Cave” issues listed above, the current in-cave and entrance management is adequate while the staff present. The only recommendation is to **install a ladder to allow better visitor flow on the Ape Cave through trip**. The ladder will also benefit search and rescue access when responding to visitor incidents.

Air movement and exchange in both upper and lower Ape Cave areas is easily adequate for the visitor loads.

Graffiti is being removed by conscientious cavers, most recently by the Cascade Grotto, NSS in April 2015. They removed all of the graffiti at the end of Lower Ape Cave, and all graffiti visible from the main trail at the Pillar Room. More graffiti and broken glass are still present beyond the short crawl in the Pillar Room, in the room beyond\(^1\). More graffiti in Upper Ape Cave has a bad visual effect on the visitor experience. Removing the graffiti in will take a more concerted effort.

**Conclusions**

The conclusions are these:

- Create an Ape Cave – Trail of Two Forests Recreation Area management plan. Include both the surface management and individual cave management prescriptions. The cave management prescriptions need to address all of the FCRPA categories.
- Refer to the recreation area as the **“Ape Cave – Trail of Two Forests Recreation Area”**, and not just the Ape Cave Recreation area. This says “GPNF is managing this recreation area as a whole unit, as it should. This also allows the recreation fee collection for the entire corridor, and not just the paved Trail of Two Forests and Ape Cave parking lots. This fulfills the current fee policy of requiring the standard six amenities at the trailheads for the entire corridor.
- **A visitor WNS decontamination station is needed immediately.** It is already authorized by the signed 2009 GPNF MSHNVM document. Visitor acceptance of the WNS decon procedure have been excellent at Mammoth Cave National Park. The WNS decontamination station is both an educational focal point, and direct benefit to the visitors. That is, they get something for their recreation fee.

\(^1\) Pers. comm. with Cascade Grotto members.
• If WNS reaches Region 6 and first noted in the Ape Cave area there will be an economic impact when the caves are closed.

• Implement the following set of Trail of Two Forests infrastructure. This includes:
  o Remove the existing gate.
  o **Before** the Trail of Two Forests parking area, **build a new, one-way exit gate** that always allows 24/7 exiting from the recreation area. One way tire spikes is a recognized method.
  o **Build a second, entry gate** across the entry side of the road of the one way gate **that can be locked**. This will be similar to the existing gate, but on the entry side of the recreation and opened when desired. These two items, by far, the best management tool for the recreation when staffing personnel are not on site. This includes all nights, and winter months when there is no snow closure.
  o **At the gates**, install an **Information Booth/Recreation Fee collection station**. The station can include:
    - An iron ranger is accessible when visitor greeting station is not occupied
    - Secure deposit box for monies collected by personnel. Money removed each night in the summer months.
    - Gas powered generator for electricity to process the fee collection activities
    - Two way radios for staff communications between the Ape Cave and Trail of Two Forests stations.
    - Information on the area (nothing fancy, single page, 8.5x11 inch flier)
  o At the visitor greeting station and gates, **construct a gravel turn around area accessible for large vehicles**. There is 0.3 acres of flat, lightly timbered, flat land that can be used for this purpose on the east side of the existing road. The location’s entry/egress point meets the needed criteria.
  o Remove the existing gate.

• **Set the “recreation area open” hours** in the summer months. **Recommend 9 am to 8 pm.** Close the recreation area entry gate at 8 pm.

• Increase the recreation fee to $10 per vehicle. This supports the infrastructure improvements for those using the resources.

• **Do not install cave gates at either Ape Cave or Lake Cave. There are safety issues.** Being able to always exit the cave is a primary goal. For many, the visitor experience is reduced when seeing a gate.

• **Implement a “Friends of Ape Cave” group.** This can be as simple as being exercised via a leader, and communicated through a “Meet Up” group for participation. The potential benefits are substantial and the risks are small.

• **Continue the Education & Interpretation** sessions in the spring and summer months. This will tie in nicely with the WNS decon station.

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15 Ape Cave Area Recreation Action Plan, Action Item #3
Ape Cave – Trail of Two Forests Infrastructure Map
Appendices

Appendix A – Mammoth Cave Decontamination Station

Ricard Toomey (rick_toomey@nps.gov, office – 270-758-2145), Mammoth Cave International Center for Science and Learning at Mammoth Cave National Park (MACA) provided the following information:

- 400,000 visitors / year
- Before WNS reached MACA, they were doing targeted decon on 1-2% of the visitors
- Now that WNS is in the park, they requesting all visitors to walk through the WNS decon station upon exiting.
- The two stations use agro-cultural mats. The same mats are used by the cattle industry to reduce hoof diseases. The mats are 6 feet long by 3 feet wide.
- **Cost for two stations** is approximately $5000.00 plus the mats and equipment for changing fluids. The stations were constructed at MACA. Gifford Pinchot should need only one WNS station so these estimates should be high.
- Average time for visitors walking across the mat: four seconds.
- **Visitor acceptance has excellent**, with virtually no resistance.
- **Dawn Dishwashing liquid being used now.** It has biocidal properties but is not a full decon. Both Lysol and Woolite have been tried and removed from the regimen.
- Dawn solution application: 2 applications per day in the summer. 1 application /day in the winter. 4 gallons Woolite per application. One drawback is the foam is problematic to keep down.
- The stations have become visitor awareness focal points.
- Cleaning: Shop Vac for cleaning
- Recommends website update for WNS awareness.
- They have additional spray bottles for shoes.
- Oregon Caves National Monument had contacted Rick a week before I called in March, 2015. They were asking the same questions I was. Cathedral Cave in Canada has also contacted Rick with similar concerns.

Rick and others are convinced that humans brought the fungus from Europe to the U.S. and then contributed to the spread. Many cavers and a percentage of the science community, disagree with this assumption. This report is not about the debate. This report is about taking all reasonable precautions to help in prevention.
WNS Station in Use

Stations were deployed in July 2013

Initial drawing schematic
### Stainless Tray (with Railings and Cover) for Decontamination Mat

#### Materials and Estimated Costs

**Materials**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Est. Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4’ x 8’ stainless steel plate (cost of bending edges <strong>not</strong> included)</td>
<td>1</td>
<td>$395</td>
</tr>
<tr>
<td>4” stainless steel channel (for 7 support pieces under tray plate)</td>
<td>21 feet</td>
<td>$795</td>
</tr>
<tr>
<td>1½” x 11ga 304 stainless steel tubing—<strong>not</strong> rolled (for railings)</td>
<td>30 feet</td>
<td>$375</td>
</tr>
<tr>
<td>1½” sq x 11ga 304 stainless steel tubing—<strong>rolled</strong> (for canopy)</td>
<td>5 pieces (each 78”)</td>
<td>$292</td>
</tr>
<tr>
<td>note: price does <strong>not</strong> include cost for rolling (bending) tubing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1½” x 11ga 304 stainless steel tubing—<strong>not</strong> rolled (for canopy side supports)</td>
<td>20 feet</td>
<td>$175</td>
</tr>
<tr>
<td>1½” sq x 1½” x ¼” 304 angle (for canopy)</td>
<td>20 feet</td>
<td>$165</td>
</tr>
<tr>
<td>Pultruded fiberglass grating sections* (11” wide x 36” long)</td>
<td>2</td>
<td>$100</td>
</tr>
<tr>
<td>4’ x 8’ x ¼” Lexan sheet, Bronze-tint (for mat lid)</td>
<td>1</td>
<td>$225</td>
</tr>
<tr>
<td>4’ x 8’ x 1/8” Lexan sheet, Bronze-tint (for canopy)</td>
<td>2</td>
<td>$200</td>
</tr>
<tr>
<td>72” stainless steel piano hinge (for Lexan mat lid)</td>
<td>1</td>
<td>$90</td>
</tr>
<tr>
<td>SSBL610S MRSNRV rivets</td>
<td>1 case of 100</td>
<td>$60</td>
</tr>
<tr>
<td>¾” brass ball valve and ¾” x 3” nipple (for drain valve)</td>
<td>1</td>
<td>$10</td>
</tr>
<tr>
<td>Misc. hardware and supplies</td>
<td>n/a</td>
<td>$18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$2900.00</strong></td>
</tr>
</tbody>
</table>

*Pultruded fiberglass grating such as DURAGRID® I-4000 from [www.strongwell.com](http://www.strongwell.com), MS I-4010 from [www.mcnichols.com](http://www.mcnichols.com), or AmeriSpan™ from [www.amgrating.com](http://www.amgrating.com).

**Labor**

<table>
<thead>
<tr>
<th>Position</th>
<th>Est. Hours</th>
<th>Rate</th>
<th>Est. Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welder</td>
<td>40</td>
<td><strong>$25.41</strong> per hour</td>
<td><strong>$1016</strong></td>
</tr>
<tr>
<td>Welder’s assistant</td>
<td>40</td>
<td><strong>$21.55</strong> per hour</td>
<td><strong>$862</strong></td>
</tr>
<tr>
<td>Service: bending 4’ x 8’ stainless steel plate edges</td>
<td>n/a</td>
<td>n/a</td>
<td><strong>$80</strong></td>
</tr>
<tr>
<td>Service: bending stainless steel tubing for canopy</td>
<td>n/a</td>
<td>5 pieces (at $16 per piece)</td>
<td><strong>$80</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$2038.00</strong></td>
</tr>
</tbody>
</table>

**Grand Total**

- Materials: **$2900**
- Labor: **$2038**
- Sum: **$4,938** (biohazard mat, heater, & equipment for changing fluids **not** included)
Appendix B – Summary of Infrastructure Cost Estimates

Below are the one-time cost estimates, and the recurrent costs of the improvements.

The recurrent costs have three options listed below:

- No additional staffing at the ToTF visitor greeting station.
- Staff the ToTF visitor greeting station on summer weekends and holidays. Use the envelopes and Iron Rangers for the rest of the time.
- Staff the ToTF visitor greeting station seven days a week for five summer months.

These are estimates and will need to be corrected through the USFS processes for bids.

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Item</th>
<th>One Time</th>
<th>Continuing costs/year</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>WNS Station</td>
<td>station</td>
<td>4000</td>
<td></td>
<td>WNS station construction (1)</td>
</tr>
<tr>
<td></td>
<td>Woolite</td>
<td></td>
<td>5200</td>
<td>2 gals. $35/day @ $17/gal for 5 mo.</td>
</tr>
<tr>
<td></td>
<td>Cleaning and expendables</td>
<td></td>
<td>1000</td>
<td>$200/mo for 5 months</td>
</tr>
<tr>
<td></td>
<td>Cleaning and expendables</td>
<td></td>
<td>2000</td>
<td>$400/mo for 5 months</td>
</tr>
<tr>
<td>Ape Station</td>
<td>2 radios</td>
<td></td>
<td>200</td>
<td>2 @ $100. 1 for each station</td>
</tr>
<tr>
<td>ToTF Station</td>
<td>Building</td>
<td>5000</td>
<td></td>
<td>ToTF station construction</td>
</tr>
<tr>
<td></td>
<td>Generator</td>
<td>1200</td>
<td></td>
<td>Honda (quiet)</td>
</tr>
<tr>
<td></td>
<td>$$$ Drop box</td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Iron Ranger</td>
<td>300</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Point of Sale station</td>
<td>300</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fliers</td>
<td></td>
<td>3750</td>
<td>1 8.5x11 page @ 1 ream/day @ .05/page</td>
</tr>
<tr>
<td>Entry Gate</td>
<td></td>
<td>1000</td>
<td></td>
<td>Swinging gate</td>
</tr>
<tr>
<td>1 Way Exit Gate</td>
<td></td>
<td>3000</td>
<td></td>
<td>Tire spikes. Swinging close bar for winter closures</td>
</tr>
<tr>
<td>Vehicle Turn around - ToTF</td>
<td></td>
<td>30000</td>
<td></td>
<td>Includes “No Parking” signs</td>
</tr>
<tr>
<td><strong>Option 1: Iron Rangers Only</strong></td>
<td>No ToTF Staffing</td>
<td>0</td>
<td></td>
<td>No additional ToTF staff</td>
</tr>
<tr>
<td><strong>Option 2: ToTF Summer weekends / holiday Staff</strong></td>
<td></td>
<td>31,250</td>
<td>weekends only 5 months (May-Sept) plus three holidays. 25 days 2 people at $25/hr * 5 months. Rate includes loading</td>
<td></td>
</tr>
<tr>
<td><strong>Option 3: ToTF Summer 7 day Staffing</strong></td>
<td></td>
<td>75000</td>
<td>Seven days/wk 5 mo (May-Sept)</td>
<td></td>
</tr>
<tr>
<td><strong>Option 1 Total</strong></td>
<td></td>
<td>45000</td>
<td>12,150</td>
<td>No ToTF staff</td>
</tr>
<tr>
<td><strong>Option 2 Total recommended</strong></td>
<td></td>
<td>45000</td>
<td>43,400</td>
<td>Summer weekend and holiday ToTF Staff</td>
</tr>
<tr>
<td><strong>Option 3 Total</strong></td>
<td></td>
<td>45000</td>
<td>87250</td>
<td>All summer days ToTF staff</td>
</tr>
</tbody>
</table>
RcK: What else am I missing in the cost estimates?

Bibliography/References/Contacts
Ape Cave Area Recreation Action Plan, Mount St Helens National Volcanic Monument, Gifford Pinchot Nation Forest, April 2013, 16 pages.
CAVE MANAGEMENT PLAN MOUNT ST. HELENS NATIONAL VOLCANIC MONUMENT, undated
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Oregon Grotto, NSS members
Willamette Valley Grotto, NSS members