

## Vandal Resistant Fee Tube Is Effective Against Crime

*Damien Hoffman, Project Leader*

### Highlights...

- The Forest Service currently uses many different fee tube designs.
- Many fee tubes are susceptible to common methods of theft and vandalism.
- The Columbia River Gorge National Scenic Area (CRGNSA) made design changes to its fee tubes that have prevented thefts for more than 2 years.



Figure 1—The remains of a stolen fee tube.

**F**or many years, recreation sites of the U.S. Department of Agriculture, Forest Service have collected fees.

Since 1996, when Congress authorized the Recreation Fee Demonstration Program (now, the Recreation Enhancement Act), the Forest Service has collected recreation fees for the use of specific facilities. Since then, recreation sites have installed many self-service fee tube designs, some of which have been susceptible to theft (figure 1) and vandalism. The Missoula Technology and Development Center (MTDC) has been evaluating self-service collection designs, including fee tubes, since 1971.

In 2011, MTDC requested information from Forest Service employees who collect or manage fee collections. The information gathered included the following:

- National forests, grasslands, and scenic areas, which currently use many different fee tube designs, sent pictures or drawings of 13 different fee tube designs.
- Depending on the frequency of vandalism and theft and the possibility of dangerous wildlife seeking shelter in the fee tube, some locations require different fee tube designs.
- It would benefit Forest Service employees to standardize a set of fee tube designs that address combinations of security issues and environmental conditions of an area.

This tech tip describes a new fee tube design that the Columbia River Gorge National Scenic Area (CRGNSA) has used for more than 2 years. It has been effective in stopping theft and vandalism.

## Fee Tube Vulnerabilities

The Columbia River Gorge National Scenic Area, a popular recreation destination, can collect up to \$5,000 per week at some sites during the summer months. The CRGNSA experienced theft and vandalism to the horizontal envelope slot fee tubes at many of its developed sites. The horizontal envelope slot fee tube design (figure 2) is similar to what many Federal recreation areas currently use. The 6- by 8-inch tube is constructed with ¼-inch-thick metal plate welded together with a horizontal envelope slot on top and a sliding collection plate at the bottom. Some fee tubes have two saw-tooth metal plates (figure 3) to prevent the envelopes from being fished (a method of removing envelopes through the slot using glue sticks and string). The design of the horizontal envelope slot fee tube, with single walls, a padlock, and collection plate, has several vulnerabilities that thieves take advantage of. Using a torch, thieves have cut open the tube; using a hacksaw or other cutting device, they have hacked into the tube; using a hydraulic jack, they have jacked it open; and, using glue sticks, they have fished for the contents. With each theft or vandalism, it takes employees time to fix the damage and mitigate the loss of personally identifiable information that can be found on visitors' checks and credit card receipts.

Fishing is the most common form of theft. Law enforcement working these cases dubbed the thieves "sticky bandits." After law enforcement apprehended one sticky bandit, the thief described some simple design changes that would prevent fishing and other forms of theft.



Figure 2—A fee tube with a horizontal envelope slot.

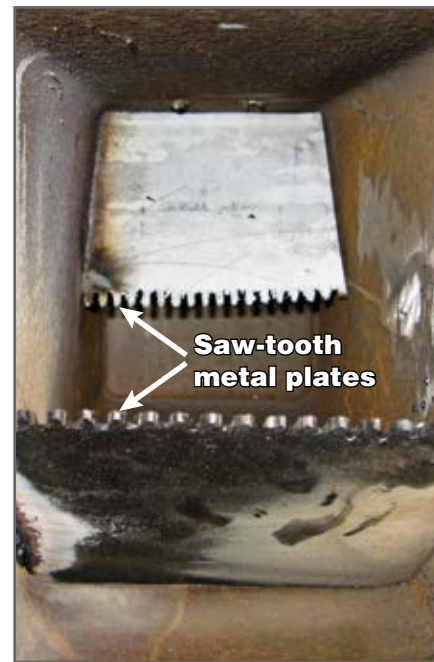


Figure 3—Teeth intended to stop envelope fishing on a fee tube.

## The Columbia River Gorge National Scenic Area Vandal-Resistant Fee Tube Design

The vandal-resistant fee tube design (figure 4) incorporates vandal-resistant and theft-proof improvements not found in many currently used designs. It has a vertical envelope slot with internal deflection fins (inset, figure 4) that help prevent fee envelopes from being fished out from the collection box. An optional layer of concrete between the inner and outer tubes would help deter cutting the tube with a torch (figure 5). The padlock has been replaced with a shrouded lock which, unlike the padlock, cannot be pulled with a vehicle and cable to force open the lock. The floor of the collection box (see figure 4) is sloped instead of flat to prevent jacking open the collection plate. The sloped base also makes the terrain less hospitable for dangerous wildlife, such as snakes, to shelter in.

The vandal-resistant fee tube design has been successful in stopping all thefts for more than 2 years at CRGNSA sites. When these tubes were initially installed, site employees observed signs of attempted thefts, but none were successful. In a show of frustration with the new design, the thieves glued the envelope insertion assist (hanging from the chain, figure 4) into the slot and gave up. Over time, the signs of attempted thefts have mostly ceased.



Figure 4—The new Columbia River Gorge National Scenic Area fee tube. This tube does not have an optional concrete-filled outer sheath. The vertical envelope slot has internal deflection fins (inset).

**Summary**

The vandal-resistant fee tube offers additional security for locations that experience frequent vandalism and theft. This design would be a good choice for areas that collect high dollar amounts. Many of the design improvements, such as slanting the collection floor and changing the envelope slot from horizontal to vertical, adding envelope slot deflection fins, and changing from a padlock to a shrouded lock, could be retrofitted into current fee tube designs with some fabrication. Something to remember, as was mentioned in the 1998 tech tip “Fee Deposit Tube Fabrication Drawing” (9823–2343–MTDC), available at <<http://www.fs.fed.us/eng/pubs/htmlpubs/htm98232343/index.htm>>, the concept of vandal-proof or theft-proof vaults in unattended recreation sites is not practical.

In an attempt to find further design improvements, MTDC will fabricate and install the vandal-resistant fee tube and other fee tube designs at its facility, subjecting them to a variety of theft and vandalism methods. Any future design improvements will be included in AutoCAD specification drawings available on the internal Forest Service network. These are preliminary drawings (not for construction) to be used for reference only.



Figure 5—A prototype fee tube with an optional concrete-filled outer sheath.

**Additional Information**

Although no commercial manufacturers are fabricating this design at this time, Iron Rangers, LLC, is willing to offer a vertical slot fee tube option (based on the vandal-resistant fee tube design), which will be available on request. For those planning to fabricate the CRGNSA model, the estimated cost of fabrication, labor, and materials is about \$1,800. Installation requires excavation for a 1- to 2-yard concrete footing to install the pedestal.





## Acknowledgments

The author gives special thanks to John Dawson, Jeff Mitchell, Edan Lira, and Rithy Bein from the Columbia River Gorge National Scenic Area for their work in developing the vandal-resistant fee tube and for their assistance in writing this tech tip. Also, thank you to Mary Ann Davies for her help reviewing this tech tip.

## About the Author

Damien Hoffman joined MTDC in 2004 as a student at the University of Montana. He worked as a Web development assistant until graduating in 2006 with a bachelor's degree in wildlife biology, when he took over as Webmaster. Hoffman, who works as a project leader at MTDC, is the cache coordinator for the National Visitor Use Monitoring program. He also earned a bachelor's degree in sociology from the University of Minnesota-Morris.



## Library Card

Hoffman, Damien. 2013. Vandal-resistant fee tube is effective against crime. Tech Tip. 1223–2326P–MTDC. Missoula, MT: U.S. Department of Agriculture, Forest Service, Missoula Technology and Development Center. 4 p.

The U.S. Department of Agriculture, Forest Service uses self-service fee tubes at some locations to collect recreation fees from the public. Some fee tube designs are susceptible to theft and vandalism. The Missoula Technology and Development Center (MTDC) evaluates self-service collection designs in an effort to improve security. In 2011, MTDC requested information from Forest Service employees who collect fees or manage fee collections. This tech tip describes a new fee tube design used at the Columbia River Gorge National Scenic Area for more than 2 years. The design effectively reduces theft and vandalism.

**Keywords:** fee collection, fees, fee tubes, theft, theft-proof, vandalism, vandal-resistant



**For additional information about vandal-resistant fee tubes, contact MTDC:**

USDA Forest Service  
Missoula Technology and Development Center  
5785 Hwy. 10 West  
Missoula, MT 59808-9361  
Phone: 406–329–3978  
Fax: 406–329–3719

**Electronic copies of National Technology and Development documents are available on the Internet at:**

<http://www.fs.fed.us/eng/pubs>

**Forest Service and Bureau of Land Management employees can search National Technology and Development documents, CDs, DVDs, and videos on their internal computer networks at:**

<http://fsweb.mtdc wo.fs.fed.us/search/>

<http://fsweb.sdtc wo.fs.fed.us/>



The Forest Service, an agency of the U.S. Department of Agriculture (USDA), has developed this information for the guidance of its employees, its contractors, and its cooperating Federal and State agencies. The Forest Service assumes no responsibility for the interpretation or use of this information by anyone except its own employees. The use of trade, firm, or corporation names is for the information and convenience of the reader. Such use does not constitute an official endorsement or approval of any product or service to the exclusion of others that may be suitable.

### USDA Non-Discrimination Policy

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees, and applicants for employment on the bases of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, or all or part of an individual's income is derived from any public assistance program, or protected genetic information in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases will apply to all programs and/or employment activities.)

### To File an Employment Complaint

If you wish to file an employment complaint, you must contact your agency's EEO Counselor ([http://www.ascr.usda.gov/doc/EEO\\_Counselor\\_List.pdf](http://www.ascr.usda.gov/doc/EEO_Counselor_List.pdf)) within 45 days of the date of the alleged discriminatory act, event, or in the case of a personnel action. Additional information can be found online at [http://www.ascr.usda.gov/complaint\\_filing\\_file.html](http://www.ascr.usda.gov/complaint_filing_file.html).

### To File a Program Complaint

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at [http://www.ascr.usda.gov/complaint\\_filing\\_cust.html](http://www.ascr.usda.gov/complaint_filing_cust.html), or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, by fax (202) 690-7442 or email at [program.intake@usda.gov](mailto:program.intake@usda.gov).

### Persons with Disabilities

Individuals who are deaf, hard of hearing or have speech disabilities and you wish to file either an EEO or program complaint please contact USDA through the Federal Relay Service at (800) 877-8339 or (800) 845-6136 (in Spanish). Persons with disabilities who wish to file a program complaint, please see information above on how to contact us by mail directly or by email. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.) please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).