

# 2008 Peregrine Falcon Restoration Project New River Gorge National River, West Virginia



  
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# **A REPORT ON THE NEW RIVER GORGE NATIONAL RIVER 2008 PEREGRINE FALCON RESTORATION PROJECT**

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**Recommended Citation:**

Perrone, Wendy and Perrone, Ron. 2008. A Report on the New River Gorge National River 2008 Peregrine Falcon Restoration Project. Three Rivers Avian Center, Brooks, WV. 16 pp.

***Project Partners:***

**United States Fish and Wildlife Service  
Center for Conservation Biology at the College of William and Mary  
National Park Service - New River Gorge National River  
West Virginia Department of Natural Resources Wildlife Diversity Program  
Three Rivers Avian Center  
Virginia Department of Game and Inland Fisheries  
Pennsylvania Game Commission  
New Jersey Department of Natural Resources  
Tri-State Bird Rescue**

*Front Cover: A newly released peregrine surveys her new surroundings in the New River Gorge. Photograph by Three Rivers Avian Center's Caleb Keneipp.*



Three Rivers Avian Center is a private nonprofit organization dedicated to providing veterinary and rehabilitative care to non-game wild birds as well as to educating and involving the public in ecosystem stewardship and research.

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*2008 young peregrine in the New River Gorge  
photograph by Gary Hartley, NERI*

## Summary

This summary of the 2008 Peregrine Restoration Project illustrates the efforts made in the third year of the five year effort. The project's initial scope, background research and methodology are to be found in Varner (2006) and Watts (2006), cited in full at the end of this report.

The hack site used in 2008 is the same that was used in 2006 when 16 Peregrine Falcons were successfully released and again in 2007 when 24 Peregrines were successfully released. In 2008, 21 Peregrine Falcons were released into the New River Gorge in 2 separate releases. Of these, 17 remained at the postfledging area for the minimum of 14 days which is the threshold for a successful release as defined by Varner. This is a release rate of 81%.

An additional 2 birds originally obtained for the project were removed prior to release. One bird was kept at Three Rivers Avian Center because of a trichomoniasis infestation of the mouth and throat. The second falcon was suffering from an avulsed hallux talon at the time of acquisition and was transferred to a falconer for care pending recovery.



*2008 view from double hack box area  
photograph by Craig Stihler, WV DNR*

## Participants

The participants in this process were: National Park Service - New River Gorge National River (NERI); West Virginia Department of Natural Resources Wildlife Diversity Program (WVDNR); research biologists Shawn Padgett and Libby Mojica from the Center for Conservation Biology (CCB) at the College of William and Mary; National Park Service New River Gorge wildlife biologist and Project Leader for 2006 & 2007 Matt Varner; and Three Rivers Avian Center (TRAC), a wild bird rehabilitation and environmental education organization in Summers County, WV.

Contracts between NERI and TRAC as well as WVDNR and TRAC were initiated to oversee the hacking program for 2008; Wendy Perrone, Executive Director of TRAC was designated 2008 Project Coordinator. Joint funding for the project came from NERI and WVDNR.

Eyasses were obtained from the Center for Conservation Biology at the College of William and Mary. Other support for the project came from the Virginia Department of Game and Inland Fisheries, the Pennsylvania Game Commission, the New Jersey Department of Natural Resources, and Tri-State Bird Rescue of Delaware. The birds were obtained from nests which have either shown themselves to be in high-risk locations for fledging peregrines or were in an area where colonial and beach nesting bird populations were of concern.



*Frank Sellers of NERI and Jack Wallace of WVDNR work on feeding tube placement for hack box 1*

*Moving hack box #1 to it's new position over the edge of the cliff. From left to right: Caleb Keneipp - TRAC, Waterstone climber, Ron Perrone - TRAC, Jack Wallace - WVDNR, Jeff Hajenga - WVDNR.*

*Both Photographs are courtesy of Craig Stihler, WVDNR*

## Methods

### *Initial Survey*

Two factors which could impact a hacking program are potential threats from Great Horned Owls which are known to prey upon Peregrines and the existence of an active Peregrine Falcon nest within the vicinity of the hack site. Either of these might signal the need to move the hack site. Additionally, an active Peregrine nest would necessitate the inclusion of nest monitoring into the project within NERI.

Prior to leaving as Project Leader, Matt Varner surveyed the area for Great Horned Owls in early Spring 2008. He determined that there were none.

Prior to implementing the contracts with NERI and WVDNR, 2008 Project Coordinator Wendy Perrone decided that further periodic observations should be made in the hack site vicinity from the ground to check for the existence of Peregrine nesting activity. Starting on March 31, 2008 and ending on April 17, 2008, 6 volunteers went to the hacking region periodically in all weather conditions and observed for a total of 52 hours. No evidence of nesting Peregrines, such as courtship flights, territorial or nest defense was found. No paired adult birds were observed in the area.

On April 27, 2008 a helicopter fly-through was conducted by Shawn Padgett and Dr. Brian Watts of the CCB and Jack Wallace of the WVDNR. No Peregrine Falcon nests were detected in the New River Gorge by this method.

### *Hack Box Construction*

The 2 hack boxes from the previous year were reused and a third one constructed by TRAC to accommodate the Peregrines. The design of the new box was based on the others (Varner 2007) with more vertical space given for headroom and cooler interior temperatures. In addition to the pebble substrate used previously, small branches were secured up off the floor for perching. This was to enable the birds to practice perching and to help minimize the stress of crowding and hierarchal squabbling. All boxes were equipped with 4" PVC pipe feeding tubes to minimize human contact and the association of people with food.

### *Feeding Protocol*

While still in the boxes, the birds were fed through the feeding tubes once daily. A thrice weekly regimen of hack box cleaning was instituted to remove the buildup of uneaten food. The food for both pre and post release consisted of quail carcasses with the wings removed. This reduced the amount of uneaten quail and was observed to have the effect of substantially reducing odor problems and debris determined to be a cause of scavenging house cats and bears in 2007. No scavengers other than Turkey Vultures were seen at the site this year. The daily ration of food was tightly monitored and calibrated daily.

Once the birds were released from the boxes, feeding trays were lowered by ropes to a single feeding location. Quail carcasses on the feeding tray were tied by one leg to the tray with sisal twine to keep them from falling off when the tray was lowered and also to keep the peregrines eating at the feeding tray. This allowed observers time to identify individual peregrines and to enhance the bird's affinity to the site. Feeding trays were cleaned of all detritus prior to each feeding.

### *Banding*

The peregrines all arrived with bands on each leg, both USFWS numeric ID bands and Project alpha/numeric bands. To improve the observers' ability to differentiate birds rapidly, a dual ID system was implemented using colored Duck tape on the USFWS band. When a second color was needed, a colored plastic poultry band was placed above the taped band. The alpha numeric project band was not covered because the characters were easily read at a distance through spotting scopes and could be used when the colored bands were not clearly visible.

### *Observation*

The larger of the 2 original hack boxes was moved to a new location to decrease potential threats from scavengers and was designated as hack box #1. This new site was upstream of the old site and 14 feet down the cliff face, and directly below the 2007 observation point. There was no room for a feeding tray on the rock ledge beside the box so the box was equipped with a rubberized mat affixed to and covering the roof to act as the feeding area. Since this box was to be used for a second hack even as it was still being used as a feeding site for the first hack, the mat would provide a soft "landing zone" for food trays that would have to be lowered to the roof of the box from above. It was hoped that cushioning the noise of the tray as it landed would reduce potential stress to birds still in the box awaiting the second release.

The old hack box location contained the original hack box (now designated box #2) only until the end of May when a sudden influx of eyasses mandated the addition of a third box. This third box was placed in the original location of box #1 and became box #3.

Since hack box #1's location prohibited the use of the 2007 observation point, a new position was located between the hack locations some 30 yards down stream of hack box #1 and 50 yards upstream of hack boxes 2 and 3. A blind was constructed of shade cloth netting and camouflage tarpaulins.

Daily tally sheets were used by observers to record which birds were in the area and which of them ate. Data concerning behavior and any pertinent information useful to the following day's observers such as climbers in the area, problems with Turkey Vultures, weather, etc. were noted.

Remote cameras were placed at hack box #1 to observe behavior inside the box prior to release and to observe behavior at the feeding trays after release. These cameras could be monitored by computer from a location directly above Hack Box #1, from the

Restoration Project Office at the NERI Burnwood Day Use Area, and from the National Park Service Internet website.

A Hack Box Attendant, Geoff Elliott, was hired to take charge of the daily feeding and hack box maintenance while the birds were in the boxes and to feed and make observations once the birds were on the wing. The Attendant, whose hours were augmented as needed by TRAC, Greg Phillips of NERI, WV DNR personnel and volunteers, made daily feeding and observations from May 6 through July 5. After that, the observations and feedings were carried out daily by TRAC, Greg Phillips of NERI, WV DNR personnel and volunteers through July 27. In all, 275 hours of observation time were accumulated, as well as 20 hours spent feeding and caring for eyasses still in their hack boxes prior to any release.



*Hacksite Attendant Geoff Elliott (on right) talks with his son Andy as they help carry the first group of 5 peregrines out to hack box 1. Behind them are (left to right) Caleb Keneipp - TRAC, Jack Wallace - WVDNR and Criag Stihler - WVDNR.  
Photograph by Greg Phillips - NERI.*



## Narrative and Results

Between May 5 and May 30, 23 Peregrine Falcons fledglings were taken from 8 nests at locations in Virginia, Pennsylvania and New Jersey and placed in 3 hack boxes within the NERI project area. These were released on 2 separate dates.

The first 2 falcons arrived on May 5<sup>th</sup>, were approximately 32 days old, and both were males from the Berkley Bridge in Virginia. They were placed in hack box #1 at NERI. On May 14<sup>th</sup>, 1 male and 2 females approximately 32 days old from the James River Bridge in Virginia were combined with the first group in hack box #1.

Also on May 14<sup>th</sup>, 3 males and 1 female were taken from the Norris Bridge in Virginia where they were discovered to be approximately 20 days old, which was much younger than anticipated. They were taken to the Three Rivers Avian Center and placed with TRAC's resident female Peregrine as a surrogate parent.

The 2 groups in box #1 were fed through a 4" PVC feeding tube from a ledge 14 feet above until 48 hours before release. On May 21<sup>st</sup>, the falcons were hacked out and continued to be fed from trays lowered to the top of the box from above. All 5 falcons exceeded the minimum 14 days at the postfledging area and were considered successfully released.



*Hacksite Attendant Geoff Elliott joins Wendy Perrone - TRAC at top of cliff as young peregrines are lowered in a box down the cliff face to Ron Perrone-TRAC to be put into hack box 1. Photograph by Caleb Keneipp -TRAC*

On May 23<sup>rd</sup>, 3 falcons (2 female and 1 male) were obtained from the Walt Whitman Bridge between Philadelphia, Pennsylvania and New Jersey. On May 26<sup>th</sup> the 2 female falcons were placed in Hack Box #1. The young male with USFWS band # 220680658 was removed from the project on May 23<sup>rd</sup> due to an avulsed left hallux talon, and was immediately placed in rehabilitation at TRAC. Once the talon bed had healed up from the injury, the young male was placed with a falconer to enable him to receive flight and hunting training while the talon grew back in. As of the end of August 2008, the talon has not regrown and the prognosis for doing so is poor.

On May 30<sup>th</sup>, 7 falcons were obtained from The Pennsylvania Game Commission. 2 males came from the Betsy Ross Bridge in Pennsylvania, 1 male and 1 female from Swan Bay, 1 male and 2 females from Atlantic City, New Jersey. An additional 3 males and 1 female were obtained from the James River Reserve Fleet in Virginia. One of the James River Reserve Fleet falcons, a female with the USFWS band #180702776, was diagnosed with trichomoniasis, removed from the project, and placed in veterinary care at TRAC. As of the end of August 2008, this bird remains at TRAC combating a bacterial infection in her mouth. She should be able to be released in a few weeks.

The remaining 13 Peregrines obtained on May 30<sup>th</sup> were distributed to all 3 hack boxes at NERI in the following groups; the 3 falcons from the Norris Bridge were added to Hack Box #1, the 5 falcons from the James River Reserve Fleet & Betsy Ross Bridge were placed in box #2, and the 5 falcons from Swan Bay & Atlantic City falcons were placed in hack boxes #3.

The birds in all these three hack boxes were released on June 9, 2008. Of these, 4 disappeared from the postfledging area prior to the 14 day threshold for a successful hack out. These were: a male, USFWS band #220681690 from the James River Reserve Fleet last seen on day 1; a female, USFWS band #168702803 from Atlantic City last seen on day 3; a male, USFWS band #220678765 from the Betsy Ross Bridge last seen on day 9; and a female, USFWS band #168710860 from the Walt Whitman Bridge last seen on day 11.

Observation and feeding continued at the site by using a tray lowered by rope to the top of hack box #1. The last falcon appearing for feeding on July 25<sup>th</sup>. Observations were continued at the hack site for 70 days (Figure 2) through July 27<sup>th</sup>, whereupon the project was ended for the season. In total, 17 of 21 birds exceeded the 14 day success threshold (Figure 1). 5 of 5 birds in the first hacked group from box #1 and 12 of 16 from the second hack group met this goal. This is an 81% success rate.

On August 13, 2008 the barred front panels of the hack boxes were removed. This was done in hopes that adult peregrines from the project will consider them for nest sites, if and when in 2009 they should return to the New River Gorge. Should the hack boxes not be needed for adult use, they can easily be reset to be used again for eyasses.

## Discussion and Recommendations

A post-season evaluative meeting was held on August 13, 2008 at NERI's Burnwood Day Use Area. Below are the significant notes taken from that meeting.

### *Timing*

One problem that added difficulty to the project was the way birds arrived on short notice. The original hacking schedule was to release the birds in 3 staggered shifts. The first one, 5 birds, went as planned but due to an off-location emergency, subsequent groups arrived in such a manner that made segregation by age group or sex difficult. The resulting second release appears to the authors as too many birds at once, especially in light of the limited feeding area that was available. Food aggression and crowding was observed on the feeding trays and may have been a contributing factor to why 4 of the birds abandoned the site prematurely. While better coordination with the people acting as sources could alleviate some of this, the authors recognize the constraints and limitations placed upon those who must retrieve birds from bridges and buildings, and the unpredictability of emergencies.

### *Color Banding*

In 2007, the number of birds in the program necessitated the use of colored bands with multiple colors. At distance and under various lighting conditions, identifying the color combinations proved problematic. In 2008 the redundant identification system of alpha numeric bands coupled with color codes facilitated observation efforts. Observers found it easier due to some circumstances to use one or the other band and on several occasions, part of a left leg band coupled with a visible part of the right leg band when birds were at the feeding trays and partially hiding both legs.

### *Climbers and Hikers*

Previous to 2008, the project participants realized that conflicts might arise with hikers and climbers wishing to use the area near the hack sites. The efforts to communicate with these groups each year appears to have worked well. Few incidents of encroachment into the hack box sites were recorded by observers. These events appeared to be accidental and were resolved quickly and amicably with no effect upon the peregrines.

### *Site Notes*

Because 3 years of data demonstrate a high success rate for the rearing and releasing of peregrine falcons within the NERI site, it is our opinion that the site has proved itself to be a valuable asset in the effort to return the species to West Virginia and the Southern Appalachians. But concerns have been raised as to the appropriateness of the hack site as a nesting site for Peregrine falcons. The New River and Gauley River valleys have stretches of fast moving water that do not appear to be favored by prey species in plentiful numbers nor did the general area seem to provide the open hunting space that may be needed. After the helicopter survey of the region in late April, Jack

Wallace of the WVDNR related that this was also a topic of discussion in the helicopter. Independently, the authors as well as Hack Site Attendant Geoff Elliot have observed and commented on the paucity of prey within the hack site area.

Prey species in abundance can, however, be found at many locations very close to the NERI hack site. The New River at Bluestone Lake, Hinton, WV and the Sandstone Falls area all sustain healthy populations of prey species. Summersville Lake on the Gauley River does as well. The confluence of the New and Gauley Rivers mark the start of the Kanawha River which also supports substantial waterfowl and other prey species all the way to the Ohio River where the conditions for hunting Peregrines only improve. Virtually hundreds of miles of suitable habitat are available to hunting Peregrines within a relatively short distance from the hack area.

The group also discussed the possibility, should the necessity arise, of searching for a hack site near Hinton. The Bluestone Dam was mentioned as a potential hack box location.

Migrating peregrines are routinely seen following the rivers. Peregrines have been seen occasionally in the Hinton area for several years by the authors. In Spring and Fall, sightings in Charleston, WV are also not uncommon. On April 12, one of these birds was identified as band Y/66 - one of this project's birds from 2007. It was one of a non-nesting pair that spent weeks in the city this Spring. On July 12, the authors watched a pair of peregrines chasing a Red-tailed Hawk above Charleston, but band numbers or colors were impossible to see. Reports from birders arrived at TRAC periodically all Spring and Summer from along the Ohio River. 3 of the peregrines fitted with transmitters in 2007 are still moving around and have visited West Virginia in 2008, all having passed through the New River Gorge. Peregrines not from the NERI project nested in 2008 at the Belpre Bridge at Parkersburg and at Chimney Top on North Fork Mountain in Grant County.

These opinions and notes aside, we believe that the 2009 - 2010 Spring migrations will provide the data which is needed to properly judge the success or failure of this 5 year effort. If survival rates are sufficient, we should start seeing peregrines of breeding age at that time which are the product of the NERI releases. Efforts should be readied to both hack more birds into the system and to intensify efforts to find nesting peregrines in the NERI hack area as well as the river system that is comprised of the New, Gauley, and Kanawha Rivers.

## Figures

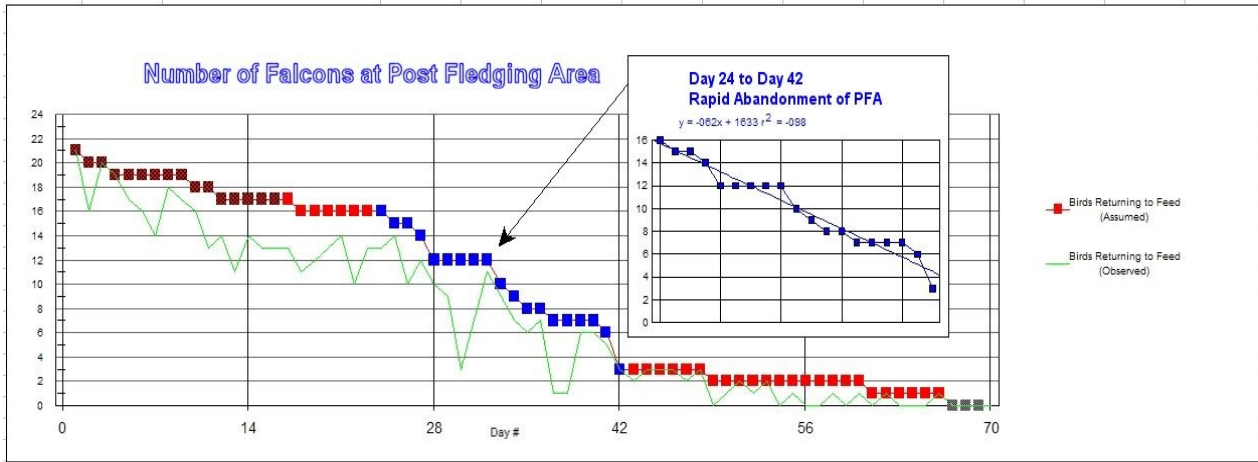


Figure 1. This graph is “compensated”, that is all birds are graphed as being released on “Day 1” regardless of the date. It illustrates that while daily attendance at the feeding site fluctuated (Birds Returning to Feed - Observed), 17 birds returned to feed at least 14 days after release. The darkened red section of the line at the right shows the decline of attendance = 4 birds prior to 14 days. The blue segment of the line is the steady decline of birds between day 24 and day 42 post release, when most of the falcons left the postfledging area. Birds labeled as “Returning to Feed - Assumed” were not necessarily observed each day, but did return periodically to feed and were assumed to be in the area. When one of these birds ceased to return, the dotted line drops on the day it was last observed.

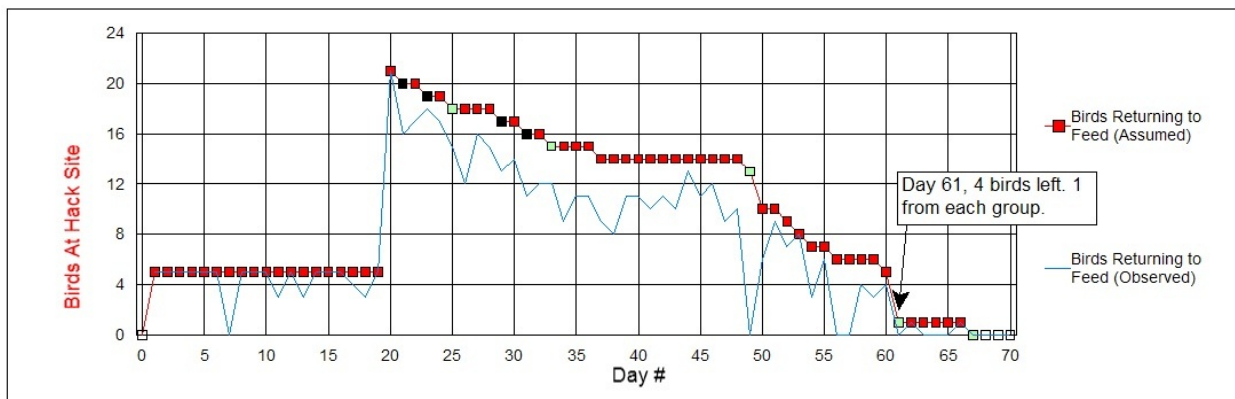


Figure 2. Shows peregrines at the feeding site with Day # being literal. Day #1 = the first day of the first release and day 70 the final day of observations.

Figure 3 Source, sex, banding data and transport dates of eyasses.

<b>State</b>	<b>Sex</b>	<b>PU Date</b>	<b>Hack Date</b>	<b>L Band #</b>	<b>R Band Color</b>	<b>US FWS #</b>	<b>Source Location</b>
VA	M	5/5/08	5/21/08	X/28	Yellow	220681676	Berkly Bridge
VA	M	5/5/08	5/21/08	X/29	Blue	220681677	Berkly Bridge
VA	M	5/14/08	5/21/08	X/33	White	220681681	James River Bridge
VA	F	5/14/08	5/21/08	63/Z	Green	180702769	James River Bridge
VA	F	5/14/08	5/21/08	64/Z	Pink	180702770	James River Bridge
VA	M	5/14/08	6/9/08	X/30	Red/Purple	220681678	Norris Bridge
VA	M	5/14/08	6/9/08	X/31	Red/Pink	220681679	Norris Bridge
VA	M	5/14/08	6/9/08	X/32	Red/Turquoise	220681680	Norris Bridge
VA	F	5/14/08	6/9/08	62/Z	Red/Green	180702768	Norris Bridge
PA	F	5/23/08	6/9/08	A/56	Red/Silver	168710860	Walt Whitman Bridge
PA	F	5/23/08	6/9/08	A/57	Red/Black	168710861	Walt Whitman Bridge
VA	M	5/30/08	6/9/08	X/39	Blue/White	220681688	James River Reserve
VA	M	5/30/08	6/9/08	X/40	Blue/Purple	220681689	James River Reserve
VA	M	5/30/08	6/9/08	X/41	Blue/Yellow	220681690	James River Reserve
NJ	M	5/30/08	6/9/08	Y/25	Blue/Green	220678765	Betsy Ross Bridge
NJ	M	5/30/08	6/9/08	Y/26	Blue/Black	220675766	Betsy Ross Bridge
NJ	M	5/30/08	6/9/08	Y/23	Blue/Turquoise	220675763	Swan Bay
NJ	M	5/30/08	6/9/08	Y/24	Yellow/Black	220675764	Atlantic City
NJ	F	5/30/08	6/9/08	Y/35	Yellow/Green	220675700	Swan Bay
NJ	F	5/30/08	6/9/08	Y/38	Yellow/Pink	168702803	Atlantic City
NJ	F	5/30/08	6/9/08	Y/39	Yellow/Blue	168702804	Atlantic City

The following peregrines were removed from the project and will be released as soon as they are ready:

VA	F	5/30/08	trichomoniasis	66/Z	still healing	180702776	James River Reserve
PA	M	5/23/08	hallux talon	14/S	to falconer	220680658	Walt Whitman Bridge

\*\* Addendum: the VA peregrine #66/Z was released 9/13/2008 at the base of the Bluestone Dam in Hinton, WV. Sightings of her in the area were reported for the next two days.

## Appendix 1

We would like to express our appreciation for the volunteer efforts of the following individuals. Together they donated a total of over 313 hours to the New River Gorge Peregrine Restoration Project in 2008. Their labors on behalf of this project have made it a very successful season:

Terry Carter	Woody Davis
Andy Elliott	Dave Elliott
Ginny Elliott	Kathy Halloway
Bill Hank	Margaret Hank
Nancy Hopps	Caleb Keneipp
Alma Lowry	Ron McLaughlin
Donna Mitchell	Mary Ann Ott
John Pierce	Judy Pierce
Evan Pierce	Randy Pierce
Ellen Pyles	Tim Pyles
Bill Roody	Allen Waldron
Mindy Waldron	

Also donating time prior to the beginning of project contracts:

Geoff Elliott, Ron Perrone, Wendy Perrone

A very special thank you to Greg Phillips - NERI for his help with web cams and peregrine satellite tracking.



*Peregrines in hack box 2 ready for release in June 2008.  
Photograph by Caleb Keneipp*

## Literature Cited

Varner, Matthew S. January 2007. 2006 Peregrine Falcon (*Falco peregrinus*) Restoration Project Summary Program Report NPS/NERI—1419-06PF. National Park Service. Glen Jean, WV.

Watts, B. D. 2006. An investigation of cliffs and cliff-nesting birds in the southern Appalachians with an emphasis on the Peregrine Falcon. Center for Conservation Biology Technical Report Series, CCBTR-06-14. College of William and Mary, Williamsburg, VA. 43 pp.

Two forms were developed for this project: a feed tracking form and a separate observation form. Either or both are available in Microsoft Word format upon request from

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