

2009 Peregrine Falcon Restoration Project New River Gorge National River West Virginia




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A REPORT ON THE NEW RIVER GORGE NATIONAL RIVER 2009 PEREGRINE FALCON RESTORATION PROJECT

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Recommended Citation:

Perrone, Wendy and Perrone, Ron. 2009. A Report on the New River Gorge National River 2009 Peregrine Falcon Restoration Project. Three Rivers Avian Center, Brooks, WV. 20 pp.

Project Partners:

**United States Fish and Wildlife Service (“USFWS”)
The Center for Conservation Biology (“CCB”)
National Park Service - New River Gorge National River (“NERI”)
West Virginia Division of Natural Resources Wildlife Diversity Program (“WVDNR”)
Three Rivers Avian Center (“TRAC”)
Virginia Department of Game and Inland Fisheries (“VDGI”)
Pennsylvania Game Commission (“PGC”)
New Jersey Department of Natural Resources (“NJDNR”)
Tri-State Bird Rescue (“TBR”)**

Front Cover: A newly released Peregrine (Black/pink band, a female from the James River Reserve Fleet in VA) comes into the hack site feeding area at Grandview in the New River Gorge. Photograph by Gary Hartley, New River Gorge National River.



Three Rivers Avian Center is a private nonprofit organization working to educate and involve the public in ecosystem stewardship and research while also providing veterinary and rehabilitative care to non-game wild birds.

Table of Contents

Summary.....	4
Methods.....	5
Narrative and Results.....	7
Discussion and Recommendations.....	10
Figures.....	15
Appendix.....	18
Literature Cited.....	20



July 12, 2009 8:07 am – After tail chasing and stooping with fellow hack mates, one young Peregrine provides a picturesque moment in the New River Gorge at Grandview. Photo by Wendy Perrone, Three Rivers Avian Center.

Summary

The project's initial scope and background research are to be found in Varner (2006) and Watts (2006), cited in full at the end of this report. Now into the fourth year of the Project, the hacking location needed to be moved. A breeding pair of Peregrine Falcons was discovered in April at the former hacksite location at the Cirque on the Endless Wall cliff (Fayette county), thus making a hacking project there impossible. The new location became two small rock outcroppings in the Grandview section of the New River Gorge National Park (Raleigh county) 13.7 miles south from the previous location, near the Turkey Spur rock formation. A large hack box was placed at each of the two outcrops.

Eyasses were obtained from the Center for Conservation Biology in Williamsburg, Virginia, with additional support from the Virginia Department of Game and Inland Fisheries, the New Jersey Department of Natural Resources, and Tri-State Bird Rescue of Delaware. The Peregrine chicks were obtained from nests which have either shown themselves to be in high-risk locations for fledging Peregrines or were in an area where predation on colonial and beach nesting bird populations were of concern (Mojica, E.K., B.D. Watts, and S.M. Padgett. 2009).

Seventeen Peregrine Falcons were released into the Gorge in 3 releases between June 2nd and June 18th, 2009. Of these, all 17 remained at the postfledging area for the minimum of 14 days, the threshold for a successful release as defined by Varner. This is a release rate of 100%.

The nest site at the Fayette county location did not fledge any chicks.

Joint funding for the project came from NERI and WVDNR. Wendy Perrone, TRAC Executive Director remained as the New River Gorge Peregrine Falcon Restoration Project Coordinator.

Pink band, a female from Atlantic City, NJ takes a break at the Hack Box 2 feeding station.

Photograph by Gary Hartley, New River Gorge National River.



Methods

Preliminary Surveys

Area surveys of the 2008 hacking area were conducted between early March 2009 and late April 2009 to determine the inhabitant status of local great horned owls or nesting adult Peregrine falcons. Existing NERI protocols call for the relocation of the hacking site should either be detected (see figure 1). In addition, if a nesting pair of Peregrines is located, the protocols call for the protective closure of the cliff face and a surrounding buffer area to all recreational use until the chicks are out of the nest. Furthermore, monitoring of the nesting area would be included in the Restoration Project responsibilities.

Ground surveys of the New River Gorge for nesting Peregrine falcons were augmented by a helicopter survey by the Center for Conservation Biology. A special emphasis was placed on searching locations for further hack sites in the Gorge.

Hack Boxes

The 2009 hacking area was located in the Grandview section of the New River Gorge National River. Two hack boxes were constructed from ½ inch plywood, using similar specifications to those devised the previous year. The boxes measured 4'L x 4'W x 3'H



Hack Box 2 on location at Grandview. The log anchored on the top right is placed to encourage free-flying Peregrines to perch at the feeding station on top of the box for easier identification. The orange line at the left is one of the box's stabilizing anchors. A black rubber flap covers the padlock on the access door. Photograph by Gary Hartley, New River Gorge National River

with a full-length "window" across the front made of metal tubes spaced 2 inches apart on center with a metal mesh over the front to aid in predator deterrence. The bottom of the boxes had drainage holes drilled in the plywood 0.25 inches in diameter spaced approximately a foot apart. The floor was then covered with commercial "river rock" gravel to a depth of 1.5 inches, and a 2 foot square door was placed in one end in such a manner that when opened the door panel would block immediate access to the rock edge towards the Gorge. The boxes were constructed in a modular fashion for ease of transport and later set-up. They were assembled on the cliff at 2 locations along the South East facing rim of the Gorge off the "Turkey Spur" rock formation access road. Once in place, each box interior was furnished with a long diagonal perch

approximately 1 foot off the floor and a 4 inch diameter tube was installed in the back panel for feeding purposes. A 24-hour recording digital thermometer with a remote display was placed inside on the back wall below the feeding tube to monitor temperatures inside each box during the duration of the Season.

Feeding Protocol

The feeding of the chicks in the boxes was accomplished as before by dropping the food down a 4" diameter PVC pipe attached to back of the hack box. This enabled those people doing the feeding to remain unseen by the young Peregrines. Because the new site had a potential for scavengers such as racoons and bears, uneaten food was not allowed to accumulate in or around the boxes by regular cleaning two to three times weekly and by carefully monitoring the amount of food being fed to the birds to eliminate excessive waste.



7/12/2009 8:10 am View from the Hack Box 2 observation blind, showing location of feeding stations on top of and beside the hack box. Photograph by Wendy Perrone, Three Rivers Avian Center

Once the Peregrines were released from the hack box, quail carcasses were tied by one leg using sisal twine to permanently set taunt cords at two different level feeding areas. The areas were established by tying one set of cords across the top of Hack Box 2 and an additional set were stretched across the rock surface below the door at the right of the Hack Box. Food was presented to the birds every day at the same time and anything left uneaten was removed when the Peregrines' feeding activity had subsided. Any leftover quail or related debris was removed from the site and all feeding surfaces were thoroughly scrubbed clean when the day's observations were finished.

Banding

The Peregrine eyasses arrived with ID bands on each leg: a USFWS color coded aluminum numeric band on the right leg and a green/black alpha-numeric band on the left. Following up on our 2008 color coded Project bands, this season we advanced our banding to identify chicks from the same nest, same State, males vs females and those who had already had to be admitted for veterinary health care. The alpha numeric bands were not covered and were used to augment identification when the color bands were completely or partially obscured from view.

Documentation

Daily tally sheets were used by observers to record each individual Peregrine's site attendance, whether the individual ate from the feeding station, behaviors, appearance, other raptors in the area and their behaviors, as well as any other observations that seemed notable. All observations were made from a blind located near the hack boxes. Unlike the 2008 season at the Cirque, no remote cameras were deployed at the Grandview site.

Narrative and Results

Nest Site Monitoring

The 2009 Peregrine Restoration began with monitoring of the 2008 hack site at the Cirque on the Endless Wall near Fayetteville, WV. Rock climbers had reported seeing Peregrines in the area as early as the previous Thanksgiving and through the Holiday Season. Preliminary scouting by TRAC and NERI found a pair of Peregrines who were showing an interest in a deep crevice directly below the location of hack boxes 1 & 2. The male had a yellow/black set of leg bands (black was the New Jersey issued USFWS band) on his right leg, indicating that he was from the 2007 hack at that site. Efforts to read the alpha/numeric band information on the opposite leg were unsuccessful and a positive individual identification could not be confirmed. The female was unbanded.

Because the activity seen at the nest site was consistent with known Peregrine pre-nesting behavior, NERI instituted their already established Nest Site Monitoring Protocol beginning March 13th (see figure 1). The protocol called for temporary full closure to recreational activities in the Cirque (encompassing approximately 800 feet of cliff face and the trails above and below the Cirque) (see figure 2) and an additional closure on an individual voluntary basis of approximately 200 feet of cliff face down River from the Cirque.

On March 15th, TRAC instituted a daily monitoring program of the site using volunteers to



4/2/2009 10:34 am: The female Peregrine from the Cirque pair at a favored feeding ledge next to the nest crevice. Photograph by Ron Perrone, Three Rivers Avian Center

determine if the birds were going to fully establish an active nest. They watched from a blind placed above Cirque Hack Box 1, approximately 80 yards upstream from the crevice. The birds were observed establishing a defensive perimeter from nearby perches and from time to time entering the crevice. Areal displays with talon grasping were also seen. The birds often called to each other while perching. Food transfers from male to female were observed both at the crevice, on near by perches, and in the air space in the immediate area. The pair often exchanged places inside the crevice. Copulation began on April 6th, and a full closure of the Cirque area through the remainder of the nesting season took place on April 15th. Nest observations were changed to 3 times weekly to lessen human presence during incubation. On

May 19th, vocalizations from within the crevice signaled the existence of 1 or 2 chicks. On May 22nd, the male was observed leaving the cavity then flying to a perch where he sat calling briefly, then he left. This was the final sighting of any Peregrine at that location.

Observations made on May 30th and June 2nd found no activity at the site and the decision was made to terminate formal observations. On June 3rd, the closure to recreational

activities at the Cirque was lifted by NERI and the blind was removed. Between March 15th and May 30th, 13 volunteers observed the nest on 41 days accumulating 460.5 man-hours.

Hacking Peregrines at Grandview

By April 10th it was apparent that there were nesting Peregrines at the Cirque on Endless Wall and that a new location for the Restoration Project hack boxes needed to be found. Adult Peregrines are highly intolerant to the proximity of other Peregrines during nesting, so it was impossible to reuse the existing boxes at their current location. Additionally, it was impossible to move the boxes for fear of disturbing the birds which could lead to them abandoning their nest. NERI and TRAC personnel searched for potential locations within the National Park boundaries which were at least 10 air miles distant from the nest site at The Cirque, a distance suggested by Shawn Padgett with the Center for Conservation Biology.

A location was found at Grandview along the Turkey Spur access road which provided excellent siting and easy access. The 2 new hack boxes were installed on May 17th. A staging area for the hack project was set up in a rustic cabin used by NERI's Interpretive Rangers for mild weather activities at Grandview.

Hack Box Siting and Observation Locations

The new hack boxes located at Grandview were secured at 2 separate rock outcroppings approximately 50 yards apart, both with a Southeastern aspect and sufficient tree cover to protect the boxes from direct afternoon sun. Each was accessed by a short trail diverging from the main Canyon Rim hiking trail (see figure 3). Both of these access trails were blocked by a log stockade to discourage unauthorized traffic from the hiking trail. The southern most box was designated as Hack Box 1 and the other as Hack Box 2.



Proximal observations were made from a blind 12 feet from Hack Box 2 which provided excellent visuals to identify Peregrines as they came in to the feeding area, but gave a poor view to either side. This location was well concealed from the public. A second location at North Overlook, a developed view point located 0.25 south of Hack Box 2, was established to compensate for the limited visibility at the blind. North Overlook afforded a limited opportunity for gathering banding data because of the distance to the hack boxes, but proved to be an excellent place to observe the Peregrine's behaviors in the air. Since North Overlook is one of the most heavily used

Rick Doyle (WVDNR) Greg Phillips (NERI) and Jeff Hajenga (WVDNR) install Hack Box 1 at Grandview. Photograph by Craig Stihler, WV Division of Natural Resources Wildlife Diversity Program

locations at Grandview, many individuals stopped by to look at the view and stayed to watch the young Peregrines fly and learn about the Restoration Project. North Overlook also provided a vantage to observe hiking traffic approaching the hack boxes and the blind. Contact between the two locations was maintained by two-way radios and cellular phones.

Observations

Between May 17th and June 3rd, 2009, 17 Peregrine Falcon chicks were removed from at risk nest sites in Virginia and New Jersey (Mojica et al, 2009). The first 3 of these arrived on May 17th, transferred to TRAC by the Center for Conservation Biology from the James River Bridge in Virginia. During the normal Project intake examination, a female from the nest was diagnosed with a mild to moderate case of trichomoniasis. She was retained at TRAC for treatment for the next 10 days, then banded Red/white. The white band was an alert to later observers that this individual had received prior veterinary care in case the information would turn out to be useful. On May 17th, Hack Box 1 was installed at Grandview and the 2 healthy chicks (Red/yellow and Red/black) were placed in it. They were joined by a healthy Red/white on May 28th.



On May 21st, The Center of Conservation Biology transferred 9 chicks to TRAC from 3 locations in Virginia. 3 came from the Ben Harrison Bridge, 4 from the James River Reserve Fleet, and 2 from the James L. Norris Bridge. The 3 from the Ben Harrison Bridge were too young to place in the Hack Box so were they were harbored in TRAC's Flight Barn with TRAC's non-flighted resident adult Peregrine as a mentor.

TRAC 2009 Hacksite Attendant Andy Woodruff weighs a James River Bridge eyas during a routine Project intake exam. Photograph by Wendy Perrone, Three Rivers Avian Center

On May 22nd, Hack Box 2 was installed on the cliff at Grandview and the chicks from the James River Reserve Fleet and the James L. Norris Bridge were placed in it. On May 28th, the 3 Ben Harrison Bridge chicks harbored at TRAC joined the 3 James River Bridge Peregrines already in Hack Box 1.

On June 2nd all birds in Hack Box 1 were released. Feeding of this group commenced from the top of Hack Box 1. Observations of their activities were conducted from a blind located a short distance up the path to the Box, and from North Overlook. Once all Peregrines had left the Box, they began exploring the immediate surroundings. All 6 Peregrines were seen over at the Hack Box 2 location the next day, interacting with the birds still in the Box.

On June 3rd, 5 Peregrine chicks were transferred to TRAC from New Jersey. 2 came from the Walt Whitman Bridge, 1 from the Betsy Ross Bridge, and 2 from Atlantic City. These birds were given single color bands and placed in Hack Box 1.

At this point it became apparent that some of the birds in both boxes were developmentally mismatched and if released as a group, this disparity would put them at a disadvantage after release. To remedy the problem, 2 New Jersey birds (Light Green and Yellow) were moved from Hack Box 1 to Hack Box 2 and 2 Virginia birds (Black/Green and Green/Pink) were moved from Hack Box 2 to Hack Box 1. Hack Box 2 Peregrines, all of which were males, were released on June 13th.

Observations during the previous week had shown that given the opportunity, the young free-flying Peregrines much preferred to spend time over in the Hack Box 2 area rather than at Hack Box 1. Since all activity now seemed to be centered at Hack Box 2, the remaining eyasses were moved from Hack Box 1 to the now-empty Hack Box 2 late in the afternoon of June 13th. This made it possible to feed all birds from the same location, allowed more intraspecies socialization time between all the Peregrines and it simplified observation protocols.

On June 18th, the third and final hack of the season was from Hack Box 2 with the release of the last 6 birds. Observations continued through July 31st and while feeding activity at the site was often erratic, all the birds regularly returned for feeding. On July 6th (Day 35) all 17 birds returned to feed on the same day. On July 7th (Day 36), 16 of 17 returned to feed, then, during a 4 day period between July 10th through 13th (Days 39 - 41) 10 of the 17 birds ceased to return (figures 5 & 6). The last sighting of a Peregrine from the 2009 Hack was on July 22nd. TRAC staff monitored the site every other day through July 31st. On August 3rd the Hack Boxes were dismantled and moved to a storage shed and the staging shed was closed. All of the 17 birds released at Grandview exceeded the 14 day threshold for success by wide margins (figure 6).

Throughout the entire release process there were no threats to the birds from land predators or other raptors. In fact, Red-tailed Hawks, Red-shouldered Hawks, and Broad-winged Hawks were all observed flying below the hack site lower down on the slopes of the canyon. They rarely ventured anywhere near the hack site.

Discussion and Recommendations

The new location at Grandview

The hacking location at Grandview differed from the Endless Wall site in important ways. First, there were no conflicting use issues. At the Cirque area at the Endless Wall, hikers had to be turned off regularly used trails and rock climbing in the immediate area had to be prohibited. At Grandview these public use conflicts were not an issue.

In addition, the short trail to the small developed overlook where we set up Hack Box 1 was not heavily used by the public prior to this Season's hack. Hack Box 2's location had no developed trail at all and once one was temporarily established, it never received attention from the public during the duration of the Season. To further discourage the public from investigating the Hacking areas, NERI erected tall stacked log barriers where the access trails to the Boxes diverged from the Canyon Rim Trail. NERI also placed informational plaques at each log barrier describing the project and asking the public to refrain from disturbing the Boxes or Peregrines. The public was encouraged to watch the action from the vantage point afforded by North Overlook instead. Regular and repeated NERI Law Enforcement and Interpretive Ranger patrols added a further layer of security.

Finally, it was very easy to set up and maintain the hack boxes and observation locations. The rustic cabin allocated to the project facilitated the daily preparation of the Peregrine's food, collection of the daily observational notes, and gave a secure place to store project materials needed on a regular but not daily basis.

Project Color Bands

Since easy identification of young Peregrines on the wing and at the feeding station was still difficult in 2008, further modifications were adopted for the 2009 season. We covered all the USFWS bands with colored duct tape, the exact color per individual determined by sex in many cases, the number of primary colors available and health status of the individual. Peregrines originating in New Jersey or Pennsylvania had only this single color on the USFWS band. We designated the color white to identify a bird which had received veterinary care prior to being placed into the hack box (such as the trichomoniasis female patient from the James River Bridge). Pink was exclusively used for Females, blue was reserved for males. Since some nests produced multiples of one sex or the other, once the pink and blue colors were used we then selected other primary colors for the remaining individuals. The only issue we had to end up resolving was to agree to use "pi" for the color pink and "pu" for purple, "bl" for blue, "bk" for black. This proved to not be a big issue once addressed.

All the birds from Virginia were given an additional set of colors, using plastic spiral poultry bands placed on the leg just above the USFWS band. Experience over several years at TRAC during "in house" rehabilitation situations has shown that if the birds feel these additional bands are uncomfortable for any reason they can easily remove them themselves simply by pulling the bands off. If they do so, there has never been any physical harm demonstrated. During the Season, not one Peregrine removed their colored spiral band. The additional color was listed first in notations, the color covering the USFWS band was listed second (see figure 3).

The decision to use an additional set of colors on the Virginia birds was partly due to the fact that this Season we received many more sibling birds from Virginia nests than from any other State and we wanted to note how nest mates interacted over the Season if possible, and also partly as a test to see if the extra identification helped either in observation

notation or with rapid recognition of the individual in general. Virginia's falcons were grouped together by top color according to which nesting area they came from: Red for the James River Bridge (3 birds), Purple for the Ben Harrison Bridge (3 birds), Black for the James River Reserve Fleet (4 birds), and Green for the Norris Bridge (2 birds).

The banding of Peregrines for rapid identification using the bi-colored bands on one leg was deemed superior to simply trying to identify the alpha-numeric band on the other leg. As birds landed to feed or perched in trees, observers could piece together the proper identification by one or the other band. Sometimes when bands were partially obscured, observers could identify birds by partial information from 2 bands. On occasion, an observer with a good telescope could use color alone at distances greater than 1/4 mile when lighting conditions were right.

Blind Proximity

The observations made from the blind at Grandview were very close, less than 15 feet. This gave us outstanding opportunities to make quick and accurate identification of the individual Peregrines. In the Season's planning sessions, the blind location was initially thought to be too close, but the birds easily adjusted the proximity of human observers in the blind. "Rules" of acceptable human behavior spontaneously evolved. The Peregrines accepted human proximity if the people were in the blind and quiet. Anything else was reason for the birds to flush. The birds never became "tame" or "friendly".

While the blind location made it impossible to observe the birds beyond the boxes and immediate trees, a second observer at the North Overlook location could watch both boxes and miles of unrestricted expanses of the New River Gorge environs. This did pose some difficulty in identifying individual birds as the boxes were approximately 1/4 mile from North Overlook, but the Overlook gave the observer the ability to see both flying and perching birds well out of view from the blind. Because radio communications between the two locations was good, constant communications were used to keep track of the Peregrines' movements. The overall setup is excellent for the tasks of feeding and observing the birds.

Feeding

Feeding trays were not used this Season. The size of the feeding area on top of Hack Box 2 with the additional area on the adjoining rock surface was large enough to feed all 17 birds without overcrowding. Any aggression shown at the feeding area was normal for the species and no injuries were observed.

Competition at the feeding area from local Vultures did not occur this Season. On 2 occasions an adult male Peregrine was seen near the site watching and once he flew with the young birds. There was no aggressive intent observed. On 1 occasion a first year Red-Shouldered Hawk landed on top of Hack Box 2 began eating some of the quail at the feeding station. This was the only food competition observed from a raptor this season. The young hawk left within 10 minutes and was not seen at the feeding area again.

Despite an established population of black bears at Grandview as well as other scavengers such as raccoons, there were no problems with wild animals of any kind at either hack box site. This was probably due in large part to the emphasis placed on keeping the feeding area and hack boxes clean by scrubbing the feeding surfaces daily and keeping the site clean of other related feeding debris.

Once on the wing, observers began to notice that the young Peregrines began to supplement their daily quail rations first with butterflies and insects, then occasionally with small birds and other small prey as they got more adept at in-flight maneuvering.

Site Monitoring Post-Season

Once the hack boxes were removed from the rocks at Grandview, 2 digital wildlife monitoring cameras were installed on trees at Hack Box 2 to determine if any Peregrines were visiting the site through the Winter. In operation since 10/25/2009, they have shown no Peregrines and only rare and sporadic visits by Turkey Vultures and Black Vultures. Rare visits from a black bear (once), a grey fox (once), a buck (once), a doe (once), an opossum (several times) and the occasional mouse have been documented over a period of ten weeks. These cameras will remain in place to monitor the site.

Other Peregrines in West Virginia

A lone Peregrine has been reported at various locations in the New River Gorge area between the Bluestone Lake area near Hinton and the New River Gorge Bridge at Lansing at least monthly since the 2009 Hack Season ended. No band identification has been possible to date.

There have been and continue to be reliable sightings of a Peregrine or two on the Kanawha River at both the I-64 Bridge at Oakwood Road in Charleston and also at the bridge at Nitro. During the Spring and into June, a pair of Peregrines could often be seen on the up-River side of the south pier of the Oakwood Road Bridge, but no nesting activity was observed. The Peregrines observed in the Spring were both banded and had been visiting the site since 2008. Although USFWS band could not be read, the alpha numeric band on the male was 60/Z, the one on the female was 66/Y.

Of the 6 Peregrines fitted with satellite transmitters in 2007, only the male in the Harpers Ferry area is still sending a signal. No nest site has been found. A female Peregrine was seen during early Spring at the North Fork Mountain site near Seneca Rocks but no nesting activity was observed.

On January 25th, a female Peregrine was observed at an established nesting site on the Ohio side of a bridge spanning the Ohio River between Parkersburg, WV and Belpre, OH. The bird was originally from the Norris Bridge, VA site and was hacked out at Shenandoah National Park in 2005. Her bands are noted as USFWS band 0987-51297 (green) and color band 8/X (black over green). On May 28th, a downy Peregrine chick was seen walking back

and forth on the superstructure. Since the bird was noted on the Ohio side of the bridge, it was left to the Ohio Division of Natural Resources to band the chick should they so choose. The Ohio DNR has been aware of and monitoring the nest area since at least 2008.

Recommendations

The Peregrine Falcon nest site at the Cirque was in use by the birds before the remote on-site cameras used during the 2008 hacking season had been taken from Winter storage and set back up at the cliff. The lack of cameras made it hard to monitor the nest or the Peregrines unless there was a volunteer physically on-site. When the female and chicks suddenly disappeared from the nest in the crevice, there was no way to discover what happened or exactly when it happened. The authors strongly recommend that appropriate cameras be set up at the nest site that can provide 24 hour surveillance of the area, and preferably of the nest itself as well. These cameras should be in place and active before late January or early February.

The lack of a web-cam for the Grandview Hacksite was an issue that TRAC heard about repeatedly from the public during the duration of the Season. Watching the chicks grow up seems to have broad public interest and appeal, and the ability to show others the young birds' activities at the Hack Site via the Internet has become a matter of pride for many. Although the terrain and geographical layout of the area is very different from the Cirque, research of the topic has lead the authors to believe that placement of web cams at the Grandview sites should be possible without being too expensive. We recommend further exploration of this topic with the goal of implementing such a web cam service for the 2010 Hacking season.

Although the New River Gorge hosted a nesting attempt by a pair of adult Peregrines in 2009, future nesting success at the chosen location is uncertain at best. Since the stated goals of the Restoration Project (Varner 2006, Watts 2006) have not been met, translocation and hacking efforts should be continued in the Gorge until the population of Peregrines is self-sustaining.

Figures

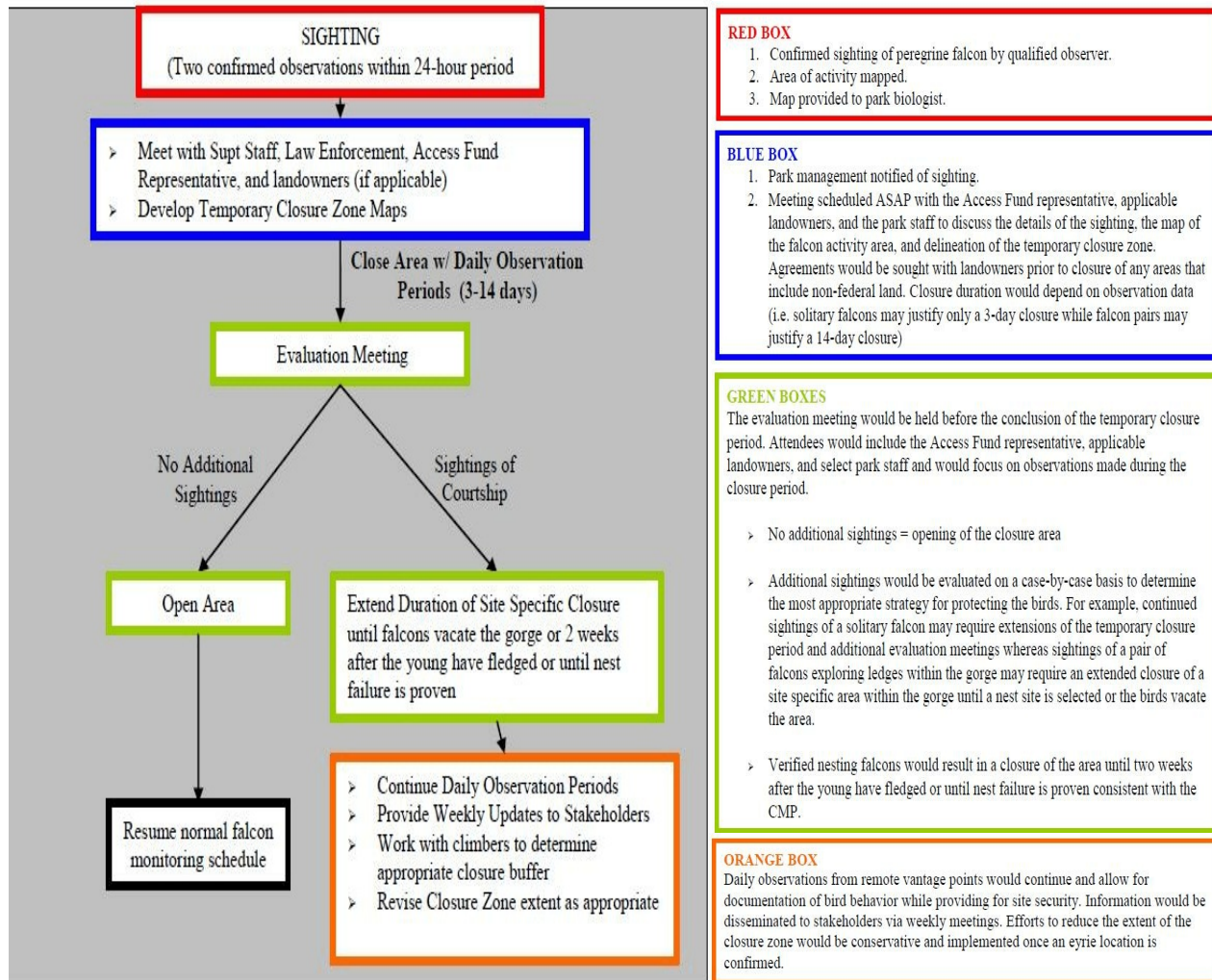


Figure 1. Protocol for implementation of a Peregrine Falcon nesting closure in the New River Gorge National River.

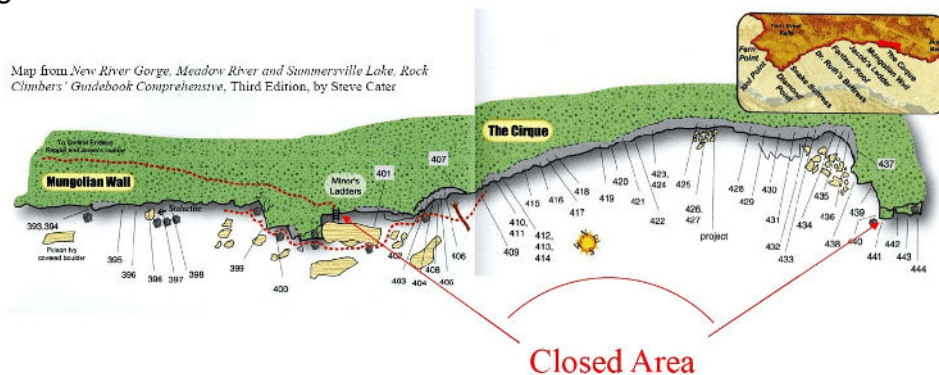


Figure 2. Map showing climbing routes at the Cirque on the Endless Wall at Lansing, WV. The 2009 Peregrine nest was located in the area of route numbers 432 & 433.

Grandview Trails

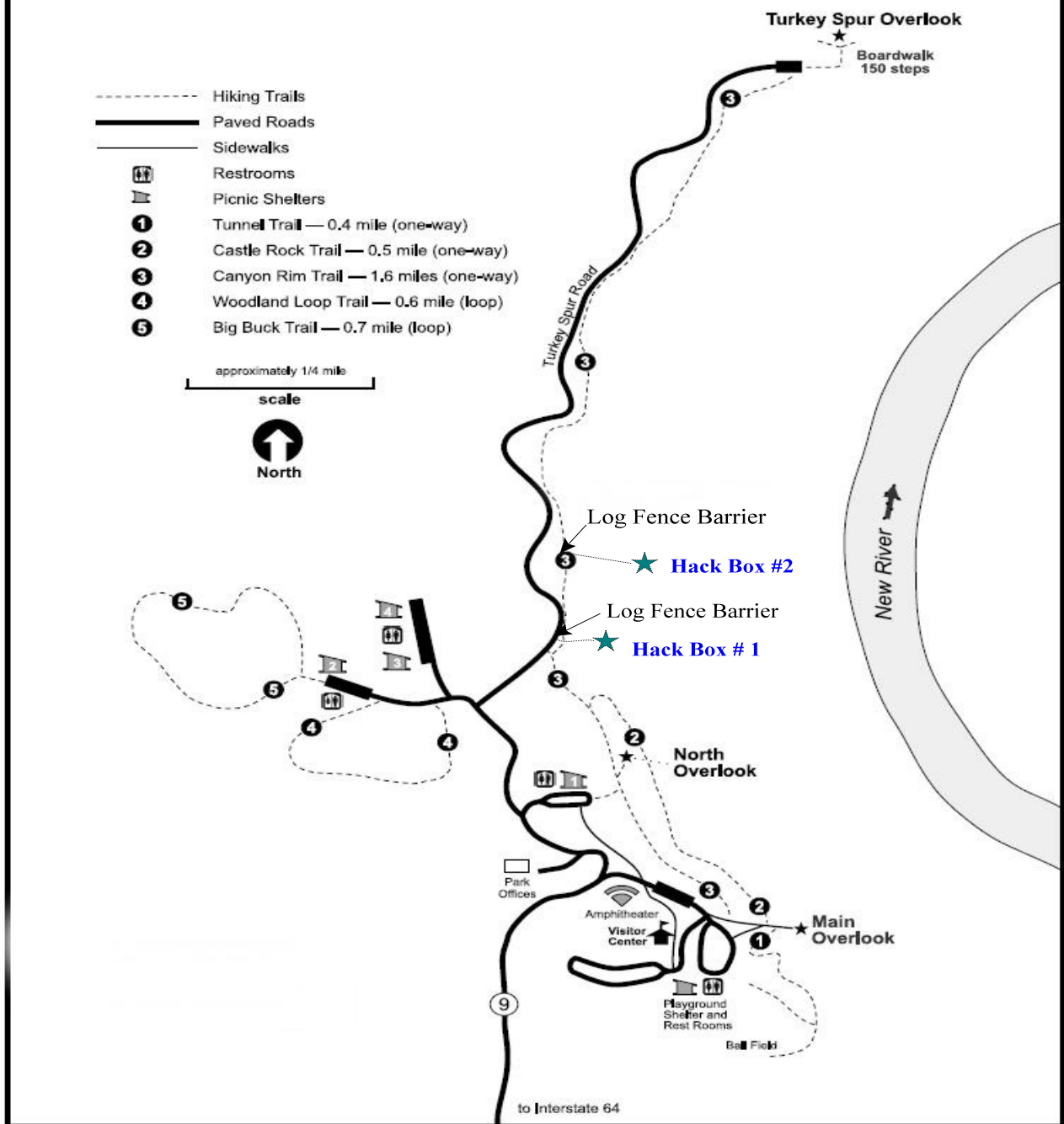


Figure 3. Map of the New River Gorge at Grandview, showing the locations of the Hack Boxes, North Overlook, and connecting trails and roads. Map courtesy of the New River Gorge National River.

<u>State</u>	<u>Sex</u>	<u>Pick Up Date</u>	<u>Release Date</u>	<u>Left Band</u>	<u>Right Band</u>	<u>USFWS Band Number</u>	<u>Source</u>
VA	F	5/17/09	6/2/09	Z/21	Red/Yellow	1807 02786 (green)	James River Bridge
VA	M	5/17/09	6/2/09	X/59	Red/Black	1126 11808 (green)	James River Bridge
VA	F	5/17/09	6/2/09	Z/22	Red/White	1807 02787 (green)	James River Bridge
VA	F	5/21/09	6/2/09	Z/27	Purple/Pink	1807 02792 (green)	Benjamin Harrison Bridge
VA	M	5/21/09	6/2/09	00/AB	Purple/Br. Green	1126 11809 (green)	Benjamin Harrison Bridge
VA	M	5/21/09	6/2/09	01/AB	Purple/Turquoise	1126 11810 (green)	Benjamin Harrison Bridge
VA	M	5/21/09	6/13/09	03/AB	Black/Silver	1126 11812 (green)	James River Reserve Fleet
VA	M	5/21/09	6/13/09	04/AB	Black/Turquoise	1126 11813 (green)	James River Reserve Fleet
VA	F	5/21/09	6/13/09	Z/29	Black/Br. Green	1807 02794 (green)	James River Reserve Fleet
VA	F	5/21/09	6/18/09	Z/30	Black/Pink	1807 02795 (green)	James River Reserve Fleet
VA	M	5/21/09	6/13/09	02/AB	Green/Silver	1126 11811 (green)	Robert O. Norris Bridge
VA	F	5/21/09	6/18/09	Z/28	Green/Pink	1807 02793 (green)	Robert O. Norris Bridge
NJ	M	6/3/09	6/13/09	63/W	Bright Green	2206 75784 (black)	Walt Whitman Bridge
NJ	M	6/3/09	6/13/09	64/W	Yellow	2206 75785 (black)	Walt Whitman Bridge
NJ	M	6/3/09	6/13/09	66/W	Purple	2206 75787 (black)	Betsy Ross Bridge
NJ	M	6/3/09	6/18/09	67/W	Turquoise	2206 75788 (black)	Atlantic City
NJ	F	6/3/09	6/18/09	A/04	Pink	1687 02821 (black)	Atlantic City

Figure 4. Source, sex, and band information of the 2009 Peregrine eyasses.

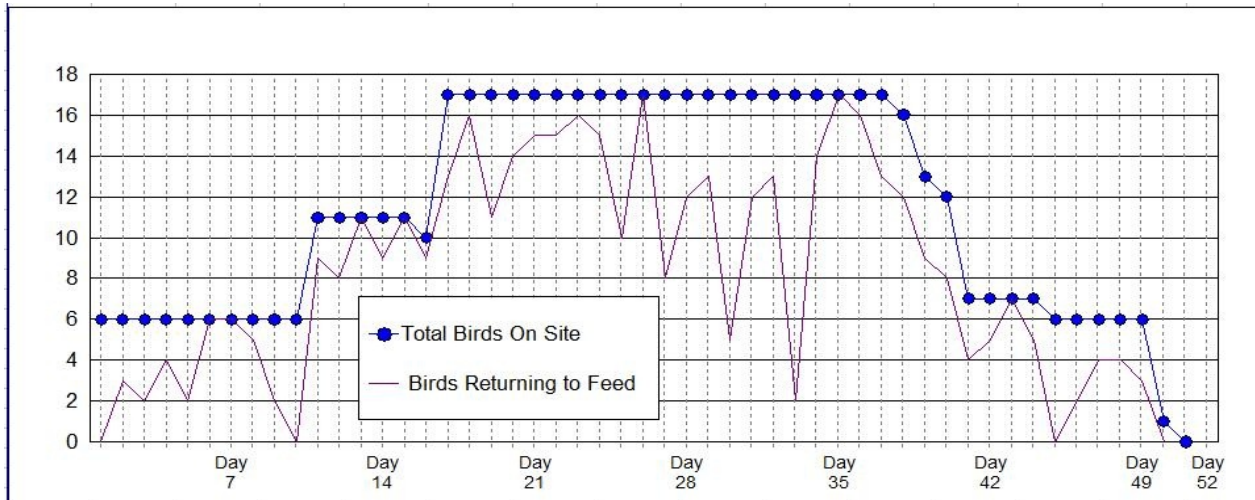


Figure 5. Number of Peregrines at the release site over the course of the entire hacking period and their collective feeding behavior. Between Day 39 and Day 42 (a 4 day period), the number of Peregrines returning to the post-fledge area dropped from 17 to 7. By day 51 all had left.

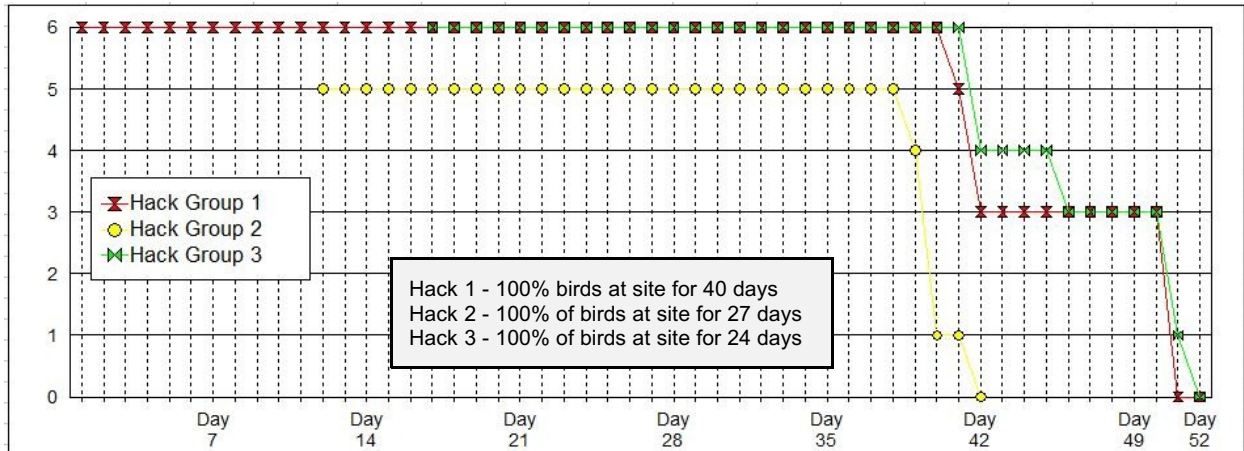


Figure 6. Relative populations of the three hack groups at the site. Regardless of release date for a particular group, all 3 hack groups contributed to the population drop between day 39 and 42.

Appendices

Appendix 1. 2008 Project Addendum - Post Season Releases (2)

In December 2008, 2 Peregrines which had been removed from the 2008 Summer hack project were also released. One of these had been kept at Three Rivers Avian Center for treatment of a severe trichomoniasis infestation of the mouth and throat. This bird healed up and was released in September 2008. The second Peregrine suffered an avulsed hallux talon at the time of acquisition. After healing at Three Rivers Avian Center from the injury, the young bird underwent training with a falconer to give the bird experience in compensating for its disability. This Peregrine was released in December 2008. These two additional releases brought the 2008 Season's total successful releases to 19 of 23 falcons, a revised 83% release rate.

Appendix 2. 2009 Project Volunteers and Partners

We would like to express our appreciation for the volunteer efforts of these individuals. Together they provided everything from potential nest site surveys, monitoring nesting areas, feeding young Peregrines, providing hack site observation data, and so much more. This Season's success was due in large part to their dedication:

Thank you to Dick and Jeanette Esker in Wood County for notes on the falcons on the bridge between Parkersburg, WV and Belpre, OH.

Thank you to Jim Triplett, Doren Burrell, Cynthia Ellis, Pat Barker, and Beverly & Chuck Wright for their work monitoring the Peregrines in the Charleston/Nitro area.

These individuals accumulated over 460 volunteer man-hours monitoring and making behavioral notes on the Peregrines at the nest area at the Cirque:

Terry Carter	Daniel McDowell	Allen Waldron
Tina Carter	Ron McLaughlin	Mindy Waldron
Rodney Davis	Jim Phillips	Beverly Wright
Greg Gregory	Betsy Reeder	Michael Wright
Brian Hirt		

Additional thanks go to Brian Hirt, Gary Hartley, Terry Carter, Kathleen Holloway, and Sherry DuVall for their help during the Hacking section of the Project at Grandview.

We would also like to recognize the additional support from these Project Partners:

New River Gorge National River: Scott Stonum, Mark Graham, Gary Hartley, Frank Sellers, Greg Phillips, Scott Cooper, Jodi French-Burr, NERI Law Enforcement Rangers, Interpretive Rangers, and a big thanks for all their hard work to the NERI-Grandview Maintenance staff.

WV Division of Natural Resources Wildlife Diversity Program: Craig Stihler, Jack Wallace, Jeff Hajenga, Rick Doyle, Patty Fordyce and Donna Mitchell.

The Center for Conservation Biology, the College of William & Mary and Virginia Commonwealth University: Libby Mojica, Shawn Padgett, and Bryan Watts.

Dr. Erica Miller and John Frink of Tri-State Bird Rescue for their help in transporting young Peregrines.

The Virginia Department of Game and Inland Fisheries' Sergio Harding.

The New Jersey Department of Natural Resources' Kathleen E. Clark.

The Pennsylvania Game Commission's F. Arthur McMorris.

Thank you for the long-distance help, Matt Varner, former New River Gorge Wildlife Biologist now living and working in Alaska.

Andrew Woodruff did an outstanding job in his first season as a Hack Site Attendant. Many thanks to him for his hard work and dedication.

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