

Falls Run Gorge NHA

This site is designated around aquatic and terrestrial habitat along Falls Run (also, perhaps erroneously, referred to as Falk Run) from Falls Road to its mouth at Elk Creek. About midway through its length Falls Run cascades over a large rock outcropping forming a waterfall approximately 33 feet (10 meters) wide and 40 feet (12 meters) high. Downstream of the waterfall, Falls Run cuts a deep ravine cascading over a series of smaller waterfalls.

The ravine is very rich in Devonian era fossils including those fish and many species of mollusks (Yeager 1996).



Christopher Tracey, PNHP

Howard Falls, the largest waterfall in Erie County, marks the beginning of the gorge that runs through Falls Run.

Species or natural communities of concern that can be found in this NHA include the following:

Species or Natural Community Name	PNHP Rank ¹		PA Legal	Last Seen	Quality ²	
	Global	State	Status ¹			
West Virginia white (<i>Pieris virginiensis</i>)		G3?	S2S3	N	2011-05-07	E
Large toothwort (<i>Cardamine maxima</i>)		G5	S2	N (PT)	2011-05-07	E
Shumard's oak (<i>Quercus shumardii</i>)		G5	S2	PE	2011-10-22	E
Canada buffalo-berry (<i>Shepherdia canadensis</i>)		G5	S1	PE	1986-06-26	D
Sensitive species of concern A ³		---	---	---	2009-04-29	E

1 = Please refer to the PNHP website (<http://www.naturalheritage.state.pa.us/RankStatusDef.aspx>) for an explanation of PNHP ranks and legal status. A legal status in parentheses is a status change recommended by the Pennsylvania Biological Survey.

2 = Please refer to the NatureServe website (<http://www.natureserve.org/explorer/eorankguide.htm>) for an explanation of quality ranks.

3 = This species is not named by request of the jurisdictional agency responsible for its protection.

Most of the species here are associated with the gorge and riparian habitat along Falls Run. **Large toothwort** (*Cardamine maxima*) and the **declined trillium** (*Trillium flexipes*) can be found along the valley slopes. Also occupying this habitat is the **West Virginia white** (*Pieris virginiensis*), a globally rare butterfly whose caterpillars eat toothworts (*Cardamine* spp.). These butterflies are reliable indicators of undisturbed, high-quality mesic forest.

The full extent of the **Shumard's oak** (*Quercus shumardii*) population is not currently known, but additional surveys should be conducted in the adjacent forests. This site supports an additional **species of concern**, which cannot be named here at the request of the jurisdictional agency overseeing its protection.

Threats and Stresses

A historic stone quarry operated within a portion of this NHA. While this may have historically impacted conditions at the site, little evidence of disturbance from the operation remains today.

Specific threats and stresses to the elements present at this site include the following:

- Limited invasive species were noted during surveys of the site. Small populations of multiflora rose (*Rosa multiflora*) were noted within the gorge, while garlic mustard (*Alliaria petiolata*) was noted in some of the fencerows and other edge habitats.
- Fragmentation of the forest is a serious threat to the West Virginia white, because these butterflies do not cross wide roads or other non-forested areas. The result is that populations are becoming genetically isolated, and if a population is extirpated the chances are low that remaining populations will be able to recolonize the habitat.
- An even greater threat to the West Virginia white is the spread of garlic mustard (*Alliaria petiolata*). This invasive plant is in the same family (the mustard family) as toothworts, and the chemical signatures of the plants are similar enough that female butterflies will readily lay their eggs on garlic mustard. The caterpillars, however, cannot survive on garlic mustard, and these butterflies have disappeared from areas where garlic mustard is dominant.
- High densities of white-tailed deer pose another threat to West Virginia whites, because deer browsing greatly reduces the abundance of many of the wildflowers that are crucial nectar sources for the butterflies. Although their flight period is short, adults rely on several successive waves of spring wildflowers to produce a steady supply of nectar. A reduction in abundance or diversity of spring wildflowers can leave these butterflies without a source of food.
- Pesticide use in forests, such as for control of gypsy moths or hemlock wooly adelgids, is a serious threat to West Virginia whites.
- An abandoned industrial site, a former asphalt paving business, is present just west of the waterfall. While no direct impacts to the stream or water quality were noted in our surveys, this may represent a threat to the aquatic ecosystem health of stream.

Conservation Recommendations

In 1992, the owners of a portion of this site formed Howard Falls Trust in order to conserve and maintain the Howard Falls region, where the Howard family has settled for over 170 years (Howard 2012). Public access to the trust property is by permission only and mechanized vehicle access and hunting are prohibited. The Trust also actively seeks to acquire additional properties within the watershed. Additionally, the *Howard Falls Research and Educational Endowment* has been formed with Edinboro University to promote onsite research and education from multiple departments. The property has been used for several research projects and class trips.

The following steps are recommended to ensure the persistence of these species at this site:

- While, limited invasive species were noted during surveys of the site, an invasive species management plan should be developed and implement for the NHA. Control invasive species of plants. Mechanical (hand pulling, cutting and mowing) and chemical (spot herbicide treatment) management techniques may be necessary to protect the habitat from colonization by aggressive species. Broadcast application of herbicides is not suitable for this delicate habitat. Pesticide use should also be avoided to protect West Virginia whites.
- Reduce the deer density in the area. Uncommon species of native plants are particularly susceptible to deer herbivory.

- Allow the forested habitats to achieve and maintain old growth conditions. Avoid fragmenting the existing forested areas with additional buildings or infrastructure. Avoid logging in this area except as it relates to invasive species removal. The forest cover should be allowed to achieve and maintain old-growth characteristics. Leave fallen trees in place to help provide habitat, soil nutrients, humus and tilth. Trees that have fallen over approved trails can be cut through as necessary.
- The lower portion of the Falls Run valley below Howard Falls is in very good shape and should be maintained in an undisturbed condition. Work with the numerous adjacent landowners to preserve the wooded ravine in its current intact condition. Limit residential encroachment on the forested ravine and degradation of the habitat.
- Expand the forested riparian buffer towards the headwaters of Falls Run. The recharge area of Falls Run is largely unvegetated and under agricultural management and would benefit from additional natural tree cover.
- The threat of the industrial site to the health of the stream health should be evaluated. If the site is truly abandoned, the site could represent a possible restoration project.

Location and Additional Information

Municipalities: *Fairview Township and Franklin Township*

USGS quads: *Edinboro North*

1993 Erie CNHI reference: *Devil's Backbone BDA*

Associated NHAs: *Falls Run – Shenango Creek Headwaters NHA, Elk Creek NHA*

Overlapping Protected Lands: *Howard Falls Trust*

PNHP Significance Rank: *State*

References

Yeager, K.M. 1996. Fossil Fishes (Arthrodira and Acanthodida) from the Upper Devonian Chadakoin Formation of Erie County, Pennsylvania. *The Ohio Journal of Science*. 96: 52-56.

Howard, D. 2012. The Howard Falls Irrevocable Trust. <http://www.howardfalls.com/> Accessed 2012-02-12



Falls Run Gorge Natural Heritage Area

Mesic forests and open bluffs support 5 species of concern.

Significance Rank:
STATE



Pennsylvania Natural Heritage Areas

- Core Habitat
- Supporting Landscape
- Other Core Habitat
- Other Supporting Landscape
- Conservation Lands