

VLR-3/17/99

United States Department of the Interior
National Park Service

DRAFT

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "X" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Glenwood Furnace 81-104

other names/site number Cassandra Furnace

2. Location

street & number Southeast side of Route 759, on Elk Creek
George Washington and Jefferson National Forests

city or town Natural Bridge not for publication
state Virginia vicinity X
code VA county Rockbridge code 163
zip code _____

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this _____ nomination _____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property _____ meets _____ does not meet the National Register Criteria. I recommend that this property be considered significant _____ nationally _____ statewide _____ locally. (_____ See continuation sheet for additional comments.)

Signature of certifying official Date

State or Federal agency and bureau

In my opinion, the property _____ meets _____ does not meet the National Register criteria. (_____ See continuation sheet for additional comments.)

Signature of commenting or other official Date

or Federal agency and bureau State

4. National Park Service Certification

I, hereby certify that this property is:

- entered in the National Register _____
- See continuation sheet. _____
- determined eligible for the National Register _____
- See continuation sheet. _____
- determined not eligible for the National Register _____
- removed from the National Register _____
- other (explain): _____

Signature of Keeper Date of Action

5. Classification

Ownership of Property
(Check as many boxes as apply)

Category of Property
(Check only one box)

- private
- public-local
- public-State
- public-Federal

- building(s)
- district
- site
- structure
- object

Number of Resources within Property
(Do not include previously listed properties in the count)

Contributing	Noncontributing	
<u>3</u>	_____	buildings
<u>3</u>	_____	sites
_____	_____	structures
_____	_____	objects
<u>6</u>	<u>0</u>	Total

Number of contributing resources previously listed in the National Register N/A

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.) The Iron Industry of Virginia, 1620-1920

6. Function or Use

Historic Functions

(Enter categories from instructions)

Industry/Processing/Extraction

Iron Furnace

Current Functions

(Enter categories from instructions)

Recreation and Culture

Interpretive area of George

Washington and Jefferson

National Forests

7. Description

Architectural Classification

(Enter categories from instructions)

No Style

Materials

(Enter categories from instructions)

foundation: stone

walls: stone

roof: N/A

other: N/A

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

- A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B Property is associated with the lives of persons significant in our past.
- C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

- A owned by a religious institution or used for religious purposes.
- B removed from its original location.
- C a birthplace or a grave.
- D a cemetery.
- E a reconstructed building, object, or structure.
- F a commemorative property.
- G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)

Period of Significance

Architecture

1849-1859

Industry

1860-1865

1874-1887

Significant Dates

1849

1860

1874

Significant Person
(Complete if Criterion B is marked above)

Cultural Affiliation

Architect/Builder

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)

preliminary determination of individual listing (36 CFR 67) has been requested.

previously listed in the National Register
 previously determined eligible by the National Register
 designated a National Historic Landmark

recorded by Historic American Buildings Survey # 81-104
 recorded by Historic American Engineering Record # _____

Primary Location of Additional Data

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository: _____

10. Geographical Data

Acreage of Property 6

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing	Zone	Easting	Northing
A	<u>17</u>	<u>631825</u>	<u>4161825</u>	D	_____	_____
B	_____	_____	_____	F	_____	_____
C	_____	_____	_____	F	_____	_____
	<u>See continuation sheet.</u>					

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Heather Crowl; Steven H. Moffson, Architectural Historian
organization Dames & Moore, Cultural Resource Services
date 9-26-96
street & number 7101 Wisconsin Avenue, Suite 700 telephone (301) 652-2215
city or town Bethesda state MD zip code 20814

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage
or numerous resources.

Photographs

Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items)

Property Owner *(Complete this item at the request of the SHPO or FPO.)*

name George Washington and Jefferson National Forests, USDA Forest Service
C/O Mike Barber
street & number 5162 Valley Pointe Parkway telephone (540) 265-5100
city or town Roanoke state VA zip code 24019-3050

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Glenwood Furnace
name of property

Rockbridge, Virginia
county and State

Description of Historic Resources

Glenwood Furnace is situated on the southeast side of Route 759, on Elk Creek. The furnace is located within the George Washington and Jefferson National Forests, in an area of young deciduous forest.

Original

The iron furnace complex at Glenwood included the iron furnace and its support facilities, as well as facilities necessary to support the workers and animals who operated the furnace. Iron ore mines were located in the close vicinity. The original cold-blast charcoal stack was 38' high, and 9' across the bosh. The furnace was constructed of dry-laid limestone and sandstone, with a brick chimney. The inner chamber, which contained the fire, was covered with fired clay to protect the outer walls. The furnace was originally connected to the ridge to the south by a charging bridge over which iron ore, limestone flux, and charcoal were wheeled and dumped into the central, brick-lined cavity. A casting house where molten iron was formed into pigs and sows by the sand molding process was located west of the furnace. The tub bellows were powered by a waterwheel set close to the stack. A race ran from Elk Creek to the waterwheel. The furnace was rebuilt and reconditioned in 1874 as a warm blast furnace; the dimensions of the stack were reduced to 33' x 8 1/2'.

Present

Glenwood Furnace remains in good condition. The square, trapezoidal stone furnace is roughly 8 1/2' wide at the bosh, and 33' tall. The structural furnace stones are square with sharp edges, and fully intact. The single tuyere arch on the north side is square, with a stepped back ceiling held by iron support lintels. The single tap arch on the west side is a similar square arch with an iron-supported, stepped-back ceiling. The stack is fairly intact and clear. A large area of vitrified firebrick clearly delineates the shape of the bosh and hearth. Areas of collapsed bricks are located around the tuyere hole, tap arch, and two other areas around the hearth. The insulating material that surrounded the stack is gone.

A ramp or scaffolding originally connected the charging deck of the furnace to the ridge at its south. A three foot high, built-up stone structure is located on the first terrace south of the furnace (about 20 feet above the furnace floor). It increases in altitude as it travels northwest toward the charging deck. However it is collapsed about 100 feet from the furnace and no clear terminus can be located. A five foot, earth covered stone ramp leads to the rear of the furnace (east side). Walls of a casting shed in front of the tap arch extend for roughly 40', almost to the road.

North of the tuyere hole a raceway extends 50' (approximately 1/10 of a mile) to the forest boundary. The head race from Elk Creek to the furnace has been filled in and no indication of its path is apparent. There also is no indication of the location of the wheel pit or blast equipment. Three ore pits are visible further southeast of the furnace.

Ore samples and dirt piles litter the floor. Although a "furnace bank" was mined at the furnace, the dates the present pits were excavated is unclear.

A roadway leads northwest down from the top of the ridge to the ore pits. It is littered with charcoal, as is the slope below the road. It may have led from storage areas on top of the ridge to the charging area. The USDA Forest Service erected an interpretive marker at the site that summarizes the history of Glenwood Furnace.

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History

Glenwood Furnace was built in 1849 for Judge Francis T. Anderson and Botetourt County lawyer David Shanks. This cold-blast charcoal furnace used wooden tub-bellows and water power to produce the blast necessary for iron extraction. The furnace was constructed of limestone quarried near Natural Bridge Station, ferried across the James River, and hauled on wagons to the site. The surrounding hills were mined for iron ore; they produced "iron of great strength and solidity" that was often sold for use as car wheels (Campbell 1910). Ore was mined from Furnace Bank, Mountain Bank, Pipe-ore Bank, and the Greenlee Bank. The Furnace Bank mine was probably located close to the furnace. Charcoal was produced on the mountain sides where timber was abundant. Approximately 5,000 acres were logged to supply coal to this furnace. Early on, extracted iron was hauled over roads to the James River and shipped on barges down the river to Richmond. The furnace utilized the James River and Kanawha Canal as soon as it opened.

Like many of its contemporaries, Glenwood supplied the Tredegar foundry in Richmond with iron throughout the Civil War. In 1861 Glenwood was one of the Virginia Furnaces to have a contract with Tredegar. Anderson of Tredegar paid a premium price for iron produced by his brothers, including Francis Anderson who owned Glenwood. In 1859 and 1860 Anderson of Tredegar paid \$30 a ton for car wheel iron from Glenwood Furnace, and in 1862 the price was \$45 a ton. The strong iron from Glenwood Furnace was also used for Confederate cannons. In 1863 Tredegar leased Glenwood Furnace. The furnace went out of blast in 1865 due to economic constraints following the war. Glenwood was not in the path of the Union Army and was never burned.

Between 1873 and 1879 the furnace was leased to the New Jersey Iron Company. It was rebuilt and reconditioned in 1874 as a warm blast furnace. In the late 1880s Francis Anderson's grandson sold the estate to the U.S. Government. The furnace was abandoned in 1887.

Significance and Integrity

Glenwood iron furnace is representative of the continuing importance of the iron industry in the Valley of Virginia during the mid to late nineteenth century. The furnace reflects the trends in furnace construction in Virginia during this time period. It was built in 1849 in the plan common to the early nineteenth century, reflecting the tendency in Virginia of iron works to be slow in adopting new technology in iron extraction. The furnace was later altered to fit with more modern furnace construction and extraction techniques.

Glenwood Furnace was an important part of the iron industry of Virginia. Its activities altered the local landscape through deforestation for charcoal production, and brought money and people into the area of the Virginia valley. The furnace gained national importance as a key producer of iron for the Confederacy during the Civil War.

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The potential for archeological investigation is significant at Glenwood Furnace. Research could provide information about workers' living conditions, ethnicity, and economic background. Transportation of raw materials and finished products could be investigated as well as the relations between the rural furnace and the urban manufacturer, Tredegar Iron Works. The furnace and surrounding features would yield information on iron extraction technology, innovation, and change through time.

Glenwood Furnace has been owned by the Federal government since 1880 and retains a high degree of integrity. The area contains intact information that could contribute to an understanding of the Virginia iron industry.

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Bibliography

Capron, John D.

1969 *Glenwood Furnace, Rockbridge County*. Personal Files, typescript dated June 1, 1969. Lynchburg College, Virginia.

Dew, Charles B.

1966 *Ironmaker to the Confederacy: Joseph R. Anderson and the Tredegar Iron Works*. Yale University Press, New Haven.

Information on file with the United States Department of Agriculture Forest Service.

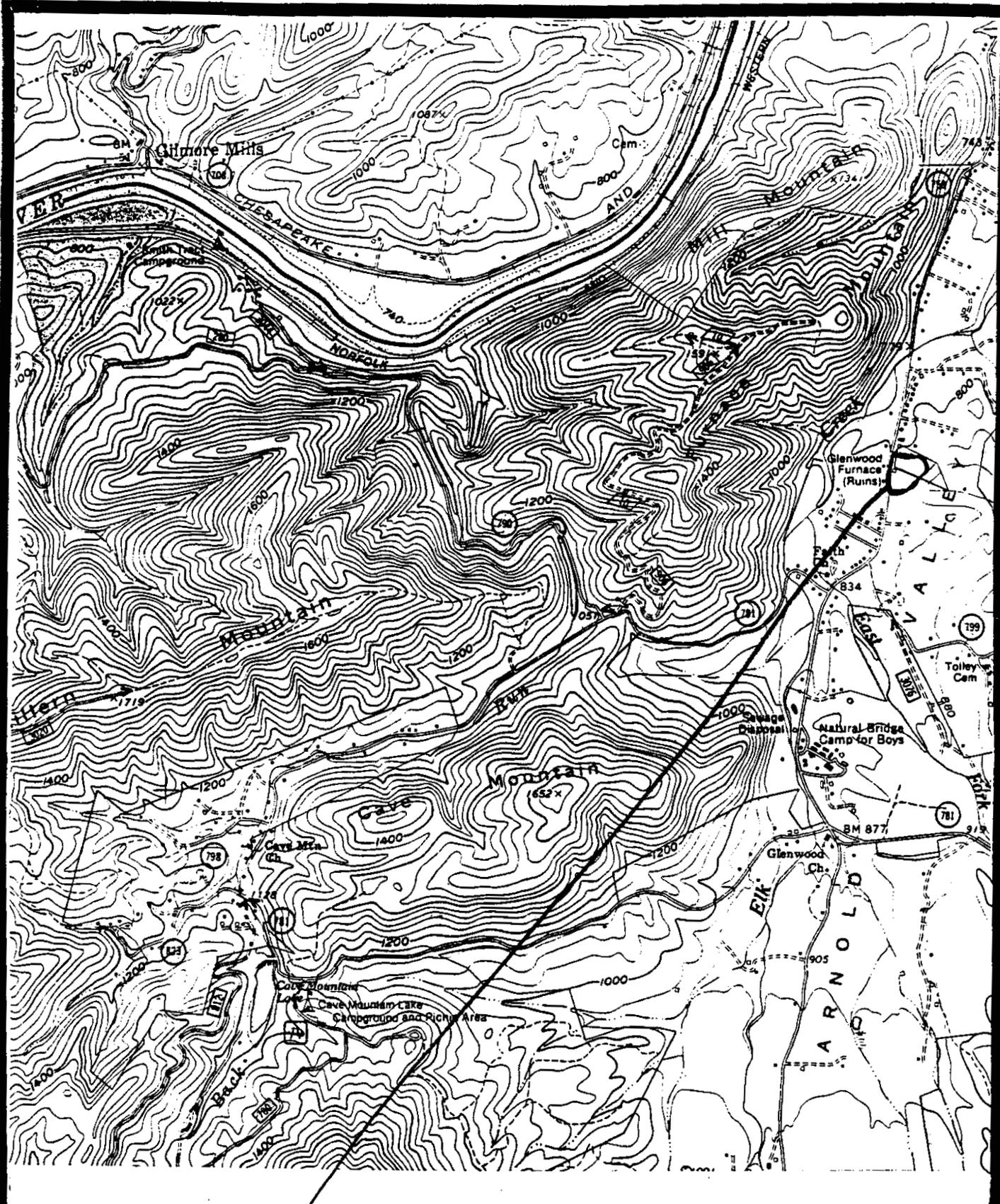
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Boundaries

The boundary extends from Route 759 east beyond the extent of the ore mines to the 840 foot contour line. Modern houses bound the property on the north; the southern boundary extends beyond the extant of the old road and ore cuts. The boundary lines include the furnace, race, iron ore mines, and all other supporting structures and features that retain integrity and are likely to yield information.



GLENWOOD FURNACE Arnold Valley, VA Quadrangle, 1961, Photorevised 1979

Koelsbridge Co. 51-169