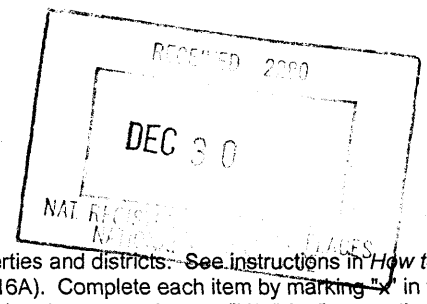
NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

**United States Department of the Interior**
**National Park Service**

# 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 an 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 Agassiz Bedrock Outcrop

other names/site number

## 2. Location

street & number 406 State Street N/A not for publication

city or town Ellsworth N/A vicinity

state Maine code ME county Hancock code 009 zip code 04605

## 3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, 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/Title SHPO Date 12/26/02

Maine Historic Preservation Commission
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 certifying official/Title Date

State or Federal agency and bureau

## 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 the Keeper Date of Action

2/13/03

## 5. Classification

**Ownership of Property**
(Check as many boxes as apply)
- ☒ private
- ☐ public-local
- ☐ public-State
- ☐ public-Federal

**Category of Property**
(Check only one box)
- ☐ building(s)
- ☐ district
- ☒ site
- ☐ structure
- ☐ object

**Number of Resources within Property**
(Do not include previously listed resources in the count.)

| Contributing | Noncontributing | |
|---|---|---|
| | 1 | buildings |
| 1 | | sites |
| | | structures |
| | | objects |
| 1 | 1 | Total |

**Name of related multiple property listing**
(Enter "N/A" if property is not part of a multiple property listing.)

N/A

**Number of contributing resources previously listed in the National Register**

None

## 6. Function or Use

**Historic Functions**
(Enter categories from instructions)

LANDSCAPE / Natural feature

**Current Functions**
(Enter categories from instructions)

LANDSCAPE / Natural feature

## 7. Description

**Architectural Classification**
(Enter categories from instructions)

N/A

**Materials**
(Enter categories from instructions)

foundation N/A

walls N/A

roof N/A

other N/A

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

## DESCRIPTION

### *Contributing Resource*

The rock examined by geologist Louis Agassiz in 1864 consists of a rounded outcrop of Ellsworth Schist that was shaped and molded by the action of moving glacial ice between 25,000 and 13,000 years ago. The exposed sections of the outcrop lay in the southeast and north east corners of the property, which is located on the southwest side of US Route 1A in Ellsworth Falls, Maine. Approximately 50 feet of pavement and a dirt driveway separate the two visible patches, however the outcrop is continuous under the accumulated soil and gravel. The southeast expanse of rock is roughly 20 feet square, and is characterized by a slightly mounded, relatively smooth stone face across which long parallel grooves have been scratched. According to Louis Agassiz's 1864 theory, these grooves, or striations, were carved into the surface of the stone as glaciers migrated across the rock's face during the most recent ice age. The remaining surface of the outcrop has been polished smooth by finer, less abrasive material trapped along the glacier's underside. The striations run roughly northwest to southeast; additional marks run perpendicular to these groove and represent weathering of the rock along its natural layering.

The larger segment of rock is located on the northeast corner of the property. On this side of the outcrop the rock rises gently toward the south for about 30 feet, and sweeps westward for 50 feet in several incrementally rising terraces. The weathering of the rock is more pronounced on this segment of the outcrop, however because of the slope, the glacier encountered slightly more resistance than it did on the smaller parcel and the groves dug by the persistent ice mass are deeper and more pronounced. It is possible to trace the path of a single piece of embedded rock as it moved from northeast to southwest, and climbed the outcropped terraces, and then, by extending the trajectory of its travel across the parking lot, locate the complimentary striation on the southern outcrop.

### *Non-contributing resource:*

A contemporary building and parking lot are located between and to the west of the two bedrock outcrop segments, but are not historically related to the outcrop or Dr. Agassiz's research at the site.

## 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.)

Property is:

- ☐ **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)

SCIENCE

**Period of Significance**

1864

**Significant Dates**

1864

**Significant Person**
(Complete if Criterion B is marked above)

Louis Agassiz, 1807 - 1873

**Cultural Affiliation**

N/A

**Architect/Builder**

N/A

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

## 9. Major Bibliographical References

**Bibliography**
(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 # _____
- ☐ 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:

University of Maine, Institute for Quaternary and Climate Studies, Orono, Maine

## STATEMENT OF SIGNIFICANCE

The Agassiz Bedrock Outcrop is a rounded, polished and exposed *roches moutonnee* located just east of Ellsworth falls on Route 1A (State Street) in Ellsworth, Maine. The outcrop exhibits pronounced striae (grooves) that were molded by glacial ice moving across the face of the rock from northwest to southeast. This rock is described by Professor Louis Agassiz of Harvard University in his 1867 ground breaking work "Glacial Phenomena in Maine" as demonstrating the presence of glaciers over the entire state of Maine during the Pleistocene era. As one of the physical inspirations for Agassiz's revolutionary theory, this bedrock outcrop symbolizes the fulfillment of modern geology and is a major landmark in natural science, geological thinking and is a monument to modern scientific thought. It is nominated to the National Register of Historic Places under Criterion A, in recognition of its importance to the advancement of the Geologic Sciences at a national level, and under Criterion B, for its association with Professor Louis Agassiz, one of the most influential American geologists and paleontologists of the 19th century.

### Background

Throughout the period from 1838 to 1875, geologists and natural historians discussed and debated the origins of glacial markings on rock outcroppings in northern New England. Many persons believed that these phenomena were the result of Noah's flood in which giant icebergs marked the land as they drifted in the great currents of the flood. Well known observers of Maine's natural history including State Geologists C.T. Jackson and C.H. Hitchcock, Ezekiel Holmes and Samuel Broadman, and Sir Charles Lyell, one of the foremost English geologists of the 19th century, also observed and pondered this subject. Beginning in 1859 a physician, John DeLaski of Rockland, Maine, began to hypothesize that these modifications of the Maine landscape were impossible to achieve by drifting icebergs, but rather they were caused by the grinding at the base of a great ice sheet which covered all of Maine.

DeLaski worked very slowly and critically, mostly around Penobscot Bay, and published his hypotheses in obscure locations with the final results of his study providing a short article in February 1864. That autumn Professor Louis Agassiz of Harvard College, the greatest naturalist of his day and father of the Ice Age concept, visited Maine on vacation when he observed similar evidence to that reported by DeLaski. Agassiz published his detailed findings in The Atlantic Monthly in 1867, and in a book several years later. DeLaski also wrote a book on his discoveries which still lies in manuscript.

The site is an extensive, glacially-molded and striated, asymmetrical bedrock outcrop called a roche moutonnee. Glacial abrasion and the resulting striations and grooves on its surface record glacier flow from the northwest to the southeast. Here Agassiz first put the pieces of his glacial origins puzzle together leading him to conclude and publish for the first time that North America, like Europe, had experienced glaciation of continental proportions. This marked the change in paradigm that our landscape was modified, not as the result of abrasion by icebergs drifting in Noah's flood, but by glaciation.

**Dr. Louis Agassiz, (1807 - 1873).**

Agassiz is often remembered as "one of the great paleontologists in the American history of earth sciences. In addition to his work on glaciation, Agassiz conducted extensive research on fossils and published his findings in his book *Recherches sur les Poissons Fossiles.* " (NHL theme study, p. 34). His training alone places him in the company of some of the greatest scientific minds of the 19th century.

"Dr. Jean Louis Rodolphe Agassiz (1807 - 1873) was a remarkable historical figure. Born in Switzerland, he was trained in Munich, Germany and received doctorates in philosophy and medicine. His mother was an amateur naturalist who fostered a similar interest in her son. By the age of 22 , Agassiz had become a world renowned expert on prehistoric fishes. In 1832, he moved to Paris, France, a major center of learning, where he was mentored by Baron Alexander von Humboldt and Baron Georges Cuvier, the two most eminent natural historians of the time."

"After completing his studies with Cuvier, Agassiz returned to his home in Neuchatel, Switzerland, as a Professor of Natural History in the University there. In 1836, Agassiz published his first study on glaciers, noting that historical views depicted the Aar glacier to be at different location in relation to the Hotel des Neuchatelois. Agassiz went on to develop new theories about glacier origins, the character of the glacial ice, and the physics of glacial movements. This historic paper can be considered as the first holistic view of an Ice Age....." (Smith and Borns, p. 166,167)

**The Bedrock Outcrop at Ellsworth Falls**

Agassiz's theory of glaciation did not spring wholly formed from his visit to Ellsworth Falls; indeed he had been actively engaged in the scientific observation of glaciers in Switzerland during his youth as well as in Nova Scotia and Scotland. Commencing in 1863 Agassiz's preliminary theories were articulated in a series of articles in *The Atlantic* in which he questioned the predominant belief that icebergs had been responsible for the striae found on bedrock outcrops. In 1864 the scientist traveled to Maine to continue his research:

"I will not recapitulate the substance of my last article on this subject, 'The Ice-Period in America.' It gave a general summary of the glacial phenomena on this continent, as compared with those of Europe, stating at the same time my reasons for believing that immense masses of ice would move over an open plain nearly as rapidly as in a slanting valley, and from the same causes as those which determine the advance of the Swiss glaciers down the Alpine valleys. This article appeared in June, 1864. I had intended to follow it with one upon the appearances of the drift in this country; and in September I went to Maine in order to examine the drift phenomena on the islands and coast of that State and compare them with those of the Massachusetts shore." (Agassiz, 1867, p. 212).

During this trip he also traveled north to the Mt. Katahdin area as well as between Bangor and Ellsworth, studying the shape and orientation of Maine's horsebacks and ground moraines. Agassiz described this trip in two subsequent articles in *The Atlantic* in 1867. Among the range of sites that Agassiz describes as presenting scientific proof that large glaciers had covered Maine, were the polished and sculpted bedrock outcrops at Ellsworth Falls that exhibited very clear north-south striae.

> "Between Bangor and Mount Desert the usual evidence of glaciation is very extensive. I would mention as particularly interesting the hills south of Holden and the hills about Dedham. On the route along Union Bay there are also extensive polished surfaces, especially in the vicinity of Bucksport. Near Ellsworth they are beautifully preserved, and all the eminences are montonnees. At Ellsworth Falls, on both sides of the bridge, there are splendid polished surfaces, with scratches and furrows pointing due north. Between Ellsworth and Trenton, and westward of that meridian, in the direction of Bucksport, there are several longitudinal moraines parallel to one another, running from north to south, composed of large, angular boulders, resting upon ground moraines made up of rounded, scratched pebbles and sand mixed with clay. Such a superposition is utterly incompatible with the idea of currents passing over these tracks. Two miles west of Ellsworth a similar longitudinal moraine runs over the tope of the hill, and about one mile farther west there is another, chiefly composed of the coarse Dedham granite. ..." (Agassiz, 1867, p. 285.)

Although the Agassiz bedrock outcrop in Ellsworth Falls was but one piece of evidence that helped Agassiz coalesce his theory, its location is recognized, and the glaciated rock remains visible and accessible.

Ellsworth Falls was a small village within the Town of Ellsworth, located 2 miles north of the town center, on the east side of the Union River. Although part of the town of Ellsworth, the community at the Falls included manufacturing, commerce and civic groups, and although only two miles separated the two settlements, the scarcity of houses between the villages encouraged a sense of independent identity. An 1881 map of the Falls indicates that a school was located on the back of the lot that contained the outcrop, which was located right next to the road. Whether Agassiz saw the outcrop from his carriage, or had occasion to stop in Ellsworth Falls is not known, however the geologist described how difficult it was to locate appropriate specimens:

> One word of explanation, that this assertion of their omnipresence may not seem overdrawn to those who follow me over the same ground, expecting, perhaps, to find the glacial writing at every step along the roadside, and to see the polished surfaces as shining and slippery as a metallic plate or a marble slab. In the first place, all kinds of rock do not admit the same degree of polish. Coarse and friable sandstone cannot be polished underany circumstances. Only the fine granitic rocks retain the striae and the polished surfaces very distinctly, in this region; and even upon these they are frequently hidden by the accumulation of soil, or occasionally obliterated by decay, where the rock is not hard enough to resist the atmospheric influences. The loose materials themselves, which have served as emery to grind down, polish, and groove the surface of the soil may eventually

become a screen to cover it from observation. The skill of the geologist consists in tracing these marks from spot to spot over surfaces where they were once continuous. (Agassiz, 1867, p. 216.)

Agassiz's influence within the geologic and scientific community did not stop at the classroom or in his publications. In 1846 he helped establish the Smithsonian Institution, and the next year was a founding member of the American Association for the Advancement of Science, serving as president from 1851-2. While at Harvard he was appointed as the first professor of Natural History in 1848 and established the Museum of Zoological Research (now called the Museum of Comparative Zoology) in 1859. In 1863 he helped found the National Academy of Sciences.

## BIBLIOGRAPHY

Agassiz, Louis. "Glacial phenomena in Maine" in *The Atlantic*, Jan, March 1867 (vol. xix, No. 1) pps 211-220; 281 - 287.

Davis, Albert H. History of Ellsworth, Maine. (Lewiston, Maine: Lewiston Journal Printshop), 1927.

Smith, David C. and Harold W. Borns Jr. "Louis Agassiz, the Great Deluge, and Early Maine Geology," in *Northeastern Naturalist,* (vol. 7, No. 2, 2000), 157-177.

## 10. Geographical Data

**Acreage of Property** 1.22 acres

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

| | Zone | Easting | Northing |
|---|---|---|---|
| 1 | 19 | 544593 | 4934119 |
| 2 | 19 | | |
| 3 | 19 | | |
| 4 | 19 | | |

☐ See continuation sheet

**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 CHRISTI A. MITCHELL, ARCHITECTURAL HISTORIAN; DR. HAROLD W. BORNS, JR. Ph.D., AND DR. DAVID C. SMITH, Ph.D.

organization MAINE HISTORIC PRESERVATION COMMISSION date 17 October 2002

street & number 55 CAPITOL STREET, STATION 65 telephone (207) 287-2132

city or town AUGUSTA state ME zip code 04333 -0065

## 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 SHPO or FPO.)*

name _____

street & number _____ telephone _____

city or town _____ state _____ zip code _____

## VERBAL BOUNDARY DESCRIPTION

The exposed sections of the bedrock outcrops are located on the northeast and northwest corners of City of Ellsworth tax map 142, lot 20. Approximate boundaries are delineated on Sketch Map 1, attached.

## BOUNDARY JUSTIFICATION

The nominated landscape feature is a bedrock outcrop located and visible on the above cited property in two separate positions. Additional segments of the outcrop are covered by gravel, pavement, grass and dirt on the property, and while they are part of the same feature, these buried segments of the rock are not within the boundary of the nomination.

**United States Department of the Interior**
National Park Service

# National Register of Historic Places Continuation Sheet

AGASSIZ BEDROCK OUTCROP HANCOCK CO., MAINE
**Section number ____ Page ____**

## PHOTOGRAPHS

Photograph 1 of 3
Christi A. Mitchell
Maine Historic Preservation Commission
August 21, 2002
Southeast bedrock outcrop, facing south.

Photograph 2 of 3
Christi A. Mitchell
Maine Historic Preservation Commission
August 21, 2002
Northeast bedrock outcrop, facing south.

Photograph 3 of 3
Christi A. Mitchell
Maine Historic Preservation Commission
August 21, 2002
Southeast bedrock outcrop; detail of striations, facing east.

# AGASSIZ BEDROCK OUTCROP
# HANCOCK CO., MAINE

MAP 142, LOT 20