

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 National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. 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.

**1. Name of Property**Historic name: Yellowstone Bighorn Research Association CampOther names/site number: Princeton CampName of related multiple property listing:  
N/A

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

**2. Location**Street & number: 118 Howell Gulch RoadCity or town: Red Lodge State: MT County: CarbonNot For Publication: ☐ Vicinity: ☒**3. State/Federal Agency Certification**

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this X 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 X meets     does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

X national X statewide X local

Applicable National Register Criteria:

X A     B X C     D

MT State Historic Preservation Officer

Signature of certifying official/Title:

Date

State or Federal agency/bureau or Tribal Government

In my opinion, the property     meets     does not meet the National Register criteria.

Signature of commenting official:

Date

Title :

State or Federal agency/bureau  
or Tribal Government

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

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#### 4. National Park Service Certification

I hereby certify that this property is:

- ☐ entered in the National Register  
☐ determined eligible for the National Register  
☐ determined not eligible for the National Register  
☐ removed from the National Register  
☐ other (explain:) \_\_\_\_\_

\_\_\_\_\_  
Signature of the Keeper

\_\_\_\_\_  
Date of Action

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#### 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 ☐

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

**Number of Resources within Property**

(Do not include previously listed resources in the count)

Contributing	Noncontributing	
<u>26</u>	<u>9</u>	buildings
<u>          </u>	<u>          </u>	sites
<u>2</u>	<u>3</u>	structures
<u>          </u>	<u>2</u>	objects
<u>28</u>	<u>14</u>	Total

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

**6. Function or Use**

**Historic Functions**

(Enter categories from instructions.)

EDUCATION: research facility

DOMESTIC: institutional housing

**Current Functions**

(Enter categories from instructions.)

EDUCATION: research facility

DOMESTIC: institutional housing

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

## 7. Description

### Architectural Classification

(Enter categories from instructions.)

OTHER: Rustic

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**Materials:** (enter categories from instructions.)

Principal exterior materials of the property: \_\_\_\_\_

WOOD, log, weatherboard; STONE: METAL, tin

### Narrative Description

(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with a **summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

#### Summary Paragraph

The Yellowstone-Bighorn Research Association (YBRA) Camp is situated in a transition zone between timber and open grassland on the northern slope of Mount Maurice in Carbon County, Montana. Mount Maurice is part of the Beartooth Uplift, now known as the Beartooth Mountains, formed during the Laramide Orogeny approximately 70-75 million years ago.<sup>1</sup>

YBRA is a not-for-profit research and teaching organization, chartered in the State of Montana, that has provided primarily geological field courses at its Montana field camp since its inception in 1936. The YBRA Camp is located on 120 acres approximately four miles southwest of Red Lodge in south-central Montana in Section 21, Township 8S Range 21E. It sits high on the mountainside above the Rock Creek Valley whose waters flow out of the Beartooth Mountains from the west and south. The setting is undisturbed since the camp's original period of

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<sup>1</sup> The granites and other rock material forming Mt Maurice were pushed up from deep within the earth and during this time compressional forces were also sculpting the Rocky Mountains into a repeated vertically uplifted system, of which the Beartooth Uplift is a part. Denece Lord, email correspondence with Joan L. Brownell, August 10, 2022.



Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

construction in 1936, with no visual intrusions to the immediate surrounding landscape.<sup>2</sup> The views from the lodge porch are awe-inspiring.

The Yellowstone-Bighorn Research Association Camp built environment consists of 42 resources representing primarily a concentration of historic and contemporary log and stone, log, and wood frame buildings scattered across 10.5 acres on the mountain slope. The historic resources constructed by 1936 include three log and stone buildings: a lodge, a wash house, and a cabin; 15 wood frame cabins clad with log slabs; a concrete cooler, and the historic circulation pattern. All of the early buildings exhibit the vernacular rustic style as visualized and constructed by Roy Wadsworth of Bear Creek, Montana, who served as camp caretaker for nearly 30 years. Between 1955 and 1972, YBRA built eight additional buildings, including five log cabins, one log wash house, a concrete block library, and a wood frame study hall.

Noncontributing resources consist of seven modest log cabins, a second study hall and miscellaneous utilitarian outbuildings and structures. The design and placement of the more contemporary cabins illustrates the conscientious effort made by YBRA to retain the historic appearance and character of the camp.

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### **Narrative Description**

After crossing a single-span bridge across Rock Creek from Highway 212 (the Beartooth Highway), approximately three miles south of Red Lodge, Montana, the YBRA Camp is reached by a rough, winding, steep gravel road of approximately one and one-eighth mile. The road approaches the camp from the west/southwest and passes a few isolated camp cabins in scattered timber before entering the wide open parking area in front (south) of the lodge, called Fanshawe Lodge. From Fanshawe Lodge, cabins and other buildings stand to the northeast, east, southeast, south, and southwest across an open grassy mountainside with scattered timber, aspen groves and shrub vegetation. Open grasslands define the YBRA Camp historic district to the west and southwest, timbered slopes to the south, a small open grassy area (known as "The Point") to the east with timber slopes beyond, and open grasslands down the mountainside to the north.

The historic lodge, wash house and numerous cabins have been continually used since the camp opened in 1936 (with the exception of a few years during the second world war). The camp historic district is composed of 42 contributing and noncontributing resources.

### **Fanshawe Lodge (one contributing building)**

The primary building at the YBRA Camp, Fanshawe Lodge was the first building completed at the YBRA Camp; historic photographs show Roy Wadsworth and crew working on the building during the 1935-1936 winter months. The lodge is a log and stone, one-story, rectangular, gabled roof building that sits on the north-facing hillside of Mount Maurice. In 1988, the YBRA Council voted to rename the lodge "Fanshawe Lodge." John "Jack" R. Fanshawe II began his

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<sup>2</sup> YBRA initiated fire suppression measures in the early 2000s resulting in thinning trees and clearing brush. The 2021 Robinson Draw Fire (which burned to within 600 feet of northeast corner of camp) necessitated further thinning and a fire line.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

geological research in 1931 with the Red Lodge Project. He served as a member of the YBRA Council for 36 terms, beginning in 1944 and continuously since 1967.<sup>3</sup>

The lodge sits on a random coursed dried-laid rubble stone foundation with intermittent concrete between stones. A historic construction photograph that shows a pile of stones of varying sizes at the building site suggests many of these became part of the foundation. The foundation adjusts to the slope on the west and east end walls and stands highest at the north wall (approximately 7').

The lodge exterior walls consist of a lower stone level supporting an upper level of horizontal unpeeled round logs. Logs of varying sizes join at the corners by saddle notching and display nearly flush sawn ends. Concrete daubing fills the interstices only in those locations where reinforcement is needed. Original windows are multi-light (9-sash), side hinged units that swing inward.

A ridgepole and purlins support the moderate gable roof structure with 2" x 6" rafters. The roof also exhibits green ribbed metal roofing, wide overhangs (approximately 2'), exposed ridgepole and purlins at the gable ends, wide vergeboards and exposed rafters.

The original lodge dimensions are 64'9" by 29'3". Later additions include a 1986 log gabled roof addition off the east end wall measuring 24' by 17' and a 2017 shed roof log addition that projects off the 1986 addition. The additions on the east end of the lodge do not diminish the historic appearance of the main lodge.

#### South wall (façade)

To enter the lodge, the visitor walks down six wide gravel steps formed by embedded logs in the ground and crosses a drainage ditch using a small wood plank platform. The façade, therefore, appears low to the ground and is dominated by two massive exterior stone chimneys that project high above the eaves. The front entry sits directly east of the westernmost chimney. The entry holds a brown metal door with upper glass insert and an accompanying screen door.<sup>4</sup>

Three original multi-light windows cross the façade wall: one placed west (left) of the west chimney and one to each side of the east chimney. A two-sash sliding replacement window (installed in 1981) fits into the original frame opening for the kitchen window.

#### West wall

The high stone foundation reveals the adjustment required for the sloping hillside. No distinction exists between the stone foundation and the log exterior west wall. The west log wall is symmetrical with two openings displaying multi-light windows. The logs extend into the gable ends where the ridgepole and purlins are exposed.

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<sup>3</sup> "John R. Fanshawe II," *YBRA Uplift*, Issue 1 (Spring, 1995), accessed August 1, 2022, <http://www.ybra.org/>

<sup>4</sup> Historic photographs show originally a window, not a door, filled this space. The steps to the porch possibly served as the original entrance but for ease of access, they installed a door here.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

### North wall

The dramatic view from the Fanshawe Lodge porch is awe-inspiring and allows an understanding of why this location was chosen for the geologic field school and the desire to linger on the porch. From the porch, one can view the Rock Creek Valley, the town of Red Lodge, the Palisades, and the Beartooth Mountain front.

The high stone foundation of the north wall transitions to the lodge's stone wall approximately 3' above the deck floor where logs finish the exterior wall. Two original wood doors sit at opposite ends of the wall and provide interior access: one into the dining room and one into the sitting room. Both doors (grooved with V-joints) display a group of four small square lights set high on the door and brass hardware with a keyed Yale lock. Openings across the wall include two multi-pane windows between the two doors and a large two-sash sliding replacement kitchen window at the east end of the wall directly opposite the same configuration of the south wall.

The shed roof porch extends the length of the west wall and is supported by six concrete block piers.<sup>5</sup> Full-length log sills and vertical log posts support the deck with tongue-and-groove boards as the porch floor. The shed roof exhibits log rafters and metal roofing. Log railings span between the vertical log roof supports. Due to extensive deterioration, Jack Owen of Red Lodge rebuilt the porch deck and deck supports in 2006. They preserved the porch roof, vertical porch log supports, log rafters and log railings.<sup>6</sup>

Wide wood steps (also replaced in 2006 but in same configuration and location) approach the deck from the side (west) and front (north). Both feature concrete footings at their base, both inscribed with unreadable initials and the year 1966. Steps from the north are left of center of the porch.

### 1986 addition

Built in 1986 by Tiny Canfield for a new walk-in cooler and additional workspace, a hand-worked and peeled log addition projects off the original east log wall. The gabled roof to the addition sits lower than the lodge roof but is covered with same metal roofing. The addition sits on a high concrete foundation. The horizontal round logs are joined by saddle notching with sawn ends. A large 2-sash sliding window fills the south wall. The east end wall features four clerestory windows that fill the gable end, a wide metal door with two upper lights, and a large 2-sash sliding windows. A wood deck extends off the east wall.

### Reinhart Lounge Addition

Added in 2017, the Reinhart Lounge honors Jeanette Reinhart who ran the kitchen for over 40 years (she just retired). The shed roofed, horizontal round manufactured log addition contains a bathroom and shower for the YBRA staff. The shed roof extends off the north wall of the 1986 addition. Roof details include green metal roofing, extended eaves, and exposed round log rafters. The logs are joined at the corners by saddle notching and exhibit slightly extended sawn ends. The north addition wall is symmetrical with two large single light awning windows. The

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<sup>5</sup> Stacked concrete blocks form the concrete piers for the lodge and cabin throughout the camp.

<sup>6</sup> Russ Dutcher, YBRA Camp Manager's Report, *YBRA Uplift* 2006.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

east addition wall holds a smaller single light awning window. The addition stands on vertical beams (2" x 8") set on concrete footings. Horizontal boards fill the spaces between the beams.

### Interior

The original Fanshawe Lodge interior consists of two rooms: an open space (divided into a sitting/living area and dining room) and the kitchen. The interior stone wall is faced with concrete. All logs are exposed and the high ceiling displays the ridgepole and purlins. Hardwood tongue-and-groove covers the floor. Of the two fireplaces, one fills the south wall of the sitting area and the other appears in the dining room.<sup>7</sup> Handcrafted rustic, but not original, chandeliers hang from the log purlins. Vertical log posts set into a horizontal log beam hewn at the top and bottom define the division between the sitting area and the dining room. The space between the beam and the ceiling is closed off by tongue-and-groove siding.<sup>8</sup>

The sitting/living area is small and unpretentious. Leather chairs sit in front of the fireplace with scattered tables and chairs found along the walls. Maps, photographs, and an elk mount decorate the walls. The northwest corner features cubbyholes for mail. An upright piano stands against the north wall.

The dining room is filled with tables and chairs. Half-logs form the wall separating the kitchen from the dining room, with two pass-through openings for dishes and food. Beveled shiplap siding clads the interior kitchen wall. The kitchen contains three large industrial ovens, stainless steel sink, and miscellaneous cabinets and shelves.

### Main Wash House (one contributing building)

Representing one of the first buildings constructed at the YBRA Camp, the Main Wash House consists of the original wash house built in 1936 and a 1956 addition. Overcrowding in the original wash house necessitated the introduction of the addition as well as the need for a ladies washroom as more wives and female students began to come to the YBRA field camp beginning in the mid-1960s.

Located southwest and upslope from Fanshawe Lodge, the original log and stone wash house is a one-story, rectangular (30' by 21'), gabled roof building that sits on the mountainside. The building sports a random coursed dried-laid stone foundation with intermittent concrete between stones that stands high at the northeast wall and adjusts to the slope at the side walls. The exterior walls consist of a lower stone level supporting an upper level of horizontal unpeeled round logs. Concrete daubing fills the interstices where needed. The logs extend into the gable ends and the corners display a finish of vertical round logs instead of notching. Green asphalt shingles cover the gable roof, supported by a ridgepole, purlins, and round log rafters. The northeast end wall holds a beveled wood door at its east end and a small six-light window right (north) of center. Wood steps climb to a small wood deck that accesses the second entry five-panel wood door with accompanying screen. A six-light window flanks the door to each side. The southeast side wall also holds paired six-light windows.

<sup>7</sup> The fires would be lit on chilly mornings.

<sup>8</sup> At one time room dividers ran along the center beam.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

A front gabled roof addition built off the southeastern two-thirds of the original building exhibits stone and log construction. The low gable roof displays metal roofing, extended eaves, and continuous vergeboard. The corners at the gable end exhibit vertical square concrete piers. The southeast side wall is symmetrical with two six-light windows covered by interior metal vents. The southwest end wall holds a wood door and screen at its west end with a horizontal six-light window slightly offset from center. Two concrete steps approach the entry from the north.

The original wash house functions as the men's while the addition provides comfort for the ladies. The interior has a concrete floor. Interior stone walls are covered while the interior upper log walls are exposed, as are the log rafters of the ceiling. The men's section appears to contain the original sinks across one wall plus a urinal, toilets, and showers. The women's section holds a bathtub, plus toilets, sinks, and showers. Between the men's and the women's sections is a small laundry.

### **Darton Cabin (one contributing building)**

One of three original log and stone buildings built in 1936, the Darton Cabin is a one-story, rectangular, unpeeled horizontal log building that measures 19' by 24'. It sits on a random coursed, dried-laid stone foundation that adjusts to the mountain slope under the end walls. The logs are joined by saddle notching and have sawn ends slightly extended beyond the joints. The gable roof exhibits a ridgepole, green ribbed metal roofing, and slightly extended eaves. Horizontal logs fill the gable ends with wood vents off center near the gable peak.

Wood steps with pole railings access a wood deck that only partially extends across the northwest wall. A five-panel solid wood door opens into the interior from the deck. Both end walls hold a centered four-sash sliding window unit (two stationary and two sliders). Other openings include two-sash sliding windows opposite one another on the northwest and southeast walls.

The Darton Cabin functions as a ten-person student dormitory. The one-room interior exhibits exposed log walls, ridgepole, and rafters. The interior gable ends feature vertical log posts. The interior contains five wood bunk beds (stamped US), hardwood floors, built-in-shelves and closets.<sup>9</sup>

The Darton Cabin derives its name from Nelson Horatio Darton (1865-1948), an American geologist who worked for the United States Geological Survey his entire career.<sup>10</sup>

### **Fenneman Cabin (one contributing building)**

The Fenneman Cabin stands as one of the original cabins built in 1936. It is a one-story, wood frame, rectangular (16' by 14') gabled building supported by concrete block piers built on the mountainside above the wash house. Horizontal unpeeled log slabs clad the building on three

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<sup>9</sup> The beds were sent to Roy Wadsworth from Rutgers University.

<sup>10</sup> Marv Kaufman, "YBRA Cabin Names," *YBRA Uplift* Issue 19, 2013.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

sides while vertical board siding clads the northeast wall. Green asphalt shingles cover the low gable roof that displays slightly extended eaves.

Two concrete steps (1973) approach a solid, five-panel wood door located at the east end of the northeast end wall. The side walls both hold two-sash sliding windows offset from center and the southwest end wall has a two-sash slider right of center.

The Fenneman Cabin functions as a four-person student dormitory. Its one-room interior features hardwood floors, and plywood ceiling and walls. It contains two bunk beds, shelves, and a closet.

The Fenneman Cabin is named after Nevin M. Fenneman (1865-1945), a geologist, geographer and teacher at the University of Cincinnati, noted for his work on the physiography of the United States.<sup>11</sup> Dr. Fenneman taught at the YBRA Camp for many years.

### **Chamberlin Cabin (one contributing building)**

Standing as one of the original cabins built in 1936, the Chamberlin Cabin is a one-story, rectangular, wood frame gabled roof building that measures 16' by 15'. Concrete block piers support the cabin that is built on the mountainside above the main wash house. Horizontal unpeeled log slabs cover the cabin and vertical slabs finish the corners. The low gable roof exhibits asphalt shingles and slightly extended eaves. Two concrete steps (inscribed "Frank-Barb 1973") approach a solid five-panel wood door situated at the east (left) end of the northeast end wall. Window openings include two-sash sliding units offset from center on the end walls and four-sash units (two stationary and two sliders) centered on the side walls.

The Chamberlin Cabin holds four people when used as a student dormitory. The one-room interior has hardwood floors, and plywood ceiling and walls. It contains two bunk beds, built-in desks, shelves, and closet.

The Chamberlin Cabin is named for Rollin T. Chamberlin (1881-1948), an American geologist who participated on the Yellowstone Project in the early 1930s. Chamberlin was the son of geologist Thomas Chrowder Chamberlin who founded the Journal of Geology.<sup>12</sup>

### **King Cabin (one contributing building)**

One of the original 1936 buildings, the King Cabin is a one-story, rectangular (12'5" by 10'), wood frame, gabled roof building clad with vertical unpeeled log slabs with horizontal slabs covering the gable ends. Built on the mountainside above the main wash house, the cabin stands on concrete blocks and log posts. Green asphalt shingles cover the gable roof that exhibits slightly extended eaves and exposed rafters.

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<sup>11</sup> Ibid.

<sup>12</sup> Ibid; Marv Kaufman mistakenly noted that Chamberlin was the son of Fenneman who was childless.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

The northeast end wall contains a solid five-panel wood door flanked to the north (right) by a two-sash sliding window. The northwest and southwest walls also hold two-sash sliders, slightly off-center.

Located on the upper camp slope, the King Cabin functions as a two-person student dorm. The one-room interior contains a metal bunk bed (stamped US), hardwood floors, plywood ceiling and walls, and a built-in closet and shelves.

The King Cabin appellation derives from William King (1809-1886), an Anglo-Irish geologist who first proposed in 1864 that the bones found in Neanderthal, Germany were not of human origin, but of a distinct species.<sup>13</sup>

### **Wasson Cabin (one contributing building)**

Also an original cabin from 1936, the Wasson Cabin is a one-story, rectangular (12' by 10'), wood frame, gable roof building clad with horizontal log slabs. Built into the mountainside slightly below and northwest of the main wash house, it stands on concrete footings, concrete blocks, and a log post. Green asphalt shingles cover the low gable roof that exhibits slightly extended eaves and exposed rafters.

The northeast end wall holds a solid two-panel rustic door painted red. A gabled roof open porch (one of two cabins with a porch) shelters the entry. The porch exhibits a wood deck and vertical log post roof supports. Other openings include two-sash sliders off-center on the northwest and southeast walls.

The Wasson Cabin operates as a staff cabin. The one-room interior displays knotty pine walls, two beds, plywood ceiling, and hardwood floor.

The Wasson Cabin is named for Theron Wasson (1887-1970), an international petroleum geologist and engineer and outstanding discoverer of oil and gas fields.<sup>14</sup>

### **Barrell Cabin (one contributing building)**

Another original building built in 1936, the Barrell Cabin is a one-story, rectangular (12' by 10'5"), wood frame, gabled roof building. Built on the mountainside west of the main wash house, the foundation consists of concrete block piers on concrete footings, and vertical log posts. Vertical log slabs clad the entire building and extend into the gables. Green asphalt shingles cover the low gable roof that exhibits slightly extended eaves and exposed rafters.

The Barrell Cabin is one of two cabins whose entry is sheltered by a gabled roof open porch painted green. Situated slightly off center on the northeast end wall, the porch exhibits log posts to support the roof, and a wood deck. The porch accesses a solid five-panel wood door centered

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<sup>13</sup> Ibid. The cabin also might be named after Clarence King who was appointed the first Director of the U. S. Geological Survey in 1879.

<sup>14</sup> Ibid; "Memorial to Theron Wasson 1887-1970," accessed July 29, 2022, <https://www.geosociety.org/documents/gsa/memorials/v02/Wasson-T.pdf>

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

on the wall. Other openings include a two-sash sliding window centered on the southwest and northwest walls.

The Barrell Cabin is a two-person faculty-staff cabin. The one-room cabin has hardwood floors, plywood walls and ceiling, two beds, and a built-in closet and shelves.

The Barrell Cabin is named after Joseph Barrell (1869-1919) a geologist “who proposed that sedimentary rocks were produced by the action of rivers, winds, and ice (continental) as well as by marine sedimentation and arrived at theory of *stoping* as mechanism for igneous intrusion.”<sup>15</sup>

### **Bowen Cabin (one contributing building)**

Built in 1936 and one of the original cabins, the Bowen Cabin is one of the smaller, one-story, rectangular, wood frame, gabled roof cabins on the property, measuring 10’ by 12’. Vertical unpeeled log slabs that extend into the gables clad the building. Green asphalt shingles cover the gable roof that exhibits extended eaves and exposed rafters. Built on the mountainside west of Fanshawe Lodge, concrete footings, concrete blocks, and log posts support the building.

A solid five-panel wood door appears left of center on the northeast end wall. A small wood board platform fronts the door. Centered on the southeast and northwest side walls are two-sash sliding windows.

The Bowen Cabin is a two-person student dorm. Its one-room interior has hardwood flooring, plywood ceiling and walls, a built-in closet, and shelves.

The Bowen Cabin is named after Norman Levi Bowen (1887-1956) who wrote *the* petrology handbook.<sup>16</sup>

### **Dana Cabin (one contributing building)**

One of the original cabins built in 1936, the Dana cabin is a one-story, rectangular (10’ by 12’), wood frame, gabled roof building built on the mountainside below and slightly to northeast of Fanshawe Lodge. The foundation consists of vertical log posts. Horizontal slabs clad the building into the gable ends. Green asphalt shingles cover the gable roof that exhibits slightly extended eaves and exposed rafters. A solid four-panel wood door is situated at the west end of the south wall. A single two-sash sliding window is centered on the north wall.

The Dana Cabin’s one-room interior features plywood walls and ceiling, hardwood floors, built-in shelves, and a closet.

The Dana Cabin derives its name after James Dwight Dana (1813-1895), a geologist whose “System of Mineralogy” continues in use today.<sup>17</sup>

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<sup>15</sup> Marv Kaufman, “YBRA Cabin Names,” *YBRA Uplift* Issue 19, 2013.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.



Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

**Hall Cabin (one contributing building)**

One of the original cabins built in 1936, the Hall Cabin is a small, rectangular (12' by 10') wood frame, gabled roof building built on the mountainside below and northeast of Fanshawe Lodge. The foundation consists of vertical log posts and concrete blocks. Horizontal unpeeled log slabs clad the entire building. Green asphalt shingles cover the gable roof that exhibits slightly extended eaves and exposed rafters. A solid five-panel door (with accompanying screen door) appears left of center on the south wall. A single two-sash sliding window is slightly off center on the north wall. A wood deck with pole rails extends across the north and most of the west wall.

The Hall Cabin is a one-person staff cabin that features hardwood floors, plywood walls and ceiling, built-in-shelves, and a closet.

The Hall Cabin assumes its name for James Hall (1811-1898), a geologist and paleontologist who served as the first president of the Geological Society of America.

**Powell Cabin (one contributing building)**

Built in 1936 as one of the original cabins, the Powell Cabin is a one-story, rectangular (16'5" by 14'5"), wood frame, gabled roof building built on the mountainside and supported by concrete block piers. Horizontal unpeeled log slabs clad the entire building with vertical slabs finishing the corners. Green asphalt shingles clad the low gable roof that exhibits extended eaves and exposed rafters. The east end wall holds a solid five-panel wood door (and screen door) right of center. A two-sash sliding window is centered in both the north and south walls. A wood deck extends partially across the east end wall.

Located directly northeast of Fanshawe Lodge, the one-room Powell Cabin serves as the Cook's cabin and features hardwood floors, plywood walls and ceiling, built-in shelves and a closet.

The Powell Cabin takes its name from John Wesley Powell (1834-1902), famous for his expeditions and explorations of the Rocky Mountains and canyons of the Green and Colorado Rivers. He became the first director of the US Bureau of Ethnography at the Smithsonian and later served as the director of the US Geological Survey.<sup>18</sup>

**Gilbert Cabin (one contributing building)**

One of the original cabins built in 1936, the Gilbert Cabin is a one-story, rectangular (16' by 14'), wood frame, gabled roof building built on the mountainside and supported by concrete block piers. Horizontal unpeeled log slabs clad the entire building, including the gables, and vertical slabs serve as cornerboards. Green asphalt shingles cover the gable roof that exhibits extended eaves and exposed rafters. The east end wall contains a five-panel solid wood door (with accompanying screen door) slightly north (right) of center. Flanking the door to the north is a recently installed single light fixed window. Both the north and south walls hold a two-sash sliding window slightly west of center. A wood deck with pole railings partially extends across the north and east walls.

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<sup>18</sup> Ibid.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

The Gilbert Cabin stands northeast and slightly downhill from Fanshawe Lodge and serves as the caretaker's cabin. The one-room cabin has hardwood floors, plywood ceiling and walls, a built-in closet, and shelves.

Gilbert Cabin is named after Grove Karl Gilbert (1843-1918), a geologist considered "one of the giants of the sub-discipline of geomorphology, having contributed to the understanding of landscape evolution, erosions, river incision and sedimentation."<sup>19</sup>

### **Robinson Cabin (one contributing building)**

Also one of the original cabins built in 1936, the Robinson Cabin sits directly west of Fanshawe Lodge. The cabin is a one-story, rectangular (16' by 14'), wood frame, gabled roof building that rests on concrete footings and blocks. Horizontal log slabs clad the entire building including the gables. The low gable roof exhibits green asphalt shingles, extended eaves and exposed rafters. The west end wall holds a flush wood door (and screen door) right of center. A concrete stoop fronts the door. Both north and south walls hold a two-sash sliding window.

The Robinson Cabin is presently used for storage but once served as the cook's cabin. It has hardwood floors, plywood walls and ceiling, and built-in shelves.

The Robinson Cabin is presumably named after Ernest Guy Robinson who contributed funding to YBRA during a financial crisis in the late 1950s.<sup>20</sup>

### **Roy's Tool Shed (one contributing building)**

The estimated construction date for Roy's tool shed is 1936-1937. Its construction presumably occurred either during the initial camp construction or soon thereafter, when he became permanent caretaker.

Roy's Tool Shed is a one-story, rectangular (12' by 8'), gabled roof, wood frame building with a 1971 shed roof addition (14' by 6') projecting off the east end wall. The building sits on concrete footings and concrete blocks. Green asphalt shingles cover the gable roof that exhibits extended eaves. Vertical rough boards clad the shed. A five-panel wood door is slightly off-set to the left (north) on the west wall and both side walls hold six-light windows.

The tool shed has an open interior with wood flooring and is filled with tools. It is named after Roy A. Wadsworth who constructed all the original camp buildings.

### **Hayden Cabin (one contributing building)**

One of the original buildings built in 1936, the Hayden cabin sits east of the staff cabins. The Hayden cabin is a one-story, rectangular (14' by 10'), gabled roof, wood frame building built on the mountainside and supported by concrete blocks. Horizontal unpeeled log slabs clad the entire cabin. Roof details include asphalt shingles, extended eaves, and exposed rafters. The

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<sup>19</sup> Marv Kaufman, "YBRA Cabin Names," *YBRA Uplift* Issue 19, 2013.

<sup>20</sup> Heidi Johnson to Ernest Guy Robinson, July 7, 1959, YBRA Archives, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

west end wall holds an artisan wood door flanked to the north (left) by a two-sash sliding window. The north and south walls also display two-sash sliders. A wood deck projects off the front of the west wall.

The Hayden Cabin is a three-person student cabin previously used as a faculty cabin. The one-room interior contains hardwood floors, plywood walls and ceiling, a built-in closet, and shelves.

The Hayden Cabin's moniker derives from Dr. Ferdinand Vandever Hayden (1829-1887), an American geologist noted for his pioneering surveying expeditions of the Rocky Mountains in the late 19<sup>th</sup> century.<sup>21</sup>

### **Poldervaart Cabin (one contributing building)**

Also original and built in 1936, the Poldervaart Cabin stands east of the Hayden Cabin. It is a one-story, rectangular (16' by 14'5"), gabled roof, wood frame building supported by a foundation of concrete blocks and concrete footings built on a hillside. Vertical unpeeled log slabs clad the cabin with horizontal log slabs covering the gables. The low gable roof exhibits green asphalt shingles, extended eaves, and exposed rafters.

The west end wall holds a solid five-panel wood door (and screen door) at the south end of the elevation flanked by a two-sash sliding window slightly north of center. Both the north and south walls display centered two-sash sliding windows. A wood deck extends the length of the west wall.

The Poldervaart Cabin presently serves as a six-person student dorm although staff-faculty once used the building. The one-room interior features hardwood floors, plywood ceiling and walls, three bunk beds, built-in shelves, and a closet.

The Poldervaart Cabin is named after Arie Poldervaart (1918-1964), a geologist and petrologist, noted for his work concerning crustal evolution and the petrology of igneous rocks.<sup>22</sup>

### **Siegfriedt Cabin (one contributing building)**

One of the larger original buildings built in 1936, the Siegfriedt Cabin is a one-story, rectangular (32' by 14'), wood frame, gabled roof building supported by concrete footings and block piers constructed on the mountainside. Vertical unpeeled log slabs clad the cabin except for some metal sheathing placed below two north wall windows where the log slabs showed deterioration. The low gable roof exhibits green asphalt shingles, extended eaves, and continuous vergeboard.

Wood steps approach a six-panel metal door situated left of center on the north wall. A second entry, no longer used, appears at the north end of the west wall. The solid flush wood door remains extant but the door opening is screened-in. The north wall holds three two-sash sliding windows across its length. Other openings include a two-sash slider on the east wall and an opening now covered by the interior west wall.

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<sup>21</sup> Marv Kaufman, "YBRA Cabin Names," *YBRA Uplift* Issue 19, 2013.

<sup>22</sup> Ibid.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

The Siegfriedt Cabin stood as the most remote building on the east side of the property when the camp was constructed. The Siegfriedt Cabin serves as an eight-person student dormitory. The one-room interior features hardwood floors, plywood walls and ceiling, and four metal bunk beds.

The Siegfriedt Cabin is named after Dr. J. C. Fred Siegfriedt, a renowned Red Lodge doctor, mayor, and amateur paleontologist. Dr. Siegfriedt was instrumental in the development of the Red Lodge Project, predecessor of YBRA. He owned land near Piney Dell, about five miles southwest of Red Lodge, which he rented to Taylor Thom for the Princeton field camp in 1931.

### **William Taylor Thom Jr. Library (one contributing building)**

Built in 1955, the William Taylor Thom Jr. Library (Thom Library) stands as a one-story, rectangular, gabled roof building that measures 40' by 24'. The Thom Library is a rust-colored concrete block building built on a hillside with a concrete foundation that adjusts to the slope. Metal roofing covers the gable roof that exhibits extended enclosed eaves. All window openings are metal nine-light casement units with a fixed center unit and swing outward.

The south (façade) wall is symmetrical with a centered two-panel steel door flanked to each side by two nine-light metal windows. The door is approached from the west by six concrete steps that lead to a concrete porch with accompanying pipe railing. The west wall displays symmetry with three nine-light metal windows across its length. The east wall is also symmetrical with a centered metal door flanked to each side by a nine-light metal window. A small concrete stoop fronts the door.

The one-room library interior features a concrete slab floor, exposed concrete walls, and open rafters. The library became the center of research for the region and a certified repository for government documents.

William Taylor Thom Jr. (1891-1979), served on the faculty of Geology Department at Princeton University from 1927 to his retirement in 1956. In 1930, Thom, with others started the Red Lodge Project and was the visionary and leading advocate for the establishment of YBRA and the YBRA Camp.<sup>23</sup>

A bronze plaque placed next to the front (south) door reads:

WM. TAYLOR THOM, JR.  
LIBRARY  
ERECTED 1955  
25<sup>TH</sup> ANNIVERSARY  
OF THE  
Y.B.R.A.

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<sup>23</sup>Princeton University, "William Taylor Thom 1891-1979," *The Smilodon*, Vol. XIX No.2 (December 1979), accessed July 28, 2022, <https://geosciences.princeton.edu/about/publications/smilodon>.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

**Tom Dorf Cabin (one contributing building)**

Built in 1969, the Tom Dorf Cabin is a one-story, gabled roof, rectangular (17' by 14'), manufactured log building with a 1970 bath addition (7' by 11') off the southeast wall. The cabin sits on a random coursed stone foundation that adjusts to the mountain slope at the side walls. Horizontal round logs joined by saddle notching at the corners exhibit slightly extended sawn ends. Green ribbed metal roofing covers the building. Other roof details include a laminated ridge beam, extended eaves, exposed rafters, and vertical board siding in the gables. Two wood steps access the wood deck to reach the entry on the southwest end wall. The deck extends across only a portion of the southwest wall and the entire length of the northwest side wall (this deck provides one of the best views from the cabin). A single-light casement window for the bath is the only opening on the southeast wall.

The southwest end wall holds a flush wood door and a single-light casement window. A large fixed cottage window appears right (south) of center on the southwest wall.

The Tom Dorf Cabin represents the first cabin built directly below the timbered slope. The one-room interior features exposed log walls, plywood ceiling, and hardwood floors. It contains two beds, dresser, lamps, built-in desk, rugs and cabinets. The attached bath consists of a shower, sink, and toilet.

Erling Dorf funded the construction of this cabin in memory of his son Thomas Albert Dorf who died tragically in a car accident in 1958 at the age of 21. By the doorway, a bronze plaque reads:

IN MEMORY OF  
TOM DORF  
PRINCETON 1958

**Wadsworth Hall (one contributing building)**

Built in 1958, Wadsworth Hall is a one-story, rectangular (40' by 24'), wood frame building. It sits on a concrete foundation that adjusts to the mountain slope. Horizontal wide board siding clads the building. The building stands as the only hipped roof building in the camp; roof details include asphalt shingles, extended eaves, and exposed rafters.

The building holds two entrances: a five-panel wood door centered on the north end wall approached by concrete steps and a flush wood door right of center on the south wall approached by wood steps. Two-sash sliding window units flank the north door. The south wall holds a single two-sash sliding unit. The east and west side walls are symmetrical with three two-sash sliders evenly spaced across the walls. The center window on the west wall is presently covered with plywood to accommodate for an interior white board.

Built as a study hall, Wadsworth Hall features an open room filled with tables, and displays plywood walls and flooring and a lowered ceiling.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

Wadsworth Hall derived its name for Roy Wadsworth, who built all the original buildings at the YBRA Camp and served as the caretaker for over 30 years with his wife Rose.

An engraved tin plaque next to the north entrance reads:

ROY WADSWORTH HALL  
DEDICATED IN COMMENORATION  
OF-27-YEARS WITH THE  
YELLOWSTONE BIGHORN  
RESEARCH ASSOCIATION  
AUGUST 17, 1958

### **Thom Cabin (one contributing building)**

The Thom Cabin is one of three nearly identical manufactured log cabins built in 1969 aligned along the edge of the timbered mountainside. The cabin is a one-story, rectangular (28' by 16'), gabled roof building. It rests on a concrete block foundation that adjusts to the mountain slope. The horizontal round logs sport saddle notching at the corners and have sawn logs ends. Wood shakes cover the low gable roof that exhibits a laminated ridge beam, and exposed rafters. Reverse board-and-batten vertical siding clads the gable ends.

The east and west end walls mirror one another as each holds a flush wood door flanked on one side by a two-sash sliding window. Both entrances are approached by wood steps onto a 4' wide wood deck that extends partially along the east and west walls and the entire length of the north wall. The north wall is symmetrical with four two-sash sliding windows evenly spaced along its length.

The Thom Cabin serves as an eight-person student dormitory. The one-room interior features hardwood floors, exposed log walls, plywood ceiling, four metal bunk beds, and built-in desks and closets.

The Thom Cabin's name derives from William Taylor Thom Jr. (1891-1979), who served on the faculty of Geology Department at Princeton University from 1927 to his retirement in 1956. In 1930, he and others started the "Red Lodge Project" and was the visionary and leading advocate for the establishment of YBRA and the YBRA Camp.<sup>24</sup> This cabin was dedicated to Dr. Thom on his 80<sup>th</sup> birthday.

### **Heroy Cabin (one contributing building)**

The Heroy cabin is one of three nearly identical manufactured log cabins built in 1969 aligned below and along the edge of the timbered mountainside. The cabin is a one-story, rectangular (28' by 16'), gabled roof building. It has a concrete block foundation that adjusts to the mountain slope. The horizontal round logs are joined by saddle notching at the corners and have

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<sup>24</sup> Princeton University, "William Taylor Thom 1891-1979," *The Smilodon*, Vol. XIX No.2 (December 1979), accessed July 28, 2022, <https://geosciences.princeton.edu/about/publications/smilodon>.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

sawn logs ends. Green ribbed metal roofing covers the low gable roof, which exhibits a laminated ridge beam and exposed rafters. Vertical wood siding clads the gable ends.

The east and west end walls mirror one another as each holds a flush wood door flanked to one side by a two-sash sliding window. The north wall is symmetrical with four two-sash sliders evenly spaced along its length. Both entrances are approached by wood steps onto a 4' wide wood deck that extends partially along the east and west walls and the entire length of the north wall.

The Heroy Cabin serves as an eight-person student dormitory. The one-room cabin interior features hardwood floors, exposed log walls, plywood ceiling, four metal bunk beds, four built-in desks, and closets.

The Heroy Cabin is named after William Bayard Heroy, Jr. (1915-2005). Dr. Heroy received his PH. D in geology from Princeton University in 1941 and served both private and public institutions, finishing his career at Southern Methodist University in 1982.

### **Bucher Cabin (one contributing building)**

The Bucher Cabin is one of three nearly identical manufactured log cabins built in 1969 below and aligned along the edge of the timbered mountainside. The cabin is a one-story, rectangular (28' by 16'), gabled roof, log building. It features a concrete block foundation that adjusts to the mountain slope. The horizontal round logs sport saddle notching at the corners and exhibit sawn logs ends. Green ribbed metal roofing covers the gable roof that exhibits a laminated ridge beam and extended eaves. Vertical wood siding clads the gable ends.

The east and west end walls mirror one another as each holds a wood slab door (painted white) flanked to one side by a two-sash sliding window. The north wall is symmetrical with four two-sash sliding windows evenly spaced along its length. Both entrances are approached by wood steps onto a 4' wide wood deck that extends partially along the east and west walls and the entire length of the north wall.

The Bucher Cabin serves as an eight-person student dormitory. The one-room interior features hardwood floors, exposed log walls, plywood ceiling, four metal bunk beds, built-in desks, and closets.

The Bucher Cabin received its name for Walter Hermann Bucher (1889-1965), a German-American geologist and paleontologist who served on numerous national science foundations and noted for his studies on structural geology.<sup>25</sup>

A bronze plaque next to the west wall door reads:

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<sup>25</sup> Marv Kaufman, "YBRA Cabin Names," *YBRA Uplift* Issue 19, 2013.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

Walter H. Bucher  
"A Great Teacher"  
June 1971

### **Marathon Wash House (one contributing building)**

In 1970, Marathon Oil Company gifted YBRA funding for camp development that resulted in the construction of the Marathon Wash House in 1971. The cabin helped to relieve overcrowding of the original wash house. The Marathon Wash House stands in the eastern portion of the camp, across from the Thom Library.

The Marathon Wash House is a one-story, rectangular (30' by 16'), gabled roof, manufactured log building. Built into the mountainside, it sits on a concrete block foundation that adjusts to the slope: the north wall of the foundation stands 4' tall. The horizontal round logs display saddle notching in the corners with sawn log ends. Plate logs extend beyond the walls. Roof details include green ribbed metal roofing and extended eaves. Vertical wood siding clads the gable ends, which contain vents below the ridgeline.

The south wall holds three flush wood doors: the easternmost opens into the woman's bath, the central door provides access to the water heater, and the westernmost door opens into the men's bath. All doors feature concrete stoops (two share a stoop). Other openings include three awning single-light windows across the north wall (one filled in with a vent) and paired awning single-light units on the west end wall.

The interior has a concrete floor, exposed log walls, low plywood ceiling, and concrete block interior walls. The woman's bath contains one tub, two sinks, two showers, and two toilets. The men's bath contains four showers, four sinks, three toilets, and a urinal.

### **Princeton Cabin (one contributing building)**

Built in 1972, the Princeton Cabin is a one-story, rectangular (30' by 12'), gabled roof, manufactured log building similar to three other cabins on the property (Thom, Heroy and Bucher). The cabin stands in the southwest portion of the camp. It rests on a concrete block foundation that adjusts to the mountain slope. The horizontal round logs join at the corners by saddle notching and display sawn log ends. The low gable roof exhibits green ribbed metal roofing, extended eaves and exposed rafters. Vertical wood siding covers the gable ends and plate logs project outward beyond the end walls.

The east and west end walls mirror one another as each holds an entry door flanked on one side by a small single-light casement window. The east entry displays a flush wood door and the west holds a five-panel wood door. The north side wall is symmetrical with two fixed cottage windows at either end of the wall. A 4' wood deck extends partially across the east and west wall and completely across the north wall. Wood steps at both end walls provide access to the deck.



Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

The Princeton Cabin is a staff cabin and consists of three rooms: two bedrooms and a central bath. The interior has hardwood floors, exposed log walls, plywood ceiling, and interior plywood partition walls.

A bronze plaque next to the east door reads:

PRINCETON CABIN  
GIFT OF  
DR. AND MRS. WILLIAM B. HEROY, JR.  
1972

### **Dusenbury Hall (one noncontributing building)**

Constructed between 1973 and 1978 with funds provided by Southern Illinois University Carbondale, Dusenbury Hall stands directly above Wadsworth Hall on the mountainside. Dusenbury Hall is a one-story, rectangular (40' by 20'), gabled roof, wood frame building with a concrete foundation that adjusts to the mountain slope. It is one of two buildings within the YBRA Camp with horizontal wood siding. The low gable roof exhibits green ribbed metal roofing, vents in the gable ends, slightly extended eaves, and exposed rafters. The northeast end wall holds a centered door (with accompanying screen) flanked on each side by a two-sash sliding window. The southwest end wall holds a two-sash slider and a flush wood door situated at the east end of the wall. Wood steps approach both doors. The northwest wall is symmetrical and holds three two-light sliding units across its length (installed in 1981).

Built as a study hall, Dusenbury Hall's interior contains two rooms. The interior exhibits plywood flooring and walls, and exposed rafters.

The Dusenbury Hall is named after W. A. Dusenbury (1879-1942), a 1902 graduate of Princeton University who gave "important assistance" to the Red Lodge Project in its early years. In 1921, Mr. Dusenbury became president of the First National Bank of Olean in western New York state and served in that position most of his life.<sup>26</sup>

### **Erling Dorf Cabin (one noncontributing building)**

Built between 1972 and 1978, the Erling Dorf Cabin is a one-story, rectangular (16' by 30'), wood frame, gabled roof building. It represents the westernmost camp cabin on the mountainside and sits on a concrete foundation that adjusts to the slope. Roof details include asphalt shingles and wide extended enclosed eaves. Vertical cedar siding clads the cabin with horizontal boards covering the gable ends. A wood deck with wood rails wraps around the cabin on three sides (north, west, south). Two entries on opposite gable walls include a flush wood door at the east end of the north elevation and a three-panel plywood door at the east end of the south wall. Other openings include a row of four two-sash sliding windows on the west wall and a large three-sash window with center light unit on the south wall.

<sup>26</sup> W. T. Thom, Jr., to Mr. W.A. Dusenbury, October 30, 1936, YBRA Archives, Red Lodge, MT; "William Addison Dusenbury (II), September 24, 1897-June 10, 1942," *The Portville Historical and Preservation Society*, accessed August 6, 2022, [http://www.portvillehistory.org/bio\\_dusenbury\\_williamsa\\_jr.html](http://www.portvillehistory.org/bio_dusenbury_williamsa_jr.html).

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

The Erling Dorf Cabin functions as an eight-person student dormitory. The one-room interior contains four bunk beds, built-in closets, and shelves. It has plywood walls and ceiling, and hardwood floors.

The Erling Dorf Cabin derives its designation after Erling Dorf (1905-1984), an American geologist who taught for 48 years on the Princeton University faculty. He was noted for his work on paleostratigraphic study of the Cretaceous-Paleocene boundary and also for his popular account of petrified forests of Yellowstone National Park. Erling Dorf came to Montana as Taylor Thom's assistant in 1930 and continued his association with YBRA until his death.<sup>27</sup>

### **Foose Cabin (one noncontributing building)**

Constructed in 1976, the Foose cabin is a one-story, rectangular (20' by 12'), gabled roof, manufactured log building. The cabin sits on a concrete foundation high on the mountainside near the edge of the timbered slope. Horizontal round logs are joined by saddle notching at the corners, and feature extended, sawn log ends. Vertical board siding appears in the gable ends and plate logs extend beyond the end walls. Roof details feature green ribbed metal roofing and extended eaves. A wood deck with artisan log railings wraps around the cabin on three sides (north, west and south) and is approached by wood steps. A flush door (and screen door) on the north gable end wall is flanked to the west by a two-light casement window. The west wall holds a large cottage window at its north end.

The Foose Cabin serves as faculty housing and consists of a single room and bath. The cabin has parquet flooring, exposed log walls, plywood ceiling, shelving, and a double bed.

The Foose Cabin received its sobriquet for Richard M. "Pete" Foose who arrived at Amherst in 1963 and remained until his retirement in 1986 with a scholarly focus of structural geology. Dr. Foose strong involvement in YBRA included 30 contiguous years as a councilor beginning in 1964.<sup>28</sup>

"Pete" Foose and his wife Dottie provided funding to YBRA for the construction of the Foose cabin, citing their "long time, intimate association with Y.B.R.A and our strong desire to see the Association prosper in the future."<sup>29</sup>

A plaque by the doorway reads:

FOOSE CABIN  
MADE POSSIBLE BY A GIFT FROM  
PROF. & MRS. RICHARD H. FOOSE  
1976

<sup>27</sup> Judson, Sheldon, "Memorial to Erling Dorf 1905-1984," Department of Geological and Geophysical Sciences, Princeton University, Princeton, NJ, accessed July 30, 2022, <http://www.geosociety.org>.

<sup>28</sup> Ibid; Bailey, Duane W., Edward Belt, Gerald Brophy, John Lancaster, and James Mauldon, "Richard M. Foose (1915-1994)," *Memorial Minutes*, Amherst University, accessed July 30, 2022, <http://www.amherst.edu>.

<sup>29</sup> Richard M. "Pete" Foose, "YBRA Uplift Issue 1 Spring, 1995.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

**Rouse Cabin (one noncontributing building)**

Built in 1981 and situated slightly downhill and northwest of the Marathon Wash House, the Rouse Cabin is a one-story, rectangular (24' by 10'), wood frame, gabled roof building. The cabin sits on a concrete foundation that adjusts to the mountain slope. Roof details include asphalt shingles, extended eaves, and continuous vergeboard on three sides. Vertical cedar siding clads the cabin. A wood deck with pole rails extends the entire length of the north wall and is approached by wood steps at each end. The north wall holds two doors evenly spaced on the wall. Other openings include a single two-sash sliding window at both gable end walls and two two-sash sliding units on the south wall.

When completed, Russ Dutcher called this "a magnificent building and probably the best constructed one in camp."<sup>30</sup> The two room single bath Rouse Cabin serves as faculty lodging.

The Rouse Cabin is named after John T. Rouse but honors John and his wife Virginia as they both experienced the first field camp years in 1931-1936 and continued their association with YBRA for most of their lives. John T. Rouse (1906-1982) became a private petroleum consultant who did much research in the Wyoming/Montana area.<sup>31</sup>

A bronze plaque by the door reads:

ROUSE CABIN  
IN HONOR OF  
DR. & MRS. JOHN T. ROUSE  
1981

**Amherst Cabin (one noncontributing building)**

Built in 1989, the Amherst Cabin is a one-story, rectangular (12' by 33'5"), wood frame, gabled roof building clad with log siding. Built into the mountainside below and along the edge of the timbered slope, it sits on a concrete foundation. Vertical boards finish the corners. Roof details include green ribbed metal roofing and extended, enclosed eaves. Wood steps access the cabin deck from both ends. A composite deck (2014) with wood rails wraps around three sides of the building (only partially on the east and west end walls). Both gable end walls hold solid metal doors (with accompanying screen doors) flanked by a two-sash sliding window. The south wall displays three small fixed single light units high across the wall. The north wall has large two-sash sliding units for each bedroom.

The Amherst Cabin is used by faculty-staff and contains two rooms (two beds each) divided by a bath. Flush doors from each room close off the bathroom space. The cabin sports pine flooring and plywood ceiling and walls.

<sup>30</sup> Russ Dutcher to Jon Goodwin, November 12, 1981, YBRA Archives, Carbon County Museum, Red Lodge, MT.

<sup>31</sup>Marv Kaufman, "YBRA Cabin Names," *YBRA Uplift* Issue 19, 2013, courtesy of Greg Geasy, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

The construction of the Amherst Cabin is the direct result of the leadership of “Pete” Foose that led to a substantial gift by Dr. Porteus Johnson (Class of ’28).<sup>32</sup>

A metal plaque reads:

Construction began with a gift  
from Prof. Johnson, Amherst ‘28  
“Given in gratitude for a lesson learned here  
that you and I are not god’s only concern.”

### **Franklin & Marshall (F&M) Cabin (one noncontributing building)**

Built in 1996, the Franklin and Marshall Cabin (F&M) is a one-story, rectangular (16’ by 20’), wood frame, gabled roof building. Log siding clads the building with the corners finished with vertical boards. Built on the mountainside below and along the edge of the timbered slope, it stands on a concrete foundation. Roof details include green ribbed metal roofing, wide eaves, and vergeboard. A wood deck with wood rails wraps partially around the end walls and across the length of the northwest wall. The southwest wall holds a one-light metal door and a two-sash sliding window unit. The northeast gable end wall holds a 1/1 double-hung window and a larger two-sash slider. The northwest wall displays a large cottage window.

The F&M interior consists of one room and a bath. Knotty pine covers the back wall with plywood covering the other walls and ceiling. The room presently contains one double and one single bed and features a built-in desk and closet.

Franklin and Marshall University provided the funding for the cabin’s construction.

### **Dutcher Cabin (one noncontributing building)**

The Dutcher Cabin sits immediately west of the Siegfriedt Cabin in a small aspen grove. Built in 2017, the Dutcher Cabin is a one-story, gabled roof, rectangular, manufactured log building. The corners of the shaped logs meet to form a butt joint, a manner of false notching. The moderate-slope gable roof exhibits green ribbed metal roofing and wide extended eaves. The east and west gable end walls hold metal doors with accompanying screen doors fronted by a small wood platform and flanked on one side by a 1/1 double-hung window. The symmetrical north wall features two paired 1/1 double-hung windows evenly spaced across its length.

The Dutcher Cabin is a 12-student dormitory and contains two rooms divided by a plywood wall with a single flush wood door with lock. It features exposed log walls and pine flooring.

The Dutcher Cabin honors Russ Dutcher who held the positions of YBRA president and camp manager for many years. Dr. Dutcher first came to YBRA in 1951 as an undergraduate from the University of Connecticut. He served on the YBRA council continuously for 42 years.<sup>33</sup>

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<sup>32</sup> Duane W. Bailey et al., “Richard M. Foose (1915-1994),” *Memorial Minutes*, Amherst University, accessed July 30, 2022, <http://www.amherst.edu>.

<sup>33</sup> Richard M. “Pete” Foose, “YBRA Uplift Issue 1 Spring, 1995.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

A bronze plaque next to the door reads:

DEDICATED TO  
THE MEMORY OF  
RUSSELL R. DUTCHER  
TEACHER AND SERVANT  
AUGUST 2017

**Bonini Cabin (one noncontributing building)**

Built in 2019, the Bonini Cabin is a hand-crafted log cabin made by Brad Logen of Red Lodge. The cabin is built into the timbered mountainside and rests on a concrete foundation that adjusts to the slope. The cabin is a one-story, rectangular, gabled roof building. Horizontal round logs join at the corners by saddle notching with slightly extended sawn ends and extended plate logs. The redwood deck wraps the cabin on the north and west side and exhibits artisan log supports and rails. Approached by wood steps with artisan log rails, the west wall holds a single-light metal door flanked by a fixed single-light window. A large centered fixed cottage window is centered on the north wall. Two awning windows sit high on the south wall while the east wall hold a single fixed light, also high on the wall.

The Bonini Cabin is nicely finished on the interior and displays an interior log wall separating the living space with the bathroom.

The Bonini Cabin acquired its title after William Emory Bonini (1926-2016), who was on the faculty of Princeton University for 43 years. He served as the Director of the Princeton Field Course program at the YBRA Camp for over 30 years.

**Shed (one noncontributing building)**

This storage shed is a one-story, rectangular (20' by 14'), gabled roof building with vertical galvanized tin siding and roofing. It sits on poured concrete footings at the corners and centers. The only opening is a metal door centered on the west end wall. A concrete stoop approaches the front of door.

Ralph Thomas moved the storage shed to this location around 1983.

**Concrete Cooler (one contributing structure)**

Located directly east of Fanshawe Lodge kitchen door, this above-ground concrete structure measures 27' by 8' and 16" deep. Metal pipes at each end allowed water to flow into and out of the cooler; presumably a control valve existed at one time to regulate the flow. The top of the cooler displays several inscriptions including Roy Wadsworth's initials, RW, and the date, July 1, 1936. Another shows the imprint of a left hand and the initials EB. Refrigeration did not arrive to the camp until the late 1940s.

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<sup>33</sup> "Russ Dutcher," YBRA Uplift 2003.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

**Main Water Tank (one noncontributing structure)**

A 1968 camp map shows the main water tank situated against the edge of the timbered slope above the camp. Today at this same location, a 10,000 gallon, 12' diameter, 15' tall replacement steel water tank sits on a concrete pad. This tank was installed around 1982.

**Green Water Tank (one noncontributing structure)**

First installed in 1970-1971, a secondary "green" water tank stood at the eastern edge of the camp above the Thom Library and at the edge of the timbered slope. Today at the same location, stands a replacement steel water tank that holds 5000 gallons and measures 12' in diameter and 15' tall. This tank was placed around 1980.

**Filter House (one noncontributing structure)**

The main water tank stands in the timbered hillside above the filter house, a small, gabled roof, wood frame, rectangular structure that houses the filtration system. Horizontal wood siding clads the structure and asphalt shingles cover the roof.

**Bell (one noncontributing object)**

It is not known where the original bell (circular saw blade) stood at the YBRA Camp, but presumably it was near the kitchen door. After the new addition in 1964, the bell sat on the lodge gable roof. Today, the bell stands by the south kitchen wall on a tall wood pole and rung by a rope pull. The new bell dates to post-1972.

**Flagpole (one noncontributing object)**

The flagpole is a narrow vertical metal pole situated immediately south of the open parking area. It is unknown when the flagpole was erected, but it is not visible on a c. 1958 aerial photograph of the YBRA Camp. In 1985, the flagpole was "getting to look rather tattered and torn and should be placed under consideration for replacement." It is unknown if it was replaced.

**Circulation System (one contributing structure)**

The YBRA Camp is accessed from US Highway 212 (the famed Beartooth Highway). A bridge over Rock Creek built by Roy Wadsworth was one of the first camp priorities; at first, crossing the creek entailed fording the stream 100 feet to the south prior to the bridge construction. YBRA constructed the present bridge over Rock Creek in 2008-2009 but the integrity of bridge is now compromised after the June 2022 flood. Both the bridge and the Beartooth Highway lie outside the YBRA Camp National Register boundary. After crossing the bridge, a steep, curving rough gravel road reaches the entrance to the YBRA property. The road continues to climb until reaching an open north-facing slope with scattered timber and eventually re-emerges into a wide space in front of Fanshawe Lodge. This road continues farther east along the contour passed the Thom Library and beyond to "The Point," a favorite gathering spot.

"The Point" serves as a vista and favorite gathering place enhanced by the presence of a recent fire pit and expansive view. A memorial garden with three memorial stones sits against the timbered hillside; a second fire pit also exists in front of the memorial. Both "the Point" and memorial garden are outside the National Register boundary.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

Faint small trails connect the cabins on the hillside. The most defined are narrow paths between the cabins beneath the timbered slope where walking is difficult and down the slope to the main camp road and wash house. Where the camp slope is open, the paths are more varied and indistinct where individuals just take the most convenient route to their cabins.

A portion of the gravel road from the bridge and several small trails lie within the National Register boundary. The access road from the bridge and the trails all remain in their historic alignments illustrating the past travel paths around the camp.

### **Howell Gulch Reservoir (outside district boundary)**

Located uphill from the camp approximately 750 feet south/southwest of the camp, a rubblestone concrete reservoir straddles Howell Creek Gulch. The reservoir measures 12' by 9' and 3' deep. The creek flows into a half culvert that diverts the water to be captured in the reservoir. The overflow exits the reservoir by another half culvert, then cascades into a third half-culvert and flows back into the creek bed. A shed roof frame structure with plywood and screened walls covers the reservoir. First constructed in 1936 to supply water to the camp by a pipeline, the reservoir remains in use but has been reconstructed several times.

### **Yellowstone Bighorn Research Association, Contributing and Noncontributing Resources**

RESOURCE	CONSTRUCTION DATE	C/NC
1 FANSHAWE LODGE	1936	C
2 MAIN WASH HOUSE	1936	C
3 DARTON CABIN	1936	C
4 FENNEMAN CABIN	1936	C
5 CHAMBERLIN CABIN	1936	C
6 KING CABIN	1936	C
7 WASSON CABIN	1936	C
8 BARRELL CABIN	1936	C
9 BOWEN CABIN	1936	C
10 DANA CABIN	1936	C
11 HALL CABIN	1936	C
12 POWELL CABIN	1936	C
13 GILBERT CABIN	1936	C
14 ROBINSON CABIN	1936	C
15 ROY'S TOOL SHED	1936	C
16 HAYDEN CABIN	1936	C
17 POLDERVAART CABIN	1936	C
18 SIEGRIEDT CABIN	1936	C
19 THOM LIBRARY	1955	C
20 WADSWORTH HALL	1958	C
21 TOM DORF CABIN	1969	C

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

22	HEROY CABIN	1969	C
23	THOM CABIN	1969	C
24	BUCHER CABIN	1969	C
25	MARATHON WASH HOUSE	1970	C
26	PRINCETON CABIN	1972	C
27	DUSENBURY HALL	1973-1978	NC
28	EARLING DORF CABIN	1972-1978	NC
29	FOOSE CABIN	1976	NC
30	ROUSE CABIN	1981	NC
31	AMHERST CABIN	1989	NC
32	F & M CABIN	1996	NC
33	DUTCHER CABIN	2017	NC
34	BONINI CABIN	2019	NC
35	STORAGE SHED	1983	NC
36	FILTER HOUSE	c.1980	NC
37	COOLER	1936	C
38	MAIN WATER TANK	c.1982	NC
39	"GREEN" WATER TANK	1980	NC
40	BELL	POST 1972	NC
41	FLAGPOLE	POST 1972	NC
42	CIRCULATION SYSTEM	1936	C

### Integrity

The YBRA Camp retains a high degree of integrity as a functioning geological field camp that has operated almost continuously for 86 years as of 2022. The site functions much as it did since it was permanently established on Mount Maurice in 1936. The YBRA Camp retains a remarkable degree of integrity of location and setting. There are no visible intrusions to the natural landscape immediately surrounding the camp, in part due to the extensive acreage owned by YBRA and preserved in an undeveloped state. While the view from the lodge deck has changed with the growth of the Red Lodge area in the distance, the magnificent vistas of mountains and plains remain. Originally more forested, the camp vegetation has changed naturally through time and from fire suppression efforts, with the thinning of trees and cutting brush. The 2021 Robinson Draw fire necessitated extreme measures to protect the camp, including a fire line between the cabins and the timbered mountain slope behind them.

YBRA contains an amazing collection of historic log, log and stone and log slab clad frame buildings whose historic fabric remains intact. All buildings, except for two, exhibit their original design, workmanship, and materials, and reflect their historic appearance and character. No buildings have been removed or destroyed. All of the contributing buildings represent a simple vernacular rustic architectural style, with all original buildings designed and constructed by caretaker Roy Wadsworth in 1935-36.



Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

A few modifications to historic camp buildings occurred within the period of significance but none significantly diminish their integrity as they retain their historic appearance and their historic function. Electricity arrived in the late 1940s and buildings wired accordingly. Most cabins have replacement sliding windows installed within their original openings. Many wood decks were added to a number of the cabins to expand living space and room for social gatherings. Cabin interiors also experienced improvements with installation of hardwood floors and insulated ceilings. Metal roofs are gradually replacing asphalt shingles, a necessary step to protect the camp from fire, especially after the 2021 Robinson Draw fire came within 600 feet near the northeast corner of the camp.

The camp has evolved over the years but due to concentrated efforts by the YBRA members, the camp holds true to its original appearance and character. The camp still exists in its pristine condition due to the constant infrastructure maintenance or upgrades over the years when time and money allowed. Having a permanent caretaker proves critical in this matter along with the volunteerism of YBRA members through their time and labor throughout the camp's existence.<sup>34</sup>

Fanshawe Lodge, the Main Wash House, and the Tom Dorf Cabin are the only historic buildings with additions. The lodge kitchen was enlarged in 1984 for a walk-in cooler and standing freezer. Later, in 2017, an extension off the 1984 addition provided the kitchen staff with a bath/shower room. These additions do not overshadow the original lodge, as the gable roof is lower than the original lodge roof. Located at the east end of the lodge, the additions are unobtrusive and do not affect the historic lodge appearance and character.

YBRA built an addition to the original main wash house in the 1960s to accommodate female students, wives, and visitors. The gabled-roof addition is compatible with the original 1936 main wash house, featuring the same log and stone construction and a low gable roof.

YBRA added a bathroom to the Tom Dorf Cabin within a year of its construction. The bath extends off the south wall into the mountainside beneath the timbered slope and therefore is not visible or intrusive.

Most of the noncontributing buildings (those built after period of significance) are aligned across the upper level of the camp complex and built into the mountainside directly below where the timber begins. These cabins are stylistically compatible to the historic cabins, all being one-story, gabled roof, rectangular, log buildings. The conscientious desire of the YBRA to retain the camp's historic appearance and character is evident with the design and placement of the newer cabins.

There are two water tanks. Archival information shows that water tanks have stood at the camp since the 1930s. While they are somewhat intrusive (although painted green), these replacement tanks reflect an historic purpose and serve as a necessary component of the water system. A few smaller outbuildings exist in the camp but are non-intrusive.

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<sup>34</sup> YBRA members also participated in volunteer work weeks at the camp, beginning in 1995 for "minor or major treatment." *YBRA Uplift*, miscellaneous issues, YBRA Archives, CCHSM, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

The YBRA Camp is a wonderfully preserved property that effortlessly reflects its history and epitomizes the look and feel of a geological field camp established in the 1930s. The camp reflects its utilitarian historic origins, lacking frills and providing just the basic needs. YBRA successfully, through considerable time and effort, continues to preserve the historic character and appearance of the field camp.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

## 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 grave
- ☐ D. A cemetery
- ☐ E. A reconstructed building, object, or structure
- ☐ F. A commemorative property
- ☐ G. Less than 50 years old or achieving significance within the past 50 years

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

**Areas of Significance**

(Enter categories from instructions.)

SCIENCE

ARCHITECTURE

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Period of Significance**

1936-1972

\_\_\_\_\_  
\_\_\_\_\_

**Significant Dates**

1936

\_\_\_\_\_  
\_\_\_\_\_

**Significant Person**

(Complete only if Criterion B is marked above.)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Cultural Affiliation**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Architect/Builder**

Ray Wadsworth

\_\_\_\_\_  
\_\_\_\_\_

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

**Statement of Significance Summary Paragraph** (Provide a summary paragraph that includes level of significance, applicable criteria, justification for the period of significance, and any applicable criteria considerations.)

The Yellowstone-Bighorn Research Association (YBRA) Camp is eligible for listing in the National Register of Historic Places under Criterion A for its national, state, and local historic significance as the location of educational field studies and research in earth sciences since 1936. With the early recognition by Princeton University geologists of the remarkable geological diversity of the region, the establishment of the YBRA Camp near Red Lodge, Montana provided an unparalleled opportunity for collaborative geological research and education.

The YBRA Camp is the oldest collaborative (if not the only) geology field camp in continuous operation since 1930, and at its permanent location since 1936. It is the first permanent geological science research station in Montana. Through the decades, the YBRA Camp has introduced thousands to undergraduate and graduate field courses in geology, like Dr. Kirk Johnson, the Sant Director of the Smithsonian National Museum of Natural History. Since its inception, it has led by example of the education of field scientists with strong participation by numerous universities that utilize the camp. The interactions and relationships built between students, faculty, and researchers flourished during their time at YBRA and for years, if not decades, later and is one of YBRA most enduring aspects.

The understanding (that continues to increase today) of the geology of the Rocky Mountains in the Absaroka-Beartooths, the Bighorn Mountains, Pryor Mountains, and the Big Horn Basin is due in large part to the studies and dissertations researched by students and professors based out of the YBRA Camp. By 1954, YBRA students and faculty members contributed about 150 professional papers, 40 doctorate dissertations, as well as presentations at various meetings and conferences, and extensive unpublished manuscripts, maps, and reports. An early promotional brochure contains a five-page bibliography that reveals the expansive amount of relevant geological research by individuals from multiple universities and colleges who also shared their expertise each summer teaching geological field courses at the camp.

The significance of the YBRA Camp makes a strong case for national-level recognition. The contribution of the YBRA Camp to the advancement of geological education and research is undeniable. An arc of the area surrounding the camp for a hundred or more miles includes Yellowstone National Park in the west and the Big Horn Mountain range to the south. The area is geologically well known largely because of the foundational work that occurred from the YBRA base camp. Rocks exposed in this area date from the most recent Pleistocene times back to the Precambrian with formations and fossiliferous zones that document the evolution of the North American Continent.<sup>35</sup> In addition to the earth history revealed across the area, YBRA's reach extended to the special history of the geological formation of Yellowstone National Park, like the underlying volcanism. The educational and heuristic value associated with the YBRA camp is also elevated by the economic geological understanding revealed in part through the investigations begun at the camp. Coal, oil, and gas, as well as various hardrock mining

<sup>35</sup> Linda Dutcher, personal communication with author, October 6, 2022, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

opportunities were developed in part through the work performed by faculty and students who attended the YBRA Camp, including the identification of environmentally important mineral deposits. A major discovery of national significance was the identification of the layered igneous rocks south of Nye, Montana, analogues of the world-renowned, platinum-bearing Bushveld Igneous Complex of South Africa. Professor Ed Sampson of Princeton University identified these rocks known as the Stillwater Igneous Complex. Indeed, follow-up doctoral students, based out of YBRA Camp, discovered minerals that contained platinum-group elements. The recognition of these minerals represented the precursor to the discovery in the 1970's of the platinum-palladium (Pt/Pd) deposit mined today. The economic prominence of this deposit holds world-wide significance. The Sibanye-Stillwater Mining Company mines serve as the United States' only producing location of environmentally important platinum-group metals, a consequence of the fundamental geologic research based out of the YBRA Camp.

### Criteria C

The Yellowstone-Bighorn Research Association Camp is also eligible for listing in the National Register of Historic Places at the local level of significance under Criterion C as representative of vernacular rustic architecture influence by locally accessible materials of log and stone. The numerous log and stone, and wood frame buildings sheathed with log slabs exhibits the workmanship and craftsmanship of Roy Wadsworth who constructed with his crew all of the historic 1936 buildings. These buildings exhibit a simple, modest, unpretentious rustic style. Rustic architecture flourished during the early twentieth century especially during the dude ranching boom years in the 1920s where use of native materials helped cultivate an authentic western experience for the guests and their idealized wilderness experience.

The period of significance begins in 1936 with the initial construction of buildings on the property and ends in 1972, the end of the historic period.

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**Narrative Statement of Significance** (Provide at least **one** paragraph for each area of significance.)

### Early History of the Area

The Yellowstone-Bighorn Research Association (YBRA) Camp is located on lands originally designated Crow Indian Reservation. By 1880, newly discovered coal deposits resulted in increased pressure on the Crow to cede a wide strip of land surrounding the present-day town of Red Lodge. This cession of Crow lands opened the area to mining and town-building.<sup>36</sup> Rocky Fork Coal Company opened the first large-scale mine in Red Lodge in 1887 and coal mining dominated the economy until after World War I. The completion of the scenic Beartooth Highway in 1936 revitalized Red Lodge by linking it directly to Yellowstone National Park. Since then, Red Lodge economy has increasingly been based on tourism and recreation.

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<sup>36</sup> This was an 1880 agreement with the Crow but not ratified until 1882. For discussion on reduction of Crow reservation lands, see William M. Brooke, "A Contest over Land: Nineteenth Century Crow-White Relations," *Montana Vistas: Selected Historical Essays* ed. Robert Swartout, Jr., (Washington, DC: University Press of America, Inc., 1981): 1-24 and Burton M. Smith, "Politics and the Crow Indian Land Cessions, 1851-1904," *Montana, The Magazine of Western History* 36:4 (Autumn 1986), 24-37.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

### **The Yellowstone Bighorn Research Association**

The same year the Beartooth Highway opened, the YBRA opened its newly constructed camp on the slopes of Mount Maurice. The permanent YBRA Camp and its field courses have been in continuous operation since, persisting now for 86 years, following the traditions and teaching philosophies devised in the early 1930s when the field camp started, but also in recent years incorporating advanced techniques and methods for the study of geology.

*The following discussion regarding the years 1930-1940 is taken primarily from the history entitled "The Red Lodge Project and the YBRA: The Early Years, 1930-1942" written by William E. Bonini, Steven K. Fox and Sheldon Judson.<sup>37</sup> The text has been edited and additional information added where appropriate.*

### **1930-1940—the YBRA and its Red Lodge Project Antecedents**

The Yellowstone-Bighorn Research Association (YBRA) originated with the vision of William Taylor Thom, Jr., of the Geology Department at Princeton University. According to Dr. Erling Dorf, as early as 1928, Thom "had the idea of getting [to a] field area where geology was exposed from Precambrian to Recent," and "where undergraduates and graduates [came] to study geology." While the YBRA vision is rightfully attributed to Dr. Thom, Dr. Richard Field organized Princeton's Summer School of Geology and Natural Resources in 1926, a yearly field course designed to train students in techniques of geological and geophysical research.<sup>38</sup>

In the early 1930s, the geology of the Beartooth Mountains and Big Horn Basin remained relatively unknown. The limited existing knowledge base offered a unique opportunity to make significant advances pertaining to the geological understanding of the area through research and at the same time train student geologists in the critically needed techniques of geological mapping. Red Lodge, Montana, sat strategically between these two very geologically distinct (basin vs. uplifted mountain) regions and allowed geologists "a wide variety of structural problems" to study, and to "discover important economic deposits of oil and coal and other non-metals."<sup>39</sup>

Thom and Field came to Red Lodge in 1930 "as an experiment in collaborative and informal education-through-research, called the "Red Lodge Project." Besides professional geologists conducting original research, the faculty from various universities brought undergraduate and graduate students to conduct their own studies at selected points in the area. Sponsors included Princeton University, the Princeton Department of Geology, the International Summer School of Geology and Natural Resources and the Northern Pacific Railroad. They lacked permanent

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<sup>37</sup> William E. Bonini, Steven K. Fox, and Sheldon Judson, "The Red Lodge Project and the YBRA: The Early Years, 1932-1942," *Montana Geological Society – YRBA Field Conference*, 1986: 1-9.

<sup>38</sup> Dr. Erling Dorf interview with Marv Kauffman, August 1983, transcription by Marv Kauffman, YBRA Archives, Carbon County Historical Society and Museum (CCHSM), Red Lodge, MT; Princeton Geoscience Department "History of Princeton Geoscience," accessed August 3, 2022, <https://geosciences.princeton.edu/about/history>.

<sup>39</sup> Willard D. Pye, "Contributions to the Geology of the Bighorn-Beartooth Region by the Yellowstone-Bighorn Research Association, Fifth *Montana Geological Society – YRBA Field Conference*, September 9-11, 1954, YBRA Archives, CCHSM, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

headquarters the first year but a chance meeting with Dr. J. C. F. Siegfriedt of Red Lodge provided a camp for the following year.<sup>40</sup>

Red Lodge doctor and former Bearcreek mayor Dr. Siegfriedt (also an amateur paleontologist) immediately became an ardent supporter of the Red Lodge Project and later YBRA. He owned property about five miles southwest of Red Lodge, on Rock Creek, called Piney Dell, consisting of an old house and several small cabins with open space for tents. Although the accommodations were crude, they did not deter the geologists who returned to Piney Dell for two years. In 1930, 19 active participants attended the camp, 35 in 1931, and 42 in 1932. Family members increased the camp's population.

In 1931, Thom met Roy Wadsworth, a coal miner in the winter at the Smith Mine in Bearcreek and a carpenter in the summer months. Thom persuaded Roy and his wife, Florence, to join the camp in 1932 as repairman, caretaker, and cook. This began a life-long relationship between YBRA and Wadsworth, as Roy and Florence served the Red Lodge Project and later YBRA for over 30 years.

A total of 17 colleges and universities including 18 faculty members, 15 graduate students and 19 undergraduates participated in the first three field seasons. The Red Lodge Project's success in geological research and the growth of the program necessitated larger quarters to handle the increased interest. From 1933 to 1935, they rented Camp Senia, an historic dude ranch established in 1917, located on the West Fork of Rock Creek, approximately 12 miles west of Red Lodge. A successful dude ranch throughout the 1920s, Camp Senia failed after the stock market crash in 1929. In 1932, the new owner, Richard "Beanie" Thurber of Boston, rented Camp Senia to the Red Lodge Project. Camp Senia was a step up from Piney Dell with a lodge, kitchen and dining room, wash house, and log cabins constructed by Finnish friends of the original owner, as well as plenty of tent sites.<sup>41</sup>

### **1934-1940—A Place to Call Their Own—Building the YRBA Camp**

The remoteness of Camp Senia, however, combined with the distance from field studies locales proved inconvenient, and Thom decided to search for a more accessible and permanent location.<sup>42</sup> Thom, along with Benjamin Howell, Princeton University paleontologist, presumably began the search soon after their arrival in 1934. In September 1934, the Northern Pacific Railway Company reportedly informed Thom he could obtain the cancelled grazing lease of F. L. Clark for \$420.00.

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<sup>40</sup> Red Lodge Project, "Summary Report for Princeton Geological Association Covering Ten Years of Project's Operation, YBRA Archives, CCHSM, Red Lodge, MT.

<sup>41</sup> Jon Axline, and Mark Hufstetler, "National Register nomination for Camp Senia Historic District Boundary Increase and Addendum" (NR#88000441), January 2012, on file, Montana State Historic Preservation Office, Helena, MT. In 1934, Camp Senia, under its new ownership, was called Silver Run Mountain Camp.

<sup>42</sup> *The New York Times* in October 1930 reported that the "colony" plans "to erect a cabin colony along the northeastern foot of the Yellowstone Park Plateau to serve as a headquarters for future investigations, *New York Times*, October 19, 1930, accessed May 24, 2022, [https://timesmachine.nytimes.com/timesmachine/1930/10/19/102174841.pdf?pdf\\_redirect=true&ip=0](https://timesmachine.nytimes.com/timesmachine/1930/10/19/102174841.pdf?pdf_redirect=true&ip=0)



Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

For this transaction to work, Thom first needed the support and backing of Princeton University, particularly the Geology Department. The Department agreed to take over the title from Thom with the stipulation that the “Red Lodge Project” would lease the property from the newly organized Princeton Geological Association as well as permanently allow Princeton University to continue its educational field seasons at the camp.

With this understanding, Dr. Thom “took the responsibility” and in March 1935, purchased 120 acres on the north/northeast-facing slope of Mount Maurice from the Northern Pacific Railway Company for \$420.00.<sup>43</sup> Now fully committed, Thom slowly proceeded toward the development of a permanent field camp while at the same time holding the responsibility for directing the active 1935 field season, with 75 faculty and students plus visiting scientists expected at the camp.

In August 1935, the *Carbon County News* announced a public meeting at the request of G. A. Jeffrey, Red Lodge mayor, to gauge the public sentiment “and gain civic sponsorship and backing” for the camp. The proposed plans as presented were:

. . . to erect on the site a main lodge, 65 by 30 feet in dimensions, including a dining room and kitchen; shower house; a small saw mill and frames and floors for tents. The camp is to have water and sewer system, a lighting system, and a road and bridge are to be built to give the camp access to the new park highway. Stoves, utensils, and equipment would be needed for 50 persons. The entire cost of the camp is estimated at \$10,000.<sup>44</sup>

At the meeting, Thom announced that the logs were at the camp site and the lodge foundations being laid. Available historic photographs provide a wonderful window into the lodge construction during the fall and winter months of 1935-1936 to its completion.<sup>45</sup>

In February 1936, Thom reported to the Princeton geology department on the progress of the research camp:

. . . the construction of a new camp, to serve as a base and headquarters for the Red Lodge Geological project and its friends, was begun last fall and has made great progress, due to the effective direction of Roy Wadsworth, camp manager. So much

<sup>43</sup> Carbon County Clerk & Recorder, Deed Record, March 1, 1935, Book, Page 44, Carbon County Courthouse, Red Lodge, MT.

<sup>44</sup> *Carbon County News*, “Call Public Meet-to Discuss Camp,” August 21, 1935, accessed August 8, 2022, <http://chroniclingamerica.loc.gov/>. The article further discussed how individuals would build their own cabins but this did not happen.

<sup>45</sup> *Carbon County News*, “Princeton Camp Construction is Discussed Here,” August 28, 1935, accessed August 8, 2022, <http://chroniclingamerica.loc.gov/>. It is unclear how much assistance he received although attendees did form a committee. Historic photographs hang on the lodge walls and also in YBRA archives, CCHSM, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

was accomplished before winter set in that it is reasonably certain that the essential parts of the camp will be in operating order by the opening day of the 1936 season, which is July first.

As may be recalled, the site for the new base camp is provided by a shelf-like clearing high up on the flank of the Beartooth ranch whence continuous views toward the southwest, west, north and east give a wonderful panorama of mountain and plain – with the town of Red Lodge, four miles away, in the middle distance, and with the new Red Lodge-Yellowstone Park superhighway visible in the valley a thousand feet below and a mile distant from the new main lodge.

To date, the construction has been nearly completed on the new main lodge (and dining room) building and on the shower house and sewer system. One dormitory cabin and some individual sleeping cabins are also well advanced. A temporary approach road has been graded out, and the bridge piers and beams for the new camp approach have been placed during the fall low-water period – this approach road leaving the Red Lodge-Yellowstone Park highway at the Point-of-Rocks, a vertical limestone crag several hundred feet high, situated about 3 1/2 miles southwest of the town.<sup>46</sup>

He further described the efforts underway to incorporate the camp as a not-for-profit educational and research organization “in order to facilitate and render safer the financing and management of the camp.” By May, Thom retained a Livingston attorney to draw up the corporation papers. He presented the name “Yellowstone-Bighorn Research Association” as a possible title for the new research organization, suggesting it “would be short as possible while at the same time descriptive of the area of its operations.” Dr. Siegfriedt praised this name as it identified that the “camp is open to all scientific researchers, no matter what college affiliation there might be.” This philosophy of collaboration with other universities and colleges remains an underlying YBRA theme.<sup>47</sup>

These efforts culminated on July 7, 1936, with the formal incorporation of The Yellowstone-Bighorn Research Association Inc. under the laws of the State of Montana relating to scientific societies, the purpose being:

To advance education and research in science; to that and to possess all powers necessary to establish, maintain, equip, and

<sup>46</sup> *Smilodon* Vol. III. No. 2, June 1936, YBRA Archives, CCHSM, Red Lodge, MT; also available at <https://geosciences.princeton.edu/about/publications/smilodon/>

<sup>47</sup> Ibid; Thom to Nevin N. Fenneman, May 14, 1936, YBRA Archives, CCHSM, Red Lodge, MT; “Many from Red Lodge Attend Barbecue At Local Research Camp,” *Carbon County News* July 24, 1936.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

operate a complete education and research institution and research center, with all the necessary properties, appliances, equipment, convenience, and personnel therefor.<sup>48</sup>

YBRA established itself as a non-profit and also specified that if the association failed, the property should transfer to a similar “educational or research” institution to further advance and promote scientific and educational work of the association. The original 11 directors (known as “Councilors”) included eight academics (all of whom previously participated in the Red Lodge Project): W. T. Thom, Jr., and Richard M. Field, Princeton University; Walter H. Bucher and Nevin M. Fenneman, University of Cincinnati; Rollin T. Chamberlin, University of Chicago; John T. Rouse, Ohio State University; Marcellus H. Stow, Washington & Lee University; Charles W. Wilson, Jr., Vanderbilt University. The three other councilors came from Montana: Francis A. Thomson, Montana School of Mines, Butte; Vilroy C. Miller, a Livingston attorney retained by Thom, and J.C. Fred Siegfriedt of Red Lodge.<sup>49</sup>

Thom, however, had not waited for the non-profit to be established but continued with the camp construction and efforts to secure funding. After receiving a brief note from Dr. Siegfriedt that “the boys are working on the camp”, Thom traveled to Red Lodge in April 1936 to confer with Ray Wadsworth and inspect the camp where “five sleeping cabins are already constructed, with erection of about a dozen more contemplated.”<sup>50</sup> He also secured water rights to Howell Gulch located southwest and up the mountainside where Wadsworth erected a concrete reservoir to direct water by gravity flow down to the camp to a storage tank.<sup>51</sup>

When the field season opened in July, the camp conditions were clearly rustic, but obviously adequate. By the beginning of July, over 50 scientists, graduates, and undergraduates descended upon the new camp on Mount Maurice. To celebrate the camp’s opening, YBRA invited Red Lodge Commercial Club members, their friends and presumably their families, to a barbecue at the camp at the end of July. According to the *Carbon County News*, YBRA entertained “about 300” from the Red Lodge community with a barbecue of pork, buns, salad and coffee.<sup>52</sup>

The construction costs for the camp from August 1935 to September 1936, totaled \$11,444.30. This included \$1512.00 for Roy Wadsworth’s time, \$4606.50 for general labor, and \$5325.80 for materials. Camp equipment and furnishings, including for the kitchen, added an additional

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<sup>48</sup> Articles of Incorporation of The Yellowstone-Bighorn Research Association Inc., YBRA Archives, CCHSM, Red Lodge, MT.

<sup>49</sup> Ibid.

<sup>50</sup> J. C. F. Siegfriedt to W. T. Thom, Jr., April 27, 1936, YBRA Archives, CCHSM, Red Lodge, MT; “Princeton Man Inspects Camp,” *Carbon County News*, “April 15, 1936, accessed August 8, 2022, <http://chroniclingamerica.loc.gov/>.

<sup>51</sup> State of Montana, “Notice of Completion of Groundwater Appropriation without Well, YBRA Archives, CCHSM, Red Lodge, MT.

<sup>52</sup> “Many from Red Lodge Attend Barbecue At Local Research Camp,” *Carbon County News*, July 24, 1936.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

\$1,839.35 for a total cost of \$13, 283.65. With incidental camp expenses, the total amount paid out by the first of September totaled \$14,732.53.<sup>53</sup>

As with all non-profits today or in the past, chasing funding proved a necessary evil. Records show that Thom and others constantly contacted various individuals in search of support. In May 1936, Thom asked for assistance to cover construction costs from Princeton University. Later that fall, he wrote to Mr. W.A. Dusenbury (Princeton, 1903) of New York, and informed him of the progress of YBRA where “during the past summer it set up its own headquarters camp, five miles from Red Lodge and a short distance from the new scenic highway (Beartooth Pass) which crosses over to Yellowstone Park. . . Besides the main lodge’ fifteen other cabins are now up on our 120 acres tract, and the water and sanitary systems, etc. are provided.” He informed Mr. Dusenbury that visitors to the camp in 1936 numbered 12 faculty members, 12 graduate students, 20 undergraduates, 12 preparatory school students, as well as 30 visitors, family members, and transient guests.<sup>54</sup>

Thom further expounded on the success of the camp opening and the 1936 field season in the *Smilodon*, the Princeton Geology Department newsletter:

As one can see from the pictures herewith our 120-acre tract on the north slope of Mt. Maurice is no longer just a “camp site”, but is provided with a main lodge, a shower house, and fourteen other cabins; has its approach bridge and (preliminary) approach road “in”; and has an adequate water and sanitary system built – the water coming by pipe line from reservoir in Howell Gulch (ex B. F. Howell, ’13, who originally “spotted” the camp site). That all of this construction was completed in the period between Sept. 1, 1935 and July 1, 1936 was almost entirely due to the interest, energy, and skill of our fellow-camper and general guide, counselor and friend, Roy Wadsworth, of Bearcreek. How much of a job of construction and preparation he had done was demonstrated on July 17 when the geological camp colony, numbering about 75, played host to 175 guests from the Red Lodge Business and Professional Men’s Club at a pig-roast at the barbecue grounds and deck tennis court, visible at the lower left.<sup>55</sup>

After the 1936 field season ended, Roy Wadsworth continued working at the camp and informed the *Billings Gazette* he “will construct several new buildings on the camp site this fall and winter.” In September, he wrote Thom that he needed to “get more slabs to have enough to finish slabing [sic] the cabins. . . I cut 200 poles and skided [sic] them out and have part of them

<sup>53</sup> YBRA, “Financial Summary August. 20, 1935, to Sept. 1, 1936,” YBRA Archives, CCHSM, Red Lodge, MT.

<sup>54</sup> Thom to W.A. Dusenbury, October 30, 1936, YBRA Archives, CCHSM, Red Lodge, MT.

<sup>55</sup> W. T. Thom, Jr., “Red Lodge Research 1936-1937”, *The Smilodon*, March 1937, YBRA Archives, CCHSM, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

pealed.” Later that fall, he worked to complete the bridge and finished all the “slabing” of the cabins and other work and had time to frame up a 10 x 14 cabin.<sup>56</sup>

As the 1937 field season approached, there was a noticeable increase in interest to come to the camp (and region). Thom opined two reasons: first, the Beartooth Highway from Red Lodge to Yellowstone Park now linked two major routes to Yellowstone from east and west. The opening of the Beartooth Highway in 1936 greatly improved accessibility for the visiting geologists to the Beartooth Mountains and other field study sites. Secondly, the Northern Pacific Railway planned to run (air-conditioned) Pullmans into Red Lodge, therefore, making travel to Montana and Red Lodge much easier. That same year, YBRA partnered with several other groups to host a field conference “in large measure as a review of work done by the Red Lodge group (now YBRA) during the past seven years.”<sup>57</sup>

In the winter of 1938, Red Lodge skiers discovered excellent skiing below the YBRA Camp on Mount Maurice and the ski club planned to travel up to the YBRA Camp every Sunday. During a ski club meeting, one individual “spoke on the importance of not defacing or damaging any of the property belonging to the Princeton camp, and asked that all members conduct themselves so as not to be criticized.” In January 1939, over 200 persons enjoyed a Sunday of skiing, ski races, and excellent weather. In late March that same winter, a chartered train from Billings took 150 skiers to the YBRA Camp. Roy Wadsworth, however, did not appreciate the Billings continuant and this apparently curtailed skiing at the camp.<sup>58</sup>

### **The YBRA Camp, 1940-1950**

By the end of the decade, a summary report by the Princeton Geological Association (PGA) professed faith in the success of the YBRA undertaking to continue functioning “as a self-supporting research and educational activity, and can realize its original objective of becoming a natural and effective meeting place of students of earth sciences from all parts of the world.” Three factors supported this opinion: a positive financial statement, the number of participants over the 10-year period, and the membership of the collaborating scientific group leading the work.<sup>59</sup>

In 1942, Thom lent further credence to the above by presenting his summary report on the success of the first 12 years at the camp. He reported 374 individual participants – 64 of faculty rank, 89 graduate students, 197 undergraduates, and 51 secondary-school students –from over

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<sup>56</sup> “Buildings Planned,” *Billings Gazette*, September 27, 1936; Roy Wadsworth to Dr. Thom, September 30, 1936 and November 9, 1936, YBRA Archives, CCHSM, Red Lodge, MT. Thom and Wadsworth agreed YBRA would pay Wadsworth \$50 per month for 10 months and more during the two summer months. Linda Dutcher, former archivist of YBRA, transcribed the extensive correspondence between Thom and Wadsworth but it was not available for this nomination.

<sup>57</sup> Thom, “Red Lodge Research 1936-1937; A. C. Lane, “Red Lodge Field Conference, 1937,” *Smilodon*, November 1937, YBRA, CCHSM, Red Lodge, MT.

<sup>58</sup> *Carbon County News*, December 9, 1938, January 27, 1939, March 29, 1939; Roy Wadsworth to Dr. Thom, December 21, 1938, YBRA Archives, CCHSM, Red Lodge, MT.

<sup>59</sup> Princeton Geological Association, “Red Lodge Research Project, Summary Report for Princeton Geological Association Covering Ten years of Project’s Operations,” YBRA Archives, CCHSM, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

197 different institutions. In addition, there were over 400 visiting geologists during that same period. Credited to the project in one way or another was a total of 66 publications, 59 abstracts of presented papers, 20 PhD theses with nine pending, and 47 senior papers with four pending.<sup>60</sup>

By 1941, YBRA no longer wanted to lease the camp from PGA but desired to acquire ownership. PGA agreed to sell the property for \$4000.00 (an amount less than they originally requested) plus \$500.00 amortization due in September 1941. One stipulation of the sale reemphasized that YBRA shall “continue to make the camp available to Princeton students and faculty members in such work as may be carried on at the camp, as they have in the past.” On February 3, 1942, the PGA transferred title for 120 acres to the Yellowstone-Bighorn Research Association.<sup>61</sup>

World events overshadowed any celebration and camp activity slowed when university enrollments decreased as students joined the war effort. In April 1942, Thom announced the camp would open “unless unforeseen war developments arise” but would probably consist mostly of younger students.<sup>62</sup> However, it appears that the camp didn’t officially open; instead, Roy Wadsworth operated a tent camp at the foot of Mount Maurice where seven research projects were active and field courses for undergraduates and pre-freshman provided. The YBRA camp reemerged in 1947 into “capacity operation” with 53 undergraduate and graduate students attending. For the next few years, YBRA’s chief “pre-occupation” for the camp and faculty involved the “field-training of student veterans-under pressure to complete their educations and get to work.” Also in 1947, YBRA co-sponsored a Geological Society of America conference held in the Big Horn Basin.<sup>63</sup>

Roy Wadsworth continued as camp caretaker throughout the 1940s. Wadsworth now lived at the Dunn Ranch along Rock Creek instead of Bearcreek, so in closer proximity to the camp. The introduction of electricity (probably the most significant event at the camp that decade) occurred on May 21, 1948, when Wadsworth “at 7 o’clock turned the lights on in the Lodge, - four lights in the Lodge, four in the dining room, four in the kitchen with some wall plugs for more lights if needed.” Later than summer, Wadsworth wired the wash house and several cabins.<sup>64</sup>

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<sup>60</sup> The Red Lodge Project history by Bonini et al. also includes a list of all faculty participants from 1930-1936 and a list of 1930-1941 PhD candidates and undergraduate senior theses.

<sup>61</sup> Carbon County Clerk and Recorder, Deed Book 45, p. 405, Carbon County Courthouse, Red Lodge, MT; Erling Dorf to W. T. Thom, Jr., June 13, 1941, YBRA Archives, CCHSM, Red Lodge, MT; Erling Dorf, “Memorial to William Taylor Thom, Jr.,” July 1979, “From the Archives,” by Linda Dutcher, *YBRA Uplift*, Issue 2 Spring 1996. According to Erling Dorf, reportedly a resolution passed by the Princeton Geology Association asked only for \$1 for the camp due to previous donations by others.

<sup>62</sup> *Billings Gazette*, April 9, 1942.

<sup>63</sup> W. T. Thom, Jr., “Progress Report to the Yellowstone-Bighorn Research Association,” July 19, 1948, YBRA Archives, Red Lodge, MT.

<sup>64</sup> Roy Wadsworth to W. T. Thom, May 21, 1948, YBRA Archives, CCHSM, Red Lodge, MT; Linda Dutcher, “From the Archives,” *YBRA Uplift*, Issue 4 Spring 1998.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

### **Improvements to the YBRA Camp, 1950-1960**

While no reflection on Roy Wadsworth, by the mid-1950's, one member lamented that "our wilderness cabins and camp facilities which were cheaply and hastily constructed in 1936 are now in such a state of disrepair that we are faced with a major reconstruction program in the near future."<sup>65</sup> However, it appears YBRA first used any available funds to build a library in 1955 and named the building for Dr. Thom. The library concentrated its collections on the Rocky Mountain region and quickly became one of the YBRA's "most valuable assets," receiving "increasing" use over the years by those at the camp and other scientists doing regional studies. By 1960, the library became an official repository for United States Geological Society publications, in recognition of YBRA's "stature as an important regional research and educational institution in geological sciences."<sup>66</sup>

In 1954, a new educational approach began to generate a wider audience for the camp. Dr. Richard Foose and Dr. John Maxwell introduced the concept of teaching classes at the camp, "to expand the original premise of the YBRA program and offer more than just research opportunities." By 1957, the camp was "booming" with 26 enrolled in field undergraduate courses, and three faculty members hosting 12 different parties of graduate students.<sup>67</sup>

A 1958 promotional brochure identified YBRA as "an Educational and Research Institution: Training and Research in Earth Sciences in the Rocky Mountain Region," with the camp and the surrounding region serving as the classroom. The programs available included a field course for advanced undergraduates, a pre-college 2-3 weeks travel course, seminars for Earth Science teachers and state survey geologists, and a short course for professional geologists and graduate training in research as well as faculty team research.<sup>68</sup>

### **Expanding the YBRA Camp, 1960-1972**

The steady usage of the camp continued into the 1960s. A further educational shift began in 1964, led by Erling Dorf, with the first high school teachers geology conference funded by the National Science Foundation (NSF). Thirty teachers from 15 states attended the month-long course.<sup>69</sup> By 1967, 119 participated in this NSF summer conference in physical and historical geology held at the camp. The NSF course was "a tremendous boon to the camp – by keeping it a very active spot during the month of August, assuring its availability to those doing research in the area."<sup>70</sup>

For five years, Dr. Will Parsons held the introduction and orientation for his NSF funded volcanic conferences in the 1960s at the camp. Penn State began to utilize the camp for its own

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<sup>65</sup> Helgi Johnson to Dr. Julian Feiss, March 27, 1956, YBRA Archives, CCHSM, Red Lodge, MT. YBRA continued to struggle with finances and as late as 1959, one member called its future called "dim."

<sup>66</sup> George Darrow to James Brophy, December 1, 1960, YBRA Archives, CCHSM, Red Lodge, MT.

<sup>67</sup> John C. Maxwell to Ernest G. Robinson, July 29, 1957, YBRA Archives, CCHSM, Red Lodge, MT.

<sup>68</sup> "Yellowstone-Bighorn Research Association, Inc. Red Lodge, MT," c. 1958, YBRA Archives, Red Lodge, MT.

<sup>69</sup> "Geology Camp 'Great Success,'" *Billings Gazette*, September 8, 1964.

<sup>70</sup> Russell R. Dutcher to Members and Friends of YBRA, c. 1968, YBRA Archives, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

advanced field course beginning in 1965. The yearly YBRA-Princeton field geology course hosted a total 244 students from 37 different (mostly eastern) schools during the 1960s.<sup>71</sup>

At the end of 1960 and into the early 1970s, the YBRA camp began to expand its footprint to accommodate increasingly steady camp usage and popularity of the field courses. In the early 1960s, YBRA built a ladies addition to the main wash house. The year 1969 saw the construction of four new log cabins: three eight-person dormitories and a staff cabin.<sup>72</sup> To ease over-crowding in the original wash house from the construction of the new cabins, Marathon Oil provided funding in 1970 for a new wash house at the east end of the site. In 1972, Dr. and Mrs. William Heroy, Jr. donated funds for a new staff cabin.

Around the same time, Russ Dutcher, serving as camp manager and YBRA president, initiated a concerted improvement effort (as time and money would allow) to the existing buildings. Under his supervision, renovations to cabin exteriors and interiors began and included pouring new foundations, installing new roofs, replacing windows, laying hardwood flooring, and insulating the ceilings of most of the existing cabins. The effort to “keep the camp up” and “improve it as it is possible to do so” continues to this day.<sup>73</sup>

Camp use in 1971-1972 “continued at a high level” with about 97 students attending the camp at various times keeping it full and busy for most of the summer months. A number of different schools and organizations utilized the camp including Princeton-YBRA that hosted a field course for six weeks, CCNY that ran a four-week course, Penn State hosted a course that lasted for five-weeks, Erling Dorf’s NSF high school science teacher’s conference occurred at the camp for four weeks, and various research groups continuing their regional studies at the camp.<sup>74</sup>

In 1971, the camp witnessed for the first time, the attendance of four women for the Princeton-YBRA field course. Although 1971 marked the first group of women attending the camp, Linda Dutcher came to the camp for three summers from 1968-1970 to conduct mapping for her dissertation, making her possibly the first woman student researcher at the camp.<sup>75</sup>

### **YBRA Camp Operation**

*The following section is primarily based on interviews with Linda Dutcher, Phil Robertson, and Jeanette Reinhart who generously shared their familiarity with the YBRA Camp (August 5, 2022)*

The YBRA Camp represents a unique small mountain geology summer field camp. The unpretentious lodge houses a sitting area and the dining room/kitchen area. The majority of

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<sup>71</sup> Ibid.

<sup>72</sup> Len Larsen to YBRA Members, June 9, 1970, YBRA Archives, CCHSM, Red Lodge, MT. Erling Dorf donated funds for the staff cabin in memory of his son Tom Dorf.

<sup>73</sup> YBRA *Uplift*, 2003.

<sup>74</sup> William Bonini to YBRA Members, March 20, 1972, and March 1, 1973, YBRA Archives, CCHSM, Red Lodge, MT.

<sup>75</sup> William Bonini to YBRA Members, March 20, 1972, YBRA Archives, CCHSM, Red Lodge, MT; Linda Dutcher, interview with Joan L. Brownell, August 5, 2022, Red Lodge, MT.



Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

cabins are compact, one-room living spaces ranging from single occupancy to eight-person dormitories with bunkbeds.

A 1959 camp instructional sheet provides a wonderful window into camp protocols, which presumably remained basically unchanged from the early years. All camp attendees were to conduct themselves appropriately. They were assigned to the cabins and provided with the information that there were brooms and trash containers available with the expectation that the cabins were to be kept in respectable condition. The lodge was not for studying but a place to rest and relax. Promptness at meals was essential.<sup>76</sup>

The water supply was limited, and therefore, long showers not recommended. Students took their laundry to Red Lodge but two washers and some clotheslines were available at the camp. The camp received daily mail that was placed in cubby holes in the lodge. Camp guidelines also asked that camp members help keep the cordial relationship between the camp and the people of Red Lodge.<sup>77</sup>

Field seasons at the YBRA camp generally began in late June and ended in late August. The number of individuals who attended the field courses varied from year to year, but it appears the camp for these few months illustrated a beehive of activity. The numerous participants attended from primarily eastern universities and colleges. Camp utilization extended to students, faculty, visiting researchers, and guests. The accommodations were rough but sufficient. During the day, the camp was mostly deserted except for attendees' wives and children while students and faculty were out in field.

The camp basically ran under the oversight and management of the camp caretaker. Beginning in 1931, Roy Wadsworth filled this position for almost 30 years. Known for his "huge hands," Dr. Thom in 1936 exclaimed the camp's existence is "almost entirely due to the interest, energy, and skill of our fellow camper and general guide, counselor and friend, Roy Wadsworth." After his retirement, YBRA continued the policy to have a caretaker watch over the camp in the winter months and serve full time in the summer months.

Florence Wadsworth, Roy's wife, joined her husband at the camp in 1931 as the camp cook. YBRA continues to this day to employ a camp cook during the summer months, which is quite a luxury for any field camp. Jeanette Reinhart began as an assistant cook in 1972 (just graduated from high school) and assumed the head "camp cook role in 1985. During Jeanette's first year, the cook was Barbara Parks (her husband Frank was the caretaker), a good cook, an excellent pie maker but one who never let anybody in the kitchen. While Jeannette and four other girls couldn't live at camp the first year, the next year all five lived in the Robinson Cabin near the kitchen. Jeanette remembers the initial year as very busy with over 70 Penn State students, hence, she quickly learned the ropes.

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<sup>76</sup> "Beartooth Research Camp," c. 1959, YBRA Archives, CCHSM, Red Lodge, MT.

<sup>77</sup> Ibid.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

All meals were served family style. The kitchen girls brought out bowls to the table and if a refill of a bowl was needed, it was held up to attract the attention of one of the girls. The morning routine began early to get oatmeal started, bacon fried, and coffee perking. On cold mornings, the men lit fires in both fireplaces to ward off the chill. The first bell rang at 6:30 and breakfast served after the second bell at 7 with basic fare, like eggs and pancakes.

Originally the kitchen provided lunch sandwiches for students using big bologna and sausage rolls as the staple ingredient. Roy Wadsworth reportedly got up at 4:00 in the morning to make the sandwiches. By the early 1970s, a lunch table in the dining room topped with lunch materials allowed everyone to make their own sandwiches.

Dinner was always served at 6:00 p.m. Dinner preparation started around 3:30-4:00, but after the walk-in cooler installation, preparation could commence earlier. The cooks used to go to Billings to a warehouse (no longer in existence) to bring home large quantities of foods in a stock truck. They procured O'Donnell Turkey Farm turkeys that often weighed 40 pounds and barely fit in oven. The kitchen held large industrial sized stoves. The two original Garland stoves no longer remain but the Wolf stove survives. The dishwashing method involved two big deep tubs with heating coils where the dishwasher lowered baskets into the tubs to wash and to rinse.

The daily routine revolved around the food schedule. After breakfast, enough time remained for students to pull their gear together and assemble around the vehicles to travel down the mountain to various study locations. Most attendees returned by 5:30 p.m., in time for a quick shower before a nice dinner. After dinner, there always was work to be done, from geology lectures, to studying plants or mineral samples brought back from the field.

All remember the YBRA camp as a family camp, and Phil Robertson viewed as it, "a wonderful place" for educating kids, both the students, and the faculty's own children. Many past students continue to come back and visit Jeanette and tell her it was the "best summer they ever had."

The YBRA camp is perpetually relevant and a place where exceptional talent has been concentrated, talent that has addressed many important geologic and scientific questions throughout its history. A place where researchers, faculty, students, and community members learned and continue to learn from one another.

### **Early Geologic Camps**

In the realm of geology and similar disciplines, one step toward the preparation of aspiring professionals is participation in a field camp. Field camps represents an important experience that affords an opportunity to collect data and hone observation and mapping skills. Field camps represent a traditional "rite of passage" in the education of a geologist and serves as the capstone course for the culmination of all the studies completed at school, allowing a "hands-on" learning experience. Historically, the "heart of field camp" is geologic mapping, which "teaches

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

geoscience students to observe, think critically about and understand the natural complexity of Earth's geology."<sup>78</sup>

Reportedly, John Wesley Powell led the first geological field trip at Illinois Wesleyan University in 1867. In the Western United States, several permanent field camps were established in the 1910s into the 1930s. The University of Missouri's Branson Field Laboratory marks one of the earliest field camps in the West, established in 1911 near Lander, Wyoming. This field camp started as a tent camp and moved around to various locations until the university constructed a log cabin in 1929, followed by a small log dormitory in the early 1930s. In the 1920s, at least two permanent geology camps were established. The University of Kansas field camp, near Canon City, Colorado just celebrated its 100<sup>th</sup> anniversary, and outside of Colorado Springs, Colorado, the Charles Barney Geology Field Camp, built in 1928, stands as one of the oldest university field camps. Another university field camp in Wyoming is the Davis Camp (now completely renovated), situated south of Jackson, associated with the University of Michigan; this surveying camp originated in 1929 in Wyoming and was joined subsequently by the geology field camp in 1938.

The 1940s witnessed the establishment of other permanent camps. These include Iowa State University's Carl F. Vondra Geology Field Station near Shell, Wyoming, in operation since 1947, and Oklahoma State University's Les Huston Geology Field Camp that opened in 1949, also located outside of Canon City. Both camps feature significantly newer infrastructure compared to the earlier camps, including that operated by the YBRA.

The YBRA camp is one of two permanent geology field camps in Montana. The Judson Mead Geologic Field Station, south of Cardwell, Montana in the Tobacco Root Mountains is the second camp; after utilizing the YBRA camp for two years, Indiana University Bloomington opened this field camp in 1949.

As noted immediately above, several geology-focused field camps exist in the Rocky Mountain area and most share the common feature of university ownership and sponsorship. Such singular ownership often restricts the facilities' use to only those affiliated with the university. This contrasts with the educational vision of the YBRA, a not-for-profit organization. As the name denotes with its lack of institutional reference, the availability to use the YBRA camp has never been restricted by affiliation. The camp was available to anyone to pursue their educational or scientific endeavors. The YBRA partners with research institutions, universities, corporate, and private donors. The YBRA generally hosts between six and eight universities a year, paleontological institutes, and other groups. The YBRA open policy mission of use by anyone or any institution has yielded doctoral theses stemming from research in the area by students at Princeton, Wisconsin, Minnesota, Columbia, John Hopkins, Cincinnati, and Yale, to name a few.

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<sup>78</sup>Carl N. Drummond, "Can Field Camps Survive?," *Journal of Geoscience Education*, 2001; Timothy Oleson, Mapping Field Camp's Past and Present: Exploring a Mainstay of Geoscience Education," *Earth*, July 19, 2013. Field camps were either mobile or permanent.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

In the 1950s, the YBRA camp began hosting undergraduate field courses with visits by universities that include Princeton, Penn State, Harvard, Yale, and Southern Illinois.<sup>79</sup>

### **The Importance of the Yellowstone Bighorn Research Association**

The initial years of 1930-1935 of the Red Lodge Project, before its rebranding as the Yellowstone Bighorn Research Association, witnessed the organization operating without a permanent base camp. However, the philosophies that drove the field studies of the Red Lodge Project prior to the YBRA Camp's construction proved fundamental in the pursuit to establish the permanent headquarters. In addition, many of the scientists involved with the Red Lodge Project during the formative years, returned year after year to utilize the YBRA camp and share their knowledge, bringing with them the same philosophies, enthusiasm, and expertise demonstrated prior to the construction of the camp.

Although many of the investigations, especially early on, focused on the Beartooth Mountains and Yellowstone area, the information scientists gathered, mapped, and researched, proved consequential to the overall understanding of the geology of North America. The investigations conducted at the YBRA camp served as springboards to further research, often on a greater scale.

Significant for the time, the YBRA Camp was available for use by all parties regardless of affiliation, an ideal woven into the fabric of the organization that exists to the present. At the time, many research facilities or research camps, could only be used by a specific group, often related to the institution that provided the financial support of the facility. Although Princeton University served as an early driving force behind the Red Lodge Project/YBRA and establishment of the camp, the camp remained accessible all groups.

Armed with a growing body of research accumulated over decades by dedicated experts in their field with a passion to share their expertise, the YBRA Camp facilitated the infusion of new ideas into current geologic thought of the time. Many of these new ideas resulted from field work and research conducted at the YBRA camp. One aspect that separated the YBRA Camp from other field schools is that at any one time, a number of different institutions or groups might be using the camp, allowing for direct one-to-one discussions among researchers from different areas of the county. This exchange of ideas on a personal level, vs. only on a professional level via reading the scientific journals, encouraged a ready exchange of ideas, discussion, collaboration, and diffusion. Because of the synergy created through this interaction, the ideas and concepts were not destined to remain the dominion of the Rocky Mountains of Montana and Wyoming. Instead, the research conducted at the YBRA Camp often provided new and fundamental understanding of many geologic concepts germane to a significantly larger area; the return of researchers to their respective universities, colleges, or agencies helped proliferate these ideas and concepts across the United States and Canada.

By 1955, the work instigated from the YBRA Camp "...expanded to embrace a central segment of the North American continent extending from Minnesota to Idaho and from Nebraska to

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<sup>79</sup> "History," *Yellowstone Bighorn Research Association* website, accessed August 26, 2022, <https://ybra.org/history/>. Today, university students commonly attend other university's field camps.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

southern Canada” an area that includes “the exposed margin of the Canadian shield, the broad Williston basin, the structural basins and bordering mountains of eastern Montana and northern Wyoming, and the eastern margin of the now deformed and intruded Beltian, Paleozoic and Mesozoic Cordilleran geosynclines.” This larger view proved necessary as “The structural evolution of an area can only be visualized in its true setting by relating it to the evolution of a much broader segment of the continent, and the origin of mountains can only be understood through the relationship of the mountain areas to the broader structure of the continent...”<sup>80</sup>

Understanding the importance of the methodical acquisition of information over time and its potential to shed greater light on a variety of issues, Willard Pye noted, “cooperative group work is necessary in accomplishing such a program of research...” This cooperative work “enables individual experts to study certain problems and to study certain critical areas. Each contribution becomes, then, a segment in a slowly assembling picture.”

A full understanding of the importance of the YBRA Camp is gleaned from the number of publications and scholarly treatises emanating from research conducted from there. By 1954 alone, 40 doctoral theses, 150 published journal articles, countless abstracts and summaries of work, Master theses, and innumerable presentations at professional meetings owe their origins to research conducted from the YBRA Camp. Publications appeared in academic journals including the International Geological Congress, Geological Society of America, the American Geophysical Union, the American Journal of Science, Journal of Paleontology, the State of Montana Bureau of Mines and Geology, the Pan-American Geologist, and the American Geophysical Union. Work also appeared in industry journals, such as the Bulletin of the American Association of Petroleum Geologists.<sup>81</sup>

The establishment of the YBRA Camp near Red Lodge permitted access to “a variety of structural problems... and important economic deposits of the mineral fuels, oil and coal, as well as other non-metals and metals.... Similarly, oil and gas fields, as well as ore deposits, are genetically related to tectonic events and a full understanding of these events will materially assist in the discovery and development of these resources.”<sup>82</sup> Truer words were never uttered as investigations conducted from the YBRA Camp resulted in the identification of platinum and palladium deposits, two minerals of national importance. The palladium deposit in the Stillwater area of Montana identified by geologists conducting research from the YBRA Camp represents the only known such deposit in the United States.<sup>83</sup> To understand the importance of palladium to the United States, one needs to look no further than the indispensable catalytic converter found on every automobile built since the mid-1970s.

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<sup>80</sup> Willard D. Pye, “Contributions to the Geology of the Bighorn-Beartooth Region by the Yellowstone Bighorn Research Association,” *Fifth Annual Field Conference Billings Geological Society Guidebook*, September 9-11, 1954.

<sup>81</sup> Ibid.

<sup>82</sup> Ibid.

<sup>83</sup> “Geology of Palladium,” *Provident Metals*, accessed August 25, 2022, <https://www.providentmetals.com/knowledge-center/precious-metals-resources/geology-of-palladium.html>.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

### **Prominent YBRA-Associated Geologists**

Launched in 1930 as a collaborative and educational field camp, the successful efforts of the YBRA Camp stand as a testament of the cross-pollination of ideas and research that occurs through supportive institutions and the active pursuit of academic goals. The students, professors, and researchers who spent time at the YBRA Camp pursuing their fieldwork advanced the geologic sciences, and in many cases, their investigations spurred strategic and economic applications. The geologists who worked out of the YBRA Camp (or during its early years the prior to the camp's construction when the organization operated as the Red Lodge Project) illustrate the success of Dr. William Thom, Jr.'s vision for the establishment of the camp.

Many of the faculty and students from the numerous universities that utilized the YBRA Camp conducted critical geoscience research that produced a wealth of knowledge on volcanism, continental movement of landmasses, mountain building, and their complex interrelationships. In turn, that baseline research has contributed and continues to contribute to knowledge and understanding (sometimes applied directly as in the case of the Stillwater Complex) to the geology of the United States, from public safety (such as advances in earthquake comprehension) to strategic economic mineral development.

Numerous YBRA member geologists, both academic and private, taught and conducted their own research at the YBRA permanent field camp. YBRA faculty contributions made over the years are too numerous to detail. The work conducted through the auspices of the YBRA Camp represents important contributions in the identification of potential reservoirs of oil and gas, that led to the economic utilization of petroleum resources from the complex basin and range relationships in the region, to the more straightforward oil-rich areas of the Williston Basin. Many YBRA geologists achieved recognition in their own specific fields of geoscience. The following discussion provides short biographies of a few of the notable geologists who came to the YBRA Camp through the years to conduct research, and to share their expertise and knowledge.<sup>84</sup>

#### *William Taylor Thom, Jr.*

William Taylor Thom, Jr., of Princeton University, was the visionary and tireless advocate for the YBRA Camp who successfully strove to organize a cooperative enterprise or "voluntary association of individuals and institutions who shared a common interest in the effective advancement of geologic science and education." His vision continues to the present as the YBRA Camp is run by a "cooperative group and serves as a base for faculty research, student studies and training and professional researchers." More than 30 PhD students from Princeton and other universities received their degrees under his tutelage on topics based within the YBRA "orbit."<sup>85</sup>

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<sup>84</sup> During the 1970s, the YBRA field camp expanded their educational offerings to accommodate all the earth sciences.

<sup>85</sup> William Taylor Thom 1891-1927, *The Smilodon* Princeton University, December 1979, Vol. XIX No.2, YBRA Archives, CCHSM, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

Thom joined the Princeton University faculty in the Department of Geology and served as Chairman of the Geological Engineering Department from 1941 to 1956. He held the Blair Professorship of Geology until his retirement in 1956, the second oldest endowed chair at Princeton. Dr. Thom “was one of the first to recognize the value of the developing field of geophysics as it applied to exploration for oil and gas” focusing on mountains and plains. He was “among the first to appreciate the potential for petroleum accumulations in the northern plains and particularly of the Williston Basin of Montana, the Dakota, and Saskatchewan, an area which was to become one of the important producers of the continent.”<sup>86</sup>

#### *Dr. John Tuzo Wilson*

Dr. John Tuzo Wilson obtained his PhD in geology from Princeton University in 1936, under the tutelage of Dr. Thom. Born and raised in Canada, Wilson spent the summer of 1934 in the Beartooth Mountains of Montana pursuing research for his PhD under the banner of the Red Lodge Project, soon rebranded as the Yellowstone Bighorn Research Association. Wilson’s presence transpired one year prior to the initial construction efforts to build the permanent YRBA. Wilson embarked upon a mapping project in the Beartooth Mountains, “...an inlier of Precambrian crystalline rocks jacked-up in front of the Rocky Mountains in Late Cretaceous – Paleocene time.”<sup>87</sup> After completing his PhD, Wilson joined the Geologic Survey of Canada, where in 1936 he completed geologic mapping in southern Nova Scotia. The project spurred an interest in Appalachian tectonics, “...in the same way that orographic contradictions in his Beartooth Mountains thesis area resurfaced in his last publications.”<sup>88</sup>

Wilson stands as a giant in the understanding of plate tectonics and literally played a major role in the international understanding and acceptance of the concept.<sup>89</sup> Wilson’s contributions to the understanding of plate tectonics involved years of research that originated with his work with the Red Lodge Project. Wilson’s investigations in the Beartooths undoubtedly helped set the stage for his later conclusions and added an international flavor to the camp’s stature.

Wilson began his tenure with the University of Toronto in 1946 as its only professor of geophysics, spending his entire scientific career there.<sup>90</sup> Although Wilson’s time in the Beartooths occurred prior to the actual physical camp construction, his presence and subsequent work and association with the Red Lodge Project/YRBA, would not have proved insubstantial

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<sup>86</sup> Ibid.

<sup>87</sup> Paul F. Hoffman, “Tuzo Wilson and the acceptance of pre-Mesozoic continental drift.” *Canadian Journal of Earth Sciences* 51(3) (2014): 199.

<sup>88</sup> Paul F. Hoffman, “Tuzo Wilson and the acceptance of pre-Mesozoic continental drift.” *Canadian Journal of Earth Sciences* 51(3) (2014): 199.

<sup>89</sup> “J. Tuzo Wilson: Discovering transforms and hotspots,” *USGS*, accessed August 29, 2022, <https://pubs.usgs.gov/gip/dynamic/Wilson.html>; Gordon F. West, Ron M. Farguhar, George D. Garland, Hency C. Halls, Lawrence W. Morely, and R. Don Russell, “John Tuzo Wilson: A Man Who Moved Mountains,” *Canadian Journal of Earth Sciences*, Vol. 51, No. 3 (March 2014).

<sup>90</sup> “John Tuzo Wilson,” *Canadian Journal of Earth Sciences*, vol. 51, No.3, March 2014; Paul Hoffman, “Tuzo Wilson and the acceptance of pre-Mesozoic continental drift,” accessed August 24, 2022, <https://www.physics.utoronto.ca/physics-at-uoft/history/life-john-tuzo-wilson-2>.



Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

toward the eventual success of the nascent camp and its future contributions to geology. The presence of such individuals who went on to attain tremendous respect within the profession lent credibility to the camp and its mission of on-site field outreach and research available to all.

### *Edward Sampson*

In another branch of geology, the early investigations of chromite, platinum, and palladium along the northern front of the Beartooth Mountains resulted in discoveries of national importance. In 1930, Princeton University professor Edward Sampson identified the “Stillwater Complex” as a layered intrusion along the northern front of the Beartooth Mountains. Dr. Sampson headed the economic geology department at Princeton from 1926 until his retirement in 1959. Two of his PhD graduate students, J. W. Peoples and A. L. Howland, conducted their initial research on chromite deposits in the early 1930s, returned in 1936 as YBRA faculty, and again in 1939 as visiting USGS researchers. Chromite gained importance as a strategic material during World War II and for a brief period in the early 1940s, these deposits supplied the war effort.<sup>91</sup>

### *Arthur Lloyd Howland*

Arthur Howland hailed from Philadelphia and enrolled at Cornell as an undergraduate where he was introduced to formal geology. Howland attended Northwestern University for his master’s degree. In the course of pursuing his PhD from Princeton in the early 1930s, Howland and fellow Princeton student, Joe Peoples, conducted their doctoral research on an aspect of the Stillwater Complex in Montana; their research of stratiform mafic intrusions contributed to the understanding of the petrogenesis of pyroxene-rich gravity separations. With the start of WWII, the USGS. asked Howland to return to the Stillwater Complex of Montana as part of a team to continue studying the ultramafic rocks in connection with the occurrence of chromite; he later served in the military’s Geology Unit until the end of the War. After the War, in addition to his other responsibilities as chair of the Geology Department at Northwestern University, Howland continued his investigations of the Stillwater Complex. Howland passed way in 1976.<sup>92</sup>

### *Joe Webb Peoples*

Joe Peoples and A. L. Howland identified the significant occurrence of the platinum-group metals along the Beartooth Front, and it was Peoples who introduced the term, “Stillwater Igneous Complex.” In 1954, Peoples produced a map that served as “the fundamental source of information for this area for many years.”<sup>93</sup> The actual mapping work was done in the 1940s.” Like Howland, Peoples continued to study the “Stillwater Complex” through his career and participated in the six-year advance efforts that led to Johns Manville Corporation discovery of the Platinum-Palladium deposit that became known as the J-M Reef, in 1973. The Sibanye-Stillwater Mining Company continues to mine these deposits to supply the minerals needed for

<sup>91</sup> Ennis Geraghty, *YBRA Uplift 2005*, YBRA Archives, CCHSM, Red Lodge, MT; Patty Hooker, *Moccasins, Mining & Montana’s 34<sup>th</sup> County*, (Virginia Beach, Virginia: the Donning Company Publishers, 2013).

<sup>92</sup> E.C. Dapples, “Memorial to Arthur Lloyd Howland, 1908-1976,” *The Geologic Society of American*, accessed August 30, 2022, [www.geosociety.org/documents/gsa/memorials/v12/Howland-AL.pdf](http://www.geosociety.org/documents/gsa/memorials/v12/Howland-AL.pdf).

<sup>93</sup> N.J. Page Zientek, M.L., Lipin, B.R., Mann, E.L., Schmidt, E.A., Turner, A.R., Czamanske, G.K., and Raedeke, L.D., 1985, “Exploration and Mining History of the Stillwater Complex and Adjacent Rocks,” in Czamanske, G.K., and Zientek, M.L., eds., *Stillwater Complex, Montana: Geology and Guide: Montana Bureau of Mines and Geology Special Publication 92*, p. 77–92.



Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

catalytic convertors for emission controls on combustion engines, a technology that significantly reduced pollution throughout the U.S. and the world at large.<sup>94</sup> Peoples joined the faculty of Wesleyan University in 1935 and chaired the Geology Department until his retirement in 1975.<sup>95</sup>

#### *Nevin M. Fennemann*

Nevin M. Fennemann was the founder and chair of geology and geography at the University of Cincinnati. He brought his early experience with the US Geological Survey and other state geological surveys "...either as a participant in the Yellowstone Bighorn Research Association's field camp at Red Lodge or to the University of Colorado's summer camp..." He authored the *Physiography of Western United States* (1931) and *Physiography of Eastern United States* (1938), both that remain standard reference works. He served as president of the Geological Society of America, overlapping with his time at the YBRA Camp.<sup>96</sup>

#### *Richard M. Foose*

Richard M. Foose's involvement with YBRA extended over 40 years. In the 1950s, he concentrated his research on the Beartooth Mountains, which resulted in the widely read, and cited publication, *Structural Geology of the Beartooth Mountains, Montana, Wyoming*, (with D. U. Wise and G. Garbarini). Dr. Foose came to Amherst in 1963 and became the distinguished Samuel A. Hitchcock Professor of Mineralogy and Geology. Prior to Amherst, Dr. Foose also held positions at the Stanford Research Institute and Franklin and Marshall.<sup>97</sup>

#### *Theron Wasson*

Theron Wasson was another long-time supporter and faculty member of YBRA. Dr. Wasson spent his distinguished career with Pure Oil Company of Illinois, a relationship that lasted over 30 years; he then embarked on a career as consulting geologist in 1954. Under his direction, Pure Oil became renown as a discoverer of oil and gas fields, especially in the southern United States.<sup>98</sup>

#### *Arie Poldervaart*

Born in Bandung, Indonesia, Arie Poldervaart, a US geologist and petrologist, was considered a "leading authority on the origin of rocks." He received his PhD at Cape Town University and in 1951 became a faculty member of Columbia University's Department of Geology. His work concentrated on the most ancient rocks including "investigations of petrogenesis of igneous and metamorphic rocks (their composition, occurrence and origin) and also studied Precambrian

<sup>94</sup> Ibid.

<sup>95</sup> "Joe Webb Peoples," *Wesleyan University, the Joe Webb Peoples Museum & Collections*, accessed August 30, 2022, <https://www.wesleyan.edu/ees/museum/jwp.html>.

<sup>96</sup> "Nevin M. Fenneman" *Illinois State Geologic Survey*, accessed August 30, 2022, <https://isgs.illinois.edu/nevin-m-fenneman>; Bruce Ryan, "Nevin Melancthon Fenneman," *University of Cincinnati, Department of Geography and Geology*, reprint, accessed August 30, 2022, <https://homepages.uc.edu/~nashdb/cincinnati/Nevin%20Fenneman.pdf>.

<sup>97</sup> "Richard M. Foose," *Memorial Minutes, The Amherst Story*, accessed August 30, 2022, [https://www.amherst.edu/academiclife/provost\\_dean\\_faculty/facmeetings/memorialminutes](https://www.amherst.edu/academiclife/provost_dean_faculty/facmeetings/memorialminutes); "Richard M. 'Pete' Foose," *YBRA Uplift*, Issue 1, Spring, 1995, YBRA Archives, CCHSM, Red Lodge, MT.

<sup>98</sup> YBRA Archives, CCHSM, Red Lodge, MT.

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

geology.” He specialized in applying petrologic techniques to problems of Earth history.”

Poldervaart wrote *Basalts* in 1967 and edited *Crust of the Earth* (1955). Dr. Poldervaart made extensive rock studies in the Beartooth Mountains of Montana. He used the YBRA field camp during his travels west in the 1950s, leading graduate students in the field. Poldervaart served on the YBRA Council from the mid-1950s to the early 1960s before his untimely death in 1964.<sup>99</sup>

### *Erling Dorf*

Erling Dorf first came to Montana with the “Red Lodge Project”, the forerunner of the permanent YBRA field camp, and was an ardent supporter the rest of his life. He held a professorship at Princeton University for 48 years, beginning in 1930. Some 700 Princeton undergraduates matriculated in Geology under his direction. In addition, Dr. Dorf help guide a large percentage of the 250 PhD students that majored in Geology, as well as the hundreds of students that attended other universities but attended at the YBRA field camp.

In research he is best known for his paleostratigraphic study of Cretaceous-Tertiary boundary in the west that remains a landmark paper on a geological moment. Another work was his investigations of the primitive early Devonian plants of Wyoming. His popular account of the petrified forests of Yellowstone National Park, published in 1964 with a 1981 revised addition, is still available today.

While Dr. Dorf conducted field work in a number of different countries, he devoted his greatest amount of time to the western states, including Montana. Dr. Dorf spent 44 summers doing field work in the western part of the United States. Dr. Dorf’s final field trip west entailed leading a Princeton Alumni trip to Red Lodge and the YBRA Camp, and area that was “...Erling’s real love.” “From its inception, the YBRA became Erling’s second home and an organization to which he unselfishly contributed in many different ways.”

“The YBRA became the base for Erling’s summer field work, and for his students, both graduate and undergraduate. It was always Erling’s practice to take students with him to serve as his field assistants. This was not unusual in itself. What was unusual was the number of students who served in this capacity over the years—108, excluding repeats. A good many of these were able to gather data for the junior paper or senior theses or to begin work on their PhD dissertations.”

Dr. Dorf’s passion for the YBRA Camp knew no bounds. In addition to overseeing much of the curriculum at the YBRA Camp, “...he also served there for a number of years as director of a highly successful annual summer geology institute, supported by the National Science Foundation...”<sup>100</sup>

<sup>99</sup> “Arie Poldervaart,” *YBRA Uplift*, Issue 19, 2013, YBRA Archives, CCHSM, Red Lodge, MT; “Dr. Arie Poldervaart, 46, Dies; Columbia Professor of Petrology,” *New York Times*, October 29, 1964.

<sup>100</sup> Shelden Judson, “Memorial to Erling Dorf, 1905-1984,” *The Geological Society of America*, accessed August 30, 2022, [www.geosociety.org/documents/gsa/memorials/v18/Dorf-E.pdf](http://www.geosociety.org/documents/gsa/memorials/v18/Dorf-E.pdf).

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

Many other prominent geologists came to the YBRA Camp to both further their own research while imparting their knowledge to students and fellow researchers. The numerous different universities and colleges who participated in geologic research at the YBRA Camp served as a melting pot of knowledge. The collaborative sharing that occurred during the camp since its inception continues to the present.

## Architectural Significance

### Rustic Style

Rustic style architecture is generally characterized by “the use of native materials in proper scale,” and “the avoidance of rigid, straight lines and over-sophistications.” Through these simple means, the style “gives the feeling of having been executed by pioneer craftsmen with limited hand tools, “and when “successfully handled,” it “thus achieves sympathy with natural surroundings, and with the past.”<sup>101</sup>

The industrial development and urban growth in the decades leading up to the twentieth century “prompted many Americans to seek ways to retain the influence of wilderness in modern civilization.” A “gradual shift” from industrialism towards conservation of natural resources increased an appreciation of the esthetic and recreational aspects of nature by the end of the twentieth century.<sup>102</sup>

The architecturally designed Old Faithful Inn in Yellowstone National Park brought the rustic style to the West in 1903 with its use of native materials blending with its natural surroundings. Throughout the West, increased recreation saw the emergence of cabins and resorts built in the rustic style. In Montana, rustic architecture flourished during the “golden age” of dude ranching in the 1920s.<sup>103</sup>

Roy Wadsworth undoubtedly was influenced by the single-story log, and log and stone cabins at Camp Senia where he worked for the “Red Lodge Project” from 1933 to 1935. Camp Senia was a dude ranch on the West Fork of Rock Creek outside of Red Lodge that operated during the dude ranch boom years in the 1920s. The buildings at Camp Senia consist of log and stone, and log cabins that utilized such locally available materials. The Swedish owner, Alfred “Al” Croonquist constructed the dude ranch assisted by his Finnish friends from Red Lodge and known skilled craftsman. It is possible that some of these same men helped Wadsworth in the YBRA Camp construction. The three log and stone buildings at the YBRA Camp (Fanshawe Lodge, Main Wash House and Darton Cabin) all present a uniformity in appearance similar to those at Camp Senia, exhibiting saddle-notched, horizontal log buildings with stone foundations and partial stone walls, gable roofs, log ridgepoles, and purlins.<sup>104</sup>

<sup>101</sup> Merrill Ann Wilson, “Rustic Architecture: The National Park Style,” *Trends*. (July August September 1976): 4-5.

<sup>102</sup> William C. Tweed, *Recreation Site Planning and Improvement in National Forests 1891-1942* (Washington, DC; US Department of Agriculture, Forest Service, 1980): 1.

<sup>103</sup> Colorado’s Historic Architecture & Engineering Guide “Rustic Style,” accessed August 30, 2022, <https://www.historycolorado.org/colorados-historic-architecture-engineering-guide>.

<sup>104</sup> Axline and Hufstetler, “National Register nomination for Camp Senia Historic District,” (NR#880000441), January 2012.

Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

The use of log slabs on all the small cabins is a unique variation on rustic architectural style elements. In the fall of 1936, Roy Wadsworth skidded the logs down from above the YBRA camp, peeled them, and then proceeded to sheath all of the wood frame cabins with the log slabs at the camp. The remoteness of the camp, and the accessibility of indigenous materials made it practical and convenient for Wadsworth to utilize the local natural resources.

The 1930s YBRA Camp architecture represents a simple vernacular rustic style. The use of local materials like Douglas Fir logs and locally available stones closely identifies these buildings with their source, a trait that would have appealed to not only the early camp occupants but to those who visit the camp today. The architecture of the YBRA Camp naturally blends into the landscape and harmonizes with the natural setting. The historic buildings retain their original rustic qualities allowing the viewer to envision the geology camp, as it existed historically.

Yellowstone Bighorn Research Association Camp

Name of Property

Carbon County, MT

County and State

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Name of Property

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Yellowstone Bighorn Research Association Camp  
Name of Property

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County and State

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Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

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Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

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**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 # \_\_\_\_\_  
☐ recorded by Historic American Landscape Survey # \_\_\_\_\_

**Primary location of additional data:**

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

Name of repository: Yellowstone Bighorn Research Association, Carbon County  
Historical Society and Museum

**Historic Resources Survey Number (if assigned):** \_\_\_\_\_

**10. Geographical Data**

**Acreage of Property** 10.5 acres

**Latitude/Longitude Coordinates**

Datum if other than WGS84: \_\_\_\_\_

(enter coordinates to 6 decimal places)

Boundary ID Number	Latitude	Longitude
1	45.122699	-109.272275
2	45.122599	-109.269177
3	45.121871	-109.269177
4	45.121542	-109.271300
5	45.121081	-109.272261
6	45.120867	-109.273389
7	45.122018	-109.273389

**Verbal Boundary Description** (Describe the boundaries of the property.)

The built environment of the YRBA Camp defines the National Register boundary. To the south/southwest/southeast by the timbered mountain slope of Mount Maurice. To the east the

Yellowstone Bighorn Research Association Camp

Carbon County, MT

Name of Property

County and State

boundary extends just passed the last building (storage shed) to an open area with timber beyond. Open grassy slopes bound the camp to the west, northwest, north and northeast.

The boundary begins at Point 1 (Lat. 45.122699, Long. -109.272275) at the north end of the property. From this point it moves southeast to Point 2 (Lat. 45.122599, Long. -109.269177), just beyond and north of the eastern-most building, the Shed, on the property. The boundary then turns south for a short distance to Point 3 (Lat. 45.121871, Long. -109.269177), a location just east of the "Green" Water Tower. From Point 3, the boundary moves west past points 4 (Lat. 45.121542, Long. -109.271300) and 5 (Lat. 45.121081, Long. -109.272261), conscribing the southern resources associated with the camp to where it meets Point 6 (Lat. 45.120867, Long. -109.273389), the southwest point of the boundary. The boundary then moves almost due north to Point 7 (Lat. 45.122018, Long. -109.273389) at the northwest end of the property, where it turns northeast to the original starting point. See attached maps Continuation Sheets page 67; reference to this map confirms that boundary.

**Boundary Justification** (Explain why the boundaries were selected.)

The boundary encompasses the YBRA Camp built environment, both contributing and noncontributing resources, and a small amount of land surrounding the resources to provide an adequate sense of setting.

---

**11. Form Prepared By**

name/title: Joan Brownell  
organization: \_\_\_\_\_  
street & number: P.O. Box 600  
city or town: Fishtail state: MT zip code: \_\_\_\_\_  
e-mail: \_\_\_\_\_  
telephone: \_\_\_\_\_  
date: August 2022

with a little assistance from  
name/title: John Boughton  
organization: MT State Historic Preservation Office  
street & number: 1301 E. Lockey, P.O. Box 201202  
city or town: Helena state: MT zip code: 59620  
e-mail: [jboughton@mt.gov](mailto:jboughton@mt.gov)  
telephone: (406) 444-3647  
date: August 2022

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Yellowstone Bighorn Research Association Camp  
Name of Property

Carbon County, MT  
County and State

### Additional Documentation

Submit the following items with the completed form:

- **Maps:** A USGS map or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

### Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

### Photo Log

#### All Photos:

Name of Property: Yellowstone Bighorn Research Association Camp

City or Vicinity: Red Lodge

County: Carbon County State: Montana

Photographer: Marv Keller

Date Photographed: May, June and July 2022

Please see Continuation Sheets

**Paperwork Reduction Act Statement:** This information is being collected for nominations to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.). We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

**Estimated Burden Statement:** Public reporting burden for each response using this form is estimated to be between the Tier 1 and Tier 4 levels with the estimate of the time for each tier as follows:

Tier 1 – 60-100 hours  
Tier 2 – 120 hours  
Tier 3 – 230 hours  
Tier 4 – 280 hours

The above estimates include time for reviewing instructions, gathering and maintaining data, and preparing and transmitting nominations. Send comments regarding these estimates or any other aspect of the requirement(s) to the Service Information Collection Clearance Officer, National Park Service, 1201 Oakridge Drive Fort Collins, CO 80525.



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## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research

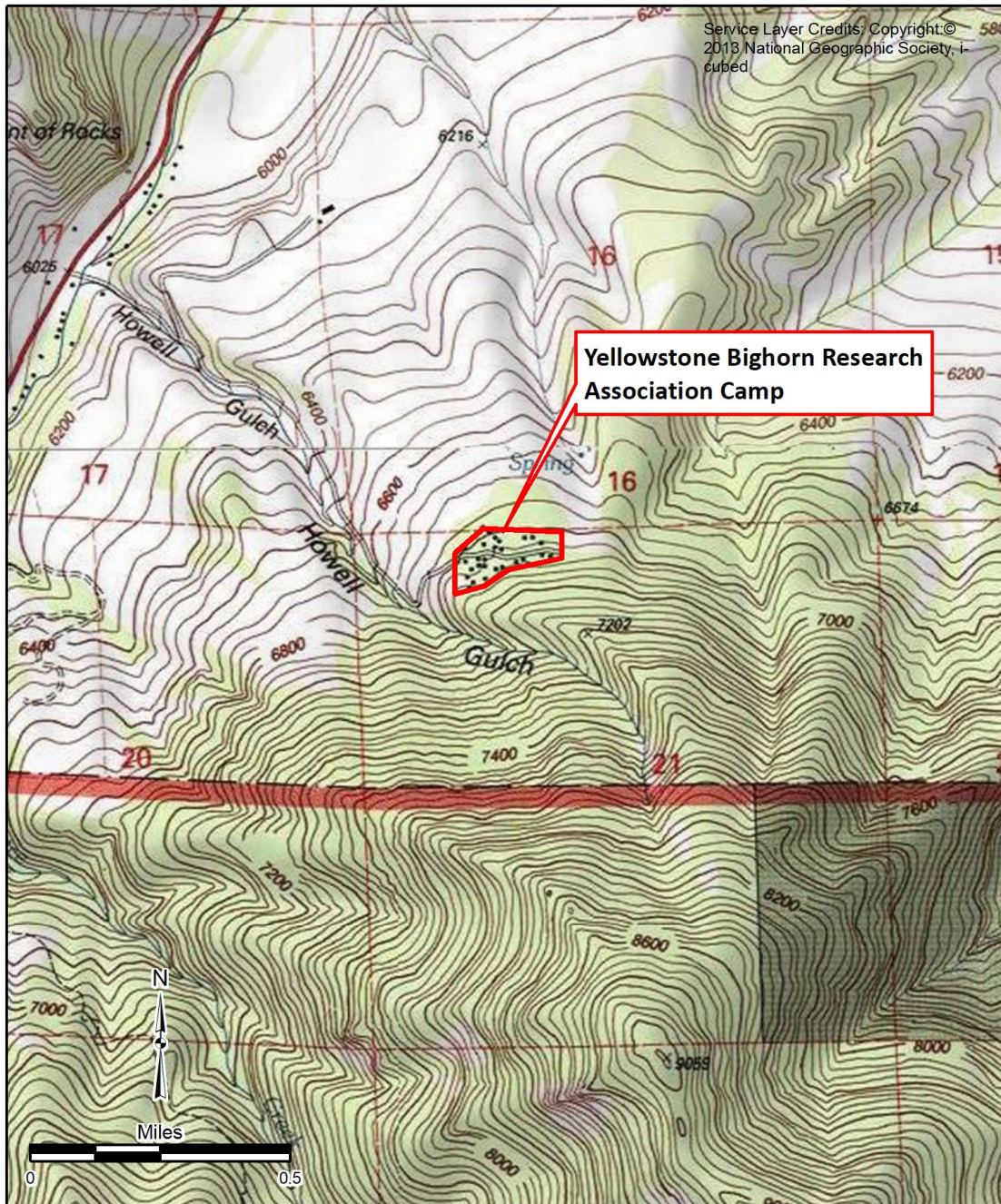
Association Camp

Name of Property

Carbon County, MT

County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Maps Page 66

Location of the Yellowstone Bighorn Research Association Camp. Found on the Mount Maurice 7.5' quadrangle map.



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Section number Additional Documentation—Maps Page 67

Yellowstone Bighorn Research

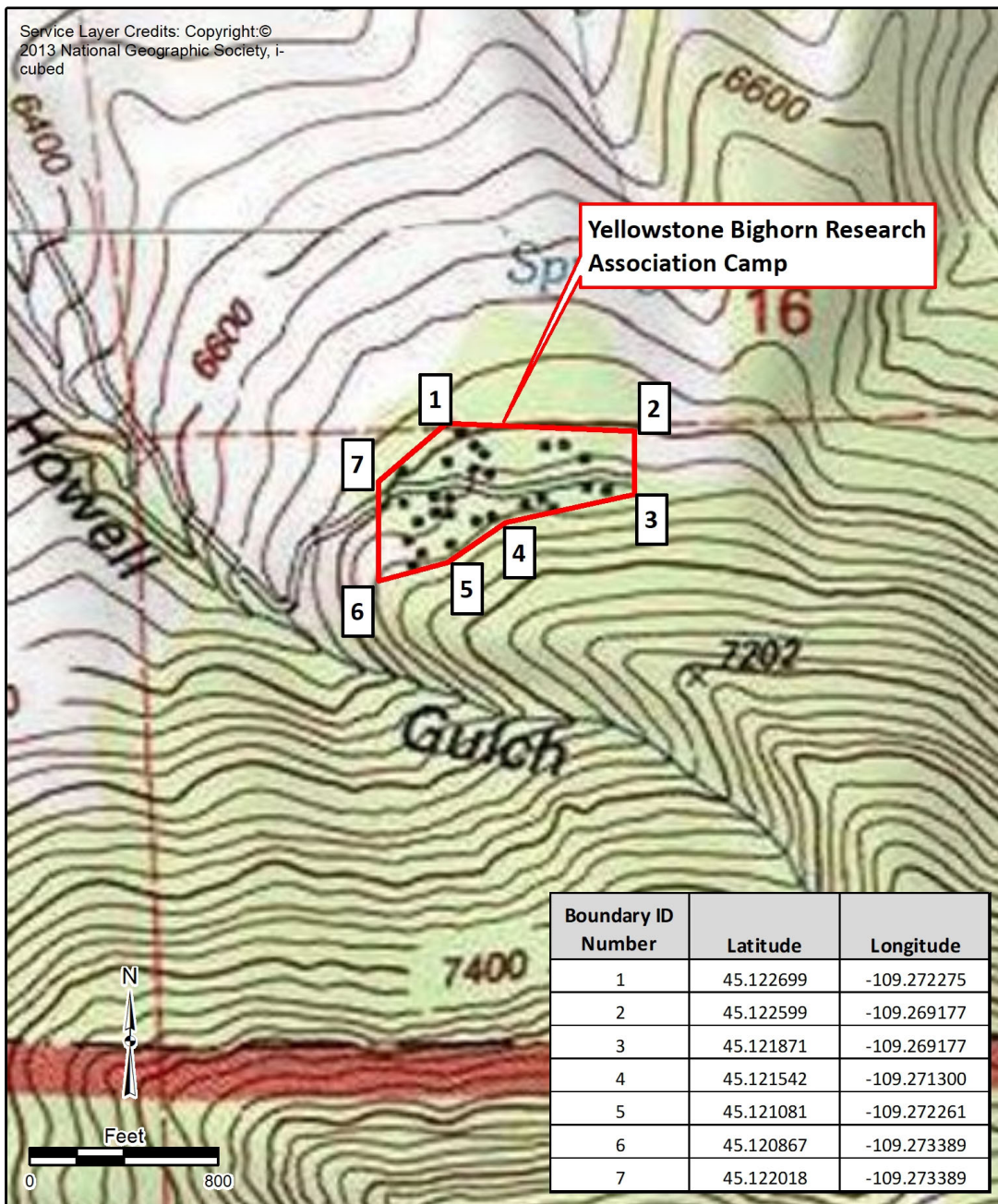
Association Camp

Name of Property

Carbon County, MT

County and State

Name of multiple listing (if applicable)



Close-up View of the Location of the Yellowstone Bighorn Research Association Camp. Found on the Mount Maurice 7.5' quadrangle map.



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National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research Association Camp

Name of Property

Carbon County, MT

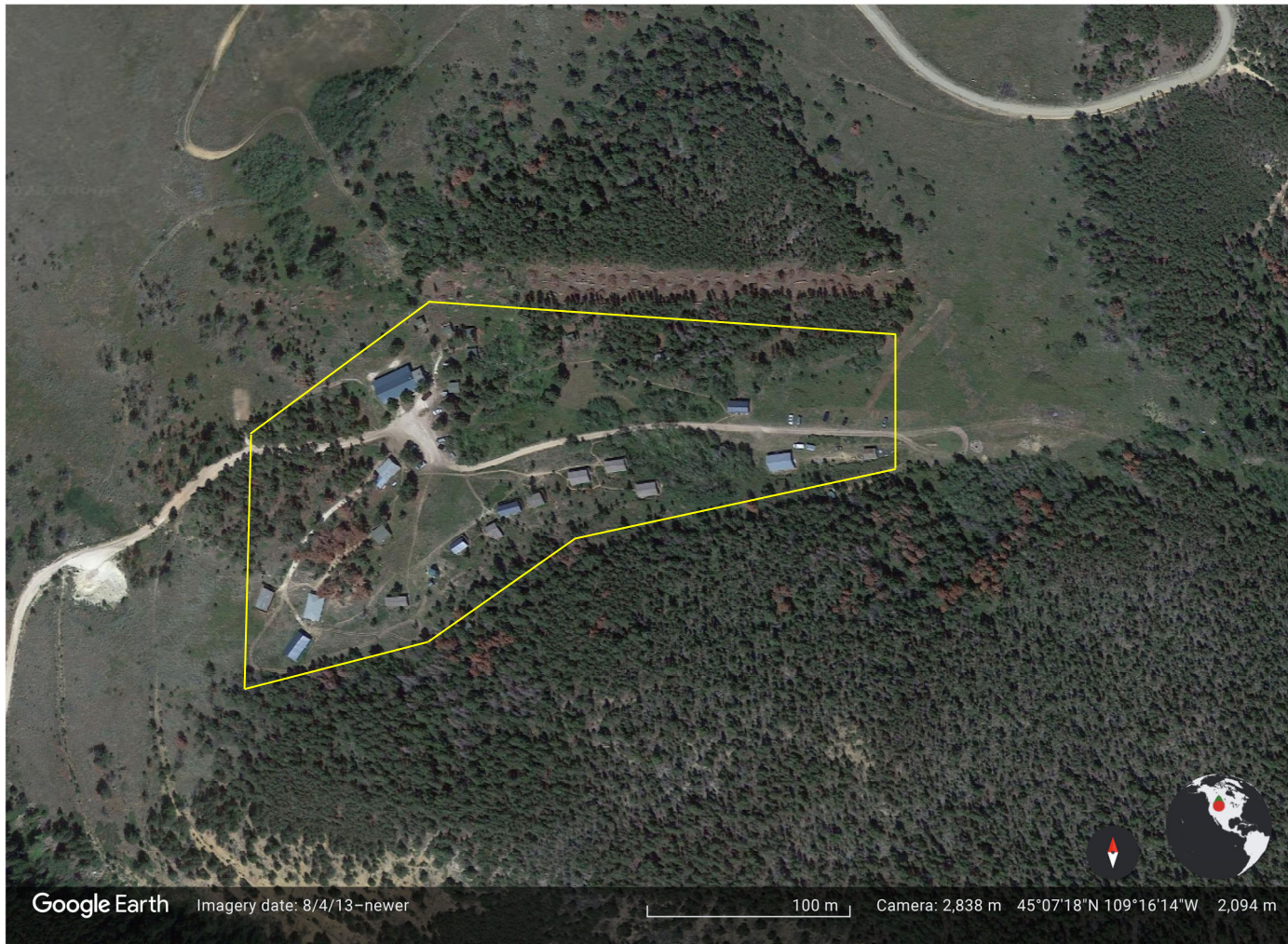
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Maps Page 68

5/25/22, 5:26 PM

Google Earth



Aerial View of the Yellowstone Bighorn Research Association Camp.



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research Association Camp

Name of Property

Carbon County, MT

County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Maps Page 69

5/25/22, 5:25 PM

Google Earth



Close up Aerial View of the Yellowstone Bighorn Research Association Camp.

United States Department of the Interior  
National Park Service

# National Register of Historic Places Continuation Sheet

Section number Additional Documentation—Maps Page 70

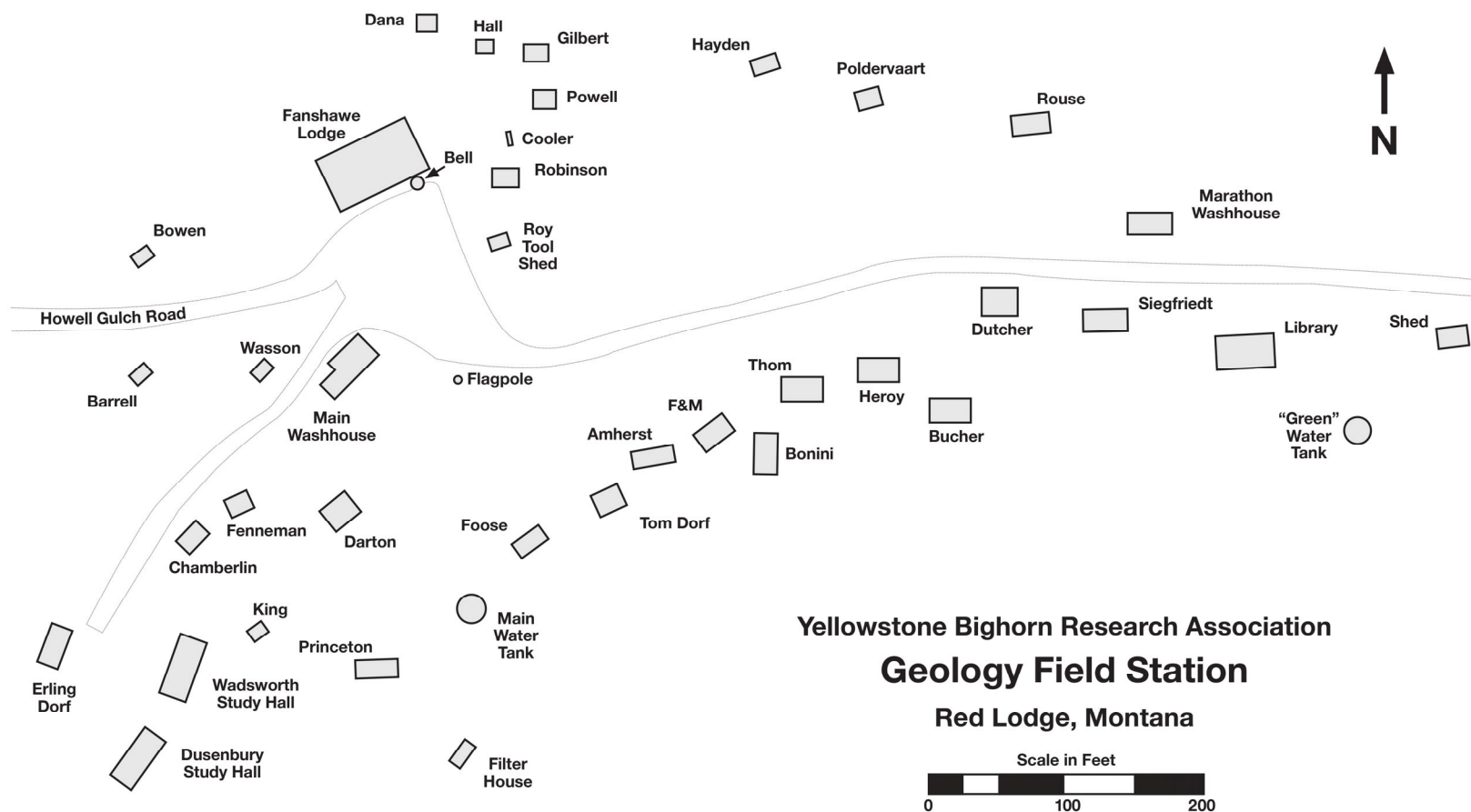
Yellowstone Bighorn Research Association Camp

Name of Property

Carbon County, MT

County and State

Name of multiple listing (if applicable)



Sketch Map Showing Location of Resources at the Yellowstone Bighorn Research Association Camp.

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National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Historic Photographs Page 71

### Historic Photographs



Fanshawe Lodge under construction, foundation



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Historic Photographs Page 72



Fanshawe Lodge under construction

United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Historic Photographs Page 73



Fanshawe Lodge under construction

United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Historic Photographs Page 74



Fanshawe Lodge under construction



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Historic Photographs Page 75



Fanshawe Lodge facade

United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Historic Photographs Page 76



Overview of Rock Creek Valley with Fanshawe Lodge (lower right), 1936



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Historic Photographs Page 77



Sitting Area Interior, Fanshawe Lodge

United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—Historic Photographs Page 78



Fanshawe Lodge 1950s



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 79

### Photo Log

#### All Photos:

Name of Property: Yellowstone Bighorn Research Association Camp

City or Vicinity: Red Lodge

County: Carbon County

State: Montana

Photographer: Marv Keller

Date Photographed: May, June and July 2022



Description of Photograph: Fanshawe Lodge, South and west elevations, view to northeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0001



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National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 80



Description of Photograph: Fanshawe Lodge, North and east elevations, view to southwest  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0002

United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 81



Description of Photograph: Fanshawe Lodge, West and north elevations, view to northeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0003



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 82



Description of Photograph: Fanshawe Lodge, Porch showing north exterior wall, view to east  
MT\_CarbonCounty\_YellowstoneBighornResearchAssocationCamp\_0004

United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 83



Description of Photograph: Fanshawe Lodge, Porch vista, view to north  
MT\_CarbonCounty\_YellowstoneBighornResearchAssocationCamp\_0005



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 84



Description of Photograph: Fanshawe Lodge, Interior sitting area, view to south  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0006



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 85



Description of Photograph: Fanshawe Lodge, Interior dining room, view to east  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0007

United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 86



Description of Photograph: Main Wash House, Northeast and northwest elevations, view to south

MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0008



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 87



Description of Photograph: Main Wash House, Southeast and southwest elevations, view to north

MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0009



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 88



Description of Photograph: Main Wash House, Northwest and southwest elevations, view to northeast

MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0010

United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 89



Description of Photograph: Main Wash House, Men's interior sinks, view to east  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0011



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 90



Description of Photograph: Darton Cabin, Northeast and northwest elevations, view to south  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0012



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 91



Description of Photograph: Darton Cabin, Northeast and northwest interior walls, view to north  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0013



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 92



Description of Photograph: Fenneman Cabin, Northeast and northwest elevations, view to south  
MT\_CarbonCounty\_YellowstoneBighornResearchAssocationCamp\_0014



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 93



Description of Photograph: Chamberlin Cabin, Northwest and northeast elevations, view to southeast

MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0015



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 94



Description of Photograph: King Cabin, Northeast and northwest elevations, view to south  
MT\_CarbonCounty\_YellowstoneBighornResearchAssocationCamp\_0016



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 95



Description of Photograph: Wasson Cabin, Northeast and southeast elevations, view to west  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0017



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 96



Description of Photograph: Barrell Cabin, Northeast and northwest elevations, view to south  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0018



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 97



Description of Photograph: Bowen Cabin, Northeast elevation, view to southwest  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0019



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 98



Description of Photograph: Dana Cabin, South and east elevations, view to northwest  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0020



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 99



Description of Photograph: Hall Cabin, South and west elevations, view to north  
MT\_CarbonCounty\_YellowstoneBighornResearchAssocationCamp\_0021



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 100



Description of Photograph: Powell Cabin, East and north elevations, view to southwest  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0022



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 101



Description of Photograph: Gilbert Cabin, South and east elevations, view to northwest  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0023



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 102



Description of Photograph: Robinson Cabin, West and north elevations, view to southeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0024



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 103



Description of Photograph: Roy's Tool Shed, West and south elevations, view to northeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0025



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 104



Description of Photograph: Hayden Cabin, West and south elevations, view to north  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0026



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 105



Description of Photograph: Poldervaart Cabin, West and south elevations, view to northeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0027



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 106



Description of Photograph: Siegfried Cabin, East and north elevations, view to southwest  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0028



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 107



Description of Photograph: William Taylor Thom, Jr. Library, North and west elevations, view to southeast

MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0029



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 108



Description of Photograph: Tom Dorf Cabin, West and north elevations, view to east  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0030

United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 109



Description of Photograph: Wadsworth Hall, East and north elevations, view to southwest  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0031



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 110



Description of Photograph: Heroy Cabin, West and north elevations, view to east  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0032



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 111



Description of Photograph: Thom Cabin, West and north elevations, view to southeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssocationCamp\_0033

United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 112



Description of Photograph: Bucher Cabin, West and north elevations, view to southeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0034



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 113



Description of Photograph: Marathon Wash House, West and south elevations, view to northeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0035



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 114



Description of Photograph: Princeton Cabin, West and north elevations, view to southwest  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0036



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 115



Description of Photograph: Dusenbury Hall, Northeast and northwest elevations, view to south  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0037



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 116



Description of Photograph: Earling Dorf Cabin, East and south elevations, view to west  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0038



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 117



Description of Photograph: Foose Cabin, Northeast and southeast elevations, view to west  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0039



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 118



Description of Photograph: Rouse Cabin, East and north elevations, view to southeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0040



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 119



Description of Photograph: Amherst Cabin, West and north elevations, view to northeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0041



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 120



Description of Photograph: Franklin and Marshal (F&M) Cabin, Southwest and southeast elevations, view to northeast

MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0042



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 121



Description of Photograph: Dutcher Cabin, East and south elevations, view to west  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0043



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 122



Description of Photograph: Bonini Cabin, North and west elevations, view to southeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0044



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 123



Description of Photograph: Shed, West and north elevations, view to east  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0045



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 124



Description of Photograph: Filter House, Northeast and northwest elevations, view to south  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0046



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 125



Description of Photograph: Cooler, West and north sides, view to southeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0047



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 126



Description of Photograph: Main Water Tank, View to east  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0048



United States Department of the Interior  
National Park Service

**National Register of Historic Places  
Continuation Sheet**

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 127



Description of Photograph: "Green" Water Tank, View to southwest  
MT\_CarbonCounty\_YellowstoneBighornResearchAssociationCamp\_0049

United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 128



Description of Photograph: Bell, View to northeast  
MT\_CarbonCounty\_YellowstoneBighornResearchAssocationCamp\_0050



United States Department of the Interior  
National Park Service

## National Register of Historic Places Continuation Sheet

Yellowstone Bighorn Research  
Association Camp

Name of Property  
Carbon County, MT  
County and State

Name of multiple listing (if applicable)

Section number Additional Documentation—National Register Photographs Page 129



Description of Photograph: Flagpole, 38. View to southwest  
MT\_CarbonCounty\_YellowstoneBighornResearchAssocationCamp\_0051