



United States
Department of
Agriculture

Forest
Service

National Forests in North Carolina
Pisgah National Forest
Pisgah Ranger District

1001 Pisgah Highway
Pisgah Forest, North Carolina 28768
Phone: 828-877-3265

File Code: 1950-1

Date: March 22, 2004

Dear Interested Citizen:

I have signed the Decision Notice (DN) and Finding of No Significant Impact (FONSI) for the Facility Improvements to the Cradle of Forestry in America Environmental Assessment (March 2004 EA) on the Pisgah Ranger District. The DN discusses in detail my decision and rationale for reaching the decision. Copies of the DN and FONSI and Appendix C – Response to Comments of the EA are enclosed. I have updated the January 2004 EA slightly to incorporate comments received from the public during the official 30-day Notice and Comment period. The updated EA (March 2004) has been posted on the web (<http://www.cs.unca.edu/nfsnc/>) and will be mailed upon request.

This decision is subject to appeal pursuant to 36 CFR 215.11. A written appeal, including attachments, must be postmarked or received within 45 days after the date this notice is published in *The Asheville Citizen-Times*. The Appeal shall be sent to National Forests in North Carolina, ATTN: Appeals Deciding Officer, 160-A Zillicoa Street, Asheville, North Carolina 28801. Appeals may be faxed to (828) 257-4263. Hand-delivered appeals must be received within normal business hours of 8:00 a.m. to 4:30 p.m. Appeals may also be mailed electronically in a common digital format to: **appeals-southern-north-carolina**.

Those who meet content requirements of 36 CFR 215.13 may appeal this decision. Appeals must meet content requirements of 36 CFR 215.14. For further information on this decision, contact Randy Burgess, District Ranger, Pisgah Ranger District, 1001 Pisgah Highway, Pisgah Forest, North Carolina 28768, Phone: 828-877-3265; or Michael Hutchins, Pisgah National Forest Zone NEPA Coordinator, PO Box 128, Burnsville, North Carolina, 28714, Phone: 828-682-6146.

As per 36 CFR 215.9, if no appeal is received, implementation of this decision may occur on, but not before, the 5th business day following the close of the appeal-filing period (215.15). When an appeal is filed, implementation may occur on, but not before the 15th business day following the date of appeal disposition (36 CFR 215.2).

Sincerely,

/s/ Randall Burgess

RANDALL BURGESS
District Ranger

Enclosure



United States
Department of
Agriculture

Southern Region
Forest Service

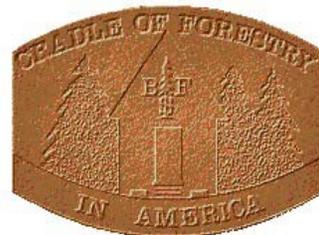
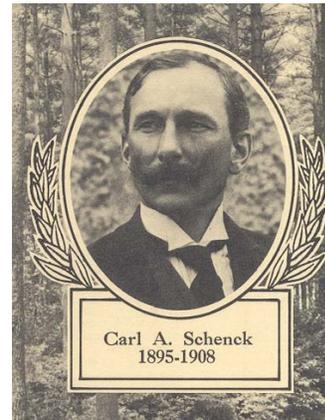
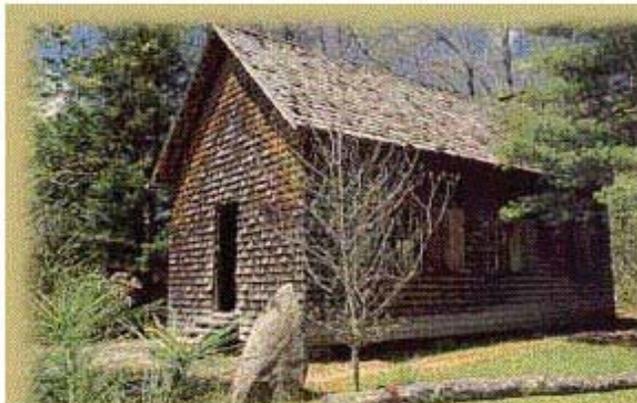


March 2004

Decision Notice

Facility Additions To the Cradle of Forestry in America

Pisgah Ranger District, Pisgah National Forest
Transylvania County, North Carolina



Responsible Official:

**Randall Burgess
Pisgah District Ranger
1001 Pisgah Highway
Pisgah Forest, NC 28768**

Decision Notice
& Finding of No Significant Impact

Facility Improvements to the
Cradle of Forestry in America

USDA Forest Service
Pisgah Ranger District, Pisgah National Forest
Transylvania County, North Carolina

**Decision and Rationale for
the Decision**

Decision

Based upon my review of the alternatives, I have decided to select **Alternative 2** (Selected Alternative) of the *Facility Improvements to the Cradle of Forestry in America Environmental Assessment* (March 2004 EA) on the Pisgah Ranger District, Pisgah National Forest and the updated Mitigation Measures listed in Section 2.2.2.1, Chapter 2 of the March 2004 EA. The Selected Alternative will:

- a) Construct up to eight recreational vehicle (RV) campsites to be used by volunteers;
- b) Construct a 3,800 ft² facility to house six to eight interns or student volunteers;
- c) Construct a 2,000 ft² work center for volunteers to include indoor workspace, an activity room, small kitchen, restrooms, showers, and laundry facilities;
- d) Construct a 30 foot x 50 foot pole shed or maintenance storage facility for tools, equipment, and materials that are now held in three deteriorating metal sheds (the new pole shed will be built in the location of the metal sheds and the metal sheds will be eliminated);
- e) Dredge the pond above and along the Forest Festival Trail of accumulated sediment and repair its dam. The dam will be repaired by first dredging the pond during the summer months,

- diverting the stream's flow below the dam, pouring a concrete "face" to armor the existing dam, and allowing the stream to gradually refill the pond while also supplying water to downstream reaches. During dredging, double-scooping and second handling of sediment will be restricted; and
- f) Construct a 2,000 ft² amphitheater just below employee offices and the Forest Festival Trail to be used for educational programs and activities. The amphitheater will have a permeable floor with interlocking bricks, a cover over the stage, a natural berm at the bottom to capture sediment, terraced steps along its sides, and a wooden rail fence will be constructed along the bottom end of the amphitheater to discourage foot travel below the site. About 10-15 trees less than ten inches in diameter will be removed with most being white pine. The amphitheater will be designed to comply with requirements set by the Americans with Disabilities Act. The population of swamp pink (*Helonias bullata*) north of the proposed amphitheater that has been monitored will continue to be monitored.

Rationale

As stated in Section 1.3 of the March 2004 EA, the objectives of the proposal are to:

- Increase the amount of RV campsites (for volunteers and interns);
- Increase the amount of housing for interns or student volunteers;
- Increase the amount of workspace for volunteers;
- Increase the amount of storage for maintenance equipment and materials;
- Dredge the pond along the Forest Festival Trail of sediment and repair its dam; and
- Construct an amphitheater.

I believe the Selected Alternative accomplishes these objectives.

Other Alternatives Considered

In addition to the Selected Alternative, I considered one other alternative in detail the No Action Alternative. A comparison of this alternative can be found in Section 2.2.1 of the EA.

Alternative A – No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. I did not select this alternative for several reasons. This alternative would not have addressed the need of providing campsites, housing, work space, and storage facilities for the large number of volunteers and interns who provide necessary services at the Cradle; would not have improved fish habitat at the pond; and would not have increased forest-related interpretation at the Cradle by constructing an amphitheater.

Other Alternatives Not Considered

Section 2.3 of the March 2004 EA disclosed one alternative I considered but eliminated from detailed study. Since it was not considered in detail in the March 2004 EA, it was not considered in the range of alternatives for my decision.

Public Involvement

A scoping letter was mailed on September 13, 2000, to several individuals, organizations, State and Federal agencies, and local news media requesting issues or concerns about a proposal to upgrade the existing water system, construct 6-8 additional volunteer camping sites, provide maintenance on the Biltmore Campus and Forest Festival Trails, and install a security fence along Highway 276. Nine individuals, agencies, or organizations provided comments. To date, the trail maintenance and security fence have been completed. On November 26, 2001, another scoping letter was mailed requesting comments on the following proposal: constructing a 2,000 ft² work center for volunteers; constructing a 3,800 ft² intern housing facility; constructing a pole shed; constructing an amphitheater; rehabilitating the public toilet on the Biltmore Campus Trail; and performing restoration and rehabilitative work on eight historic buildings located on the Biltmore Campus Trail. Five individuals, agencies, or organizations provided comments. In fall 2003, a separate heritage resources report was submitted to the State Historic Preservation Office. Three additional responses were received based on this report. The proposal also appeared in the Schedule of Proposed Actions for the Forests in fiscal years 2001-2003.

A 30-day Notice and Comment period of the pre-decisional Cradle Facility Improvements EA was initiated on January 29, 2004, and was completed on March 1, 2004. Seven letters or e-mails were submitted by individuals, agencies, and organizations during this period and three afterwards. Appendix C, attached to this decision notice, discloses the comments received and the Agency's response. I decided to update the January 2004 EA to incorporate substantive comments received during the Notice and Comment period. The updates are

disclosed in the March 2004 EA and are incorporated with my decision.

Finding of No Significant Impact

After considering the environmental effects described in the March 2004 EA, I have determined that these actions will not have a significant effect on the quality of the human environment considering the context and intensity of impacts (40 CFR 1508.27). Thus, an environmental impact statement will not be prepared. I base my finding on the following:

1. My finding of no significant environmental effects is not biased by the beneficial effects of the action (Section 2.4, Chapter 2 Cradle Facility Improvements March 2004 EA).
2. There will be no significant effects on public health and safety and implementation will be in accordance with mitigation measures (Section 2.2.2.1, Chapter 2, Cradle Facility Improvements March 2004 EA).
3. There will be no significant effects on unique characteristics of the area, because there are no park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas in the project area, nor are there local law or requirements imposed for the protection of the environment (Section 1.6.8, Chapter 1 Section 3.9 Cradle Facility Improvements March 2004 EA).
4. The effects on the quality of the human environment are not likely to be highly controversial because there is no known scientific controversy over the impacts of the project (Sections 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, and 3.8, Chapter 3, Cradle Facility Improvements March 2004 EA).
5. We have considerable experience with the types of activities to be implemented. The effects analysis shows the effects are not uncertain, and do not involve unique or unknown risk (Section 1.6, Chapter 1 and Sections 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8 and 3.9, Chapter 3, Cradle Facility Improvements March 2004 EA).
6. The action is not likely to establish a precedent for future actions with significant effects, because the project is site specific and effects are expected to remain localized and short-term (Sections 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8 and 3.9 and Table 3-1 Chapter 3, Cradle Facility Improvements March 2004 EA).
7. The cumulative impacts are not significant (Sections 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8 and 3.9 and Table 3-1 Chapter 3, Cradle Facility Improvements March 2004 EA).
8. The action will have no effect on districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (Section 3.7, Chapter 3, Cradle Facility Improvements March 2004 EA). The action will also not cause loss or destruction of significant scientific, cultural, or historical resources (Section 3.7 Chapter 3, Cradle Facility Improvements March 2004 EA). On December 22, 2003, the State Historic Preservation Office (SHPO) concurred with the Forest Service's findings that the improvements will have no effect to the Biltmore Forest School structures or the immediate historic atmosphere.
9. The action will not adversely affect any endangered or threatened species or their habitat that has been determined to be critical under the Endangered Species act of 1973, (Sections 3.2, 3.4, and 3.5, Chapter 3 and Appendix B, Cradle Facility Improvements March 2004 EA). On March 16, 2004, the USDI Fish and Wildlife Service concluded, "*[w]e not believe the proposed project is likely to adversely affect the swamp pink. Therefore, we believe the requirements of section 7 of the Act will have been satisfied.*"
10. The action will not violate Federal, State, and local laws or requirements for the protection of the environment. Applicable laws and regulations were considered in

the EA. The action is consistent with the Nantahala and Pisgah National Forests Land and Resource Management Plan Amendment 5 (Section 1.1, Chapter 1, Cradle Facility Improvements March 2004 EA).

Findings Required by Other Laws and Regulations

My decision to implement the Selected Alternative is consistent with the intent of Forest Plan Amendment 5's long-term goals and objectives listed on pages III-1 and III-2. The project was designed to meet land and resource management plan standards and incorporates appropriate land and resource management plan guidelines.

Administrative Review and Contacts

This decision is subject to appeal pursuant to 36 CFR 215.11. A written appeal, including attachments, must be postmarked or received within 45 days after the date this notice is published in *The Asheville Citizen-Times*. The Appeal shall be sent to National Forests in North Carolina, ATTN: Appeals Deciding Officer, 160-A Zillicoa Street, Asheville, North Carolina 28801. Appeals may be faxed to (828) 257-4263. Hand-delivered appeals must be received within normal business hours of 8:00 a.m. to 4:30 p.m. Appeals may also be mailed electronically in a common digital format to: **appeals-southern-north-carolina**.

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Implementation Date

As per 36 CFR 215.9, if no appeal is received, implementation of this decision may occur on, but not before, the 5th business day following the close of the appeal-filing period (215.15). When an appeal is filed, implementation may occur on, but not before the 15th business day following the date of appeal disposition (36 CFR 215.2).

Randall Burgess

March 22, 2004

RANDALL BURGESS
District Ranger
Pisgah Ranger District

Date

**APPENDIX C – RESPONSE TO COMMENTS
FOR THE
FACILITY ADDITIONS TO THE
CRADLE OF FORESTRY IN AMERICA
ENVIRONMENTAL ASSESSMENT**

**Facility Improvements to the
Cradle of Forestry in America**
Environmental Assessment

Response to Comments

Interest 1:	Material Dredged from Pond
Interest 2:	Additional Mitigation Measures/Aquatic Concerns
Interest 3:	Water System Requirements

General Discussion

The formal 30-day Notice and Comment period for the Cradle Facility Improvements Environmental Assessment began January 29, 2004, and ended on March 1, 2004. Seven letters or e-mails were submitted by individuals, agencies, and organizations during this period and three afterwards; however, only five provided substantive comments.

Substantive Comments

To be eligible to appeal the decision on this proposal, individuals must provide comments that are both timely [36 CFR 215.6(a)] and substantive (36 CFR 215.2). Substantive comments are defined as: “Comments within the scope of the proposed action, are specific to the proposed action, have a direct relationship to the proposed action and include supporting reasons for the Responsible Official to consider.” A comment stating support of an alternative without rationale for the support is not considered substantive. Comments below are grouped by Interest. All respondents who provided substantive comments to that Interest are identified.

Interest 1: Material Dredged from Pond

Letters and Comments on this Interest:

Richard Bury, Ph.D. (RB)

Comment 1-1:

“Alternative 2 (Proposed Action) appears environmentally suitable. My only question concerns impact of dredged material on the site at which it will be dumped (see p. 13 of Jan 27th, 2004 document). This matter is not addressed in the EA. It seems to me that such dumping might well affect ecological conditions at the dump site. Would further discussion of dumping details and ecological impacts be appropriate in this document?”
(RB)

Agency Response to Comment 1-1:

Material dredged from the pond will be stored in a borrow area on the Headwaters Road (FS 475B) – the same place used for storing fill soil when the Forest Discovery Center and parking area were constructed. Once dried, the dredged material will be added to planter beds, gardens and the seedling nursery. The borrow area is not in a riparian area and depositing and removing the material will not adversely affect heritage resources (Section 2.2.2.1, Chapter 2 of the March 2004 EA).

Interest 2: Additional Mitigation Measures/Aquatic Concerns

Letters and Comments on this Interest:

Emily Radecki – Southern Appalachian Biodiversity Project (SABP)	David McHenry – North Carolina Wildlife Resources Commission (NCWRC)
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Comment 2-1:

“The Environmental Assessment for this project considers hydrology changes, potential soil erosion and other impacts which may be associated with this project. However a few of the potential impacts were not considered in great detail and additional mitigation measures may need to be implemented to address these issues.

- *Increased Visitor Traffic Effects to Swamp Pink Population – Helonias bullata is known to exist within 100 yards of the project area. Establishing areas for visitor use in the vicinity of this threatened plant population will undoubtedly increase the likelihood of disturbance and possible damage. The EA states that, ‘existing vegetation and swampy ground was deemed adequate to guard the nearby population.’ However, swampy ground and vegetation will not deter all visitors.*
- *Dam Repair – The environmental assessment states very little in regard to how the dam will be repaired other than that no wet concrete will come in contact with aquatic resources.” (SABP)*

Agency Response to Comment 2-1:

The EA has been updated to address these concerns. The amphitheater will have a wooden rail fence constructed at the bottom of it to more effectively discourage visitors from traveling north of the facility into swamp pink habitat (Section 1-2, Chapter 1 of the March 2004 EA).

The dam will be repaired by first dredging the pond during the summer months, diverting the stream’s flow below the dam, pouring a concrete “face” to armor the existing dam, and allowing the stream to gradually refill the pond while also supplying water to downstream reaches (Section 1-2, Chapter 1 of the March 2004 EA).

Comment 2-2:

“The Commission feels that most aspects of the project should have minor effects on fish and wildlife habitats in the area. As described, mitigative measures developed through consultation between staff of the U.S. Forest Service and U.S. Fish and Wildlife Service for the amphitheater should minimize direct and secondary effects on the adjacent bog. However, we are concerned about possible adverse effects on aquatic resources in the South Mills River watershed, which supports wild populations of brook, brown, and rainbow trout. Adverse effects should be minimized if effective sediment and erosion control practices, stormwater basins, and the mitigation measures specified in the EA are implemented.” (NCWRC)

Agency Response to Comment 2-2:

Adverse effects of sedimentation are minimized under the proposed action as opposed to the existing condition (Section 3.6, Chapter 3, January 2004 EA and March 2004 EA). It is required by the Forest Plan and State BMPs to have erosion control measures implemented with this type of ground disturbance.

Comment 2-3:

“Nevertheless, as typically done in EAs, these measures must be committed to, and, in our opinion, some additional measures are needed to avoid significant impacts. The following are the additional measures that we feel are necessary: Section 3.6.2 of the EA specifies that stream flow will be bypassed during pond dredging to avoid downstream sedimentation, and we concur with this measure. However, even though refilling should be

relatively rapid because of the pond's small size, the process should be conducted gradually while maintaining adequate downstream stream flow. Since the work is projected to occur during a dry period and base flow conditions, substantial diminution of downstream flow even for a short period could adversely affect water quality and aquatic resources. This gradual refilling would also provide more time for settling of any sedimentation remaining in the pond." (NCWRC)

Agency Response to Comment 2-3:

The Finding of No Significant Impact (FONSI) determined there were no significant impacts with the Selected Alternative (see FONSI in the Decision Notice). That said, the pond would be refilled gradually while providing water to downstream reaches (Section 1.2, Chapter 1 of the March 2004 EA).

Comment 2-4:

"Section 3.6.2 of the EA also specifies that the dam work would not require a Section 404 permit. If one was (is) required, we would recommend conducting any stream and trout buffer disturbances outside of an October 15 to April 15 trout spawning period to protect sensitive egg and larval stages of trout from sedimentation. Presumably, this moratorium would be accommodated by conducting the work during a dry period and base flow conditions, as specified." (NCWRC)

Agency Response to Comment 2-4:

Dam repair and pond dredging would take place during dry periods (summer months), outside of fish spawning periods. The dam will be repaired not replaced and dredged material will be transported off-site therefore, "[n]either a Section 404 permit from the Corp of Engineers nor a 401 water quality certification would be required." (Section 3.6.2, Chapter 3, January 2004 EA and March 2004 EA).

Comment 2-5:

"Reduced depth because of sedimentation is mentioned in the EA as a factor for elevated water temperatures, which currently limits the pond's ability to support trout. Dredging would restore some deep water temperature-refugia, but upper water level warming will still occur, which elevates water temperature downstream when a spillway withdrawal is utilized on the dam. Retrofitting the structure with a bottom withdrawal overflow structure during the dam repair would reduce this effect, as a (sic) well as serve as an important demonstration to the public regarding an appropriate mitigative measure for ponds on or along trout waters." (NCWRC)

Agency Response to Comment 2-5:

The Agency respectfully disagrees with the need to perform this mitigation. The affected stream is a unnamed tributary to the South Fork Mills River, is a first order stream (one that originates from the ground without another first order stream flowing into it), and does not provide suitable trout habitat above the pond and in the project area below the dam. A bottom withdrawal system would recycle sediment from the bottom of the pond and allow it to eventually flow downstream into occupied swamp pink habitat – a threatened plant species. These increased sediment levels could be adverse to the plant. The Agency has no information of threatened, endangered, or sensitive aquatic species

downstream in the project area that could be adversely affected by minute increases in water temperature, thus outweighing the need to ensure the plant is not adversely affected by increased sediment.

Comment 2-6:

“Typically the Commission would recommend removal of the in-stream pond with this project to eliminate its effects on downstream water temperatures and to restore aquatic life passage. In this case, we recognize that doing so would likely eliminate the wetland habitat that has developed in the upper pond reach. Further, restoration of passage may not be desirable if only brook trout occur above the pond; our review of historical trout survey records only indicated brown trout a short distance downstream of the pond, with a mixture of all species further downstream and in Pigeon Branch. We do not currently have information about trout resources above the pond, which may not occur in part because of limited habitat. Nevertheless, we recommend verifying what trout species may occur there, particularly if stocking the pond would be considered following the restoration work. We request being consulted prior to any such activity, and, offer our assistance with evaluating the existing resources.” (NCWRC)

Agency Response to Comment 2-6:

The only trout above the pond are those that happen to come from the pond. They only use a very small portion of the upper section of the pond due to overall lack of habitat. The stream has been visually observed for aquatic habitat and no fish habitat existed. The pond has been periodically stocked with trout for interpretive reasons with the fish coming from the NCWRC hatchery on the Davidson River.

Comment 2-7:

“In addition to the preceding considerations, the pond is evidently serving as a sediment trap that secondarily protects downstream habitat. If not already apparent, we encourage the Pisgah Ranger District to identify the causes of the sedimentation that filled the pond. If it is largely a result of periodic construction work conducted in the past, then sedimentation from the proposed and future construction projects should be relatively minor, assuming more effective control measures are implemented. However, if it is primarily a result of ongoing and cumulative pedestrian use of the Forest Festival Trail or other amenities, then ongoing sedimentation may be expected and potentially increase because of the projected increase in visitation. As noted in the EA, trail use and road alignments along streams are having cumulative adverse effects on water quality in this watershed. Therefore, addressing any portion of the sedimentation problem attributed to the existing use of the facilities and consequences of the proposed project are certainly warranted; along with implementation of any necessary remedial measures.” (NCWRC)

Agency Response to Comment 2-7:

The source of sediment (bedload) in the pond is an accumulation of naturally occurring bedload for the past approximate 35 years the pond has been in existence. The Forest Festival Trail is adjacent to the pond, but it is hardened and below the pond; thus it does not contribute measurable levels of sediment, if any. The Discovery Trail service road has been used in the past few months for access to the new train shed construction site. Maintenance activities will be conducted after construction to

address erosion issues. The disclosure from the EA you cite was within the Hydrology section and described the effects of the No Action Alternative, *"Cumulatively within the South Fork Mills River watershed, other activities are contributing to adverse impacts to the water resource, largely a result of sedimentation to streams. Other activities that are likely contributing to cumulative effects include a system of trails, several roads adjacent to the stream network, and agricultural activities low in the watershed on private land."* (emphasis added) (Section 3.6.1, Chapter 3 of the January and March 2004 EAs). The proposed action disclosed that, *"Since this alternative would not have adverse direct or indirect effects on the aquatic resource, there would be no adverse cumulative effects associated with the proposed action within the South Fork Mills River watershed."* (Section 3.6.2, Chapter 3, of the January and March 2004 EAs).

Comment 2-8:

"The Commission also has concerns about future use of the designated gameland around the project site. Specifically, we value the use of this area by hunters and other sportsmen. We would be opposed to restricting the use, beyond normal safety zones, as a consequence of the proposed project or future facility expansions." (NCWRC)

Agency Response to Comment 2-8:

This concern is outside the scope of this project. The project did not propose changing existing hunting restrictions near Forest Service Administrative sites.

Interest 3: Water System Requirements

John Brooks - Department of Environment and Natural Resources Division of Environmental Health (DENR)

Comment 3-1:

"Proposed additions would change classification of facility to a community water system. Need to submit plans and specifications for project." (DENR)

Agency Response to Comment 3-1:

Mr. Brooks was contacted on March 17, 2004, for further clarification. If the facility improvements increase the water connections at the Cradle to more than 15, the status of the facility is considered a "community", requiring additional approval prior to hook-up. The DENR will require engineering plans be submitted and approved prior to full hook-up.



Environmental Assessment

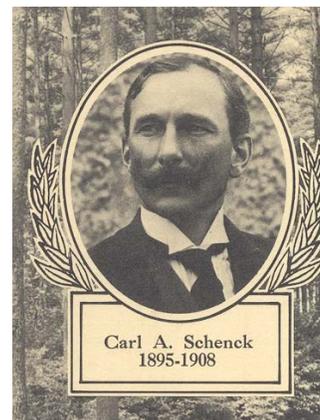
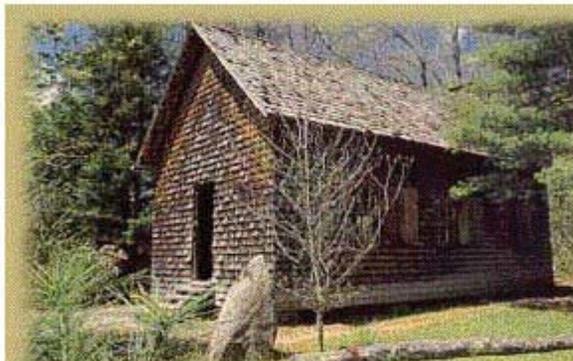
United States
Department
of
Agriculture

Facility Additions To the Cradle of Forestry in America

Forest
Service

Pisgah Ranger District, Pisgah National Forest
Transylvania County, North Carolina

March
2004



Responsible Official:

Randall Burgess
Pisgah District Ranger
1001 Pisgah Highway
Pisgah Forest, NC 28768

1.0 PURPOSE AND NEED FOR ACTION

1.1 Introduction

The Cradle of Forestry in America Historic Site (Cradle) is located on US Highway 276, 11 miles from the National Forest entrance near Brevard, NC, and four miles from the Milepost on the Blue Ridge Parkway. The project is located near the Forest Discovery Center at the divide between the Mills River and Davidson River drainages. A vicinity map is located in Appendix A.

The Cradle was established in 1968 to “...*preserve, develop, and make available to this and future generations the birthplace of forestry and forestry education in America and to promote, demonstrate, and stimulate interest in and knowledge of the management of forest lands under principles of multiple use and sustained yield and the development and progress of management of forest lands in America.*” (Public Law 90-398). Since it opened, over 3 million visitors have enjoyed the exhibits, historic buildings and interpretive programs with over 8,000 students annually attending conservation education programs.

The proposed action would take place within the boundaries of the Cradle, which is in Management Area 11 of the Land and Resource Management Plan of the Nantahala and Pisgah National Forests (Forest Plan). MA 11 is to be managed for educational, interpretive, and historical purposes with all management activities compatible with the interpretive and demonstrative nature of the area (Forest Plan Amendment 5, page III-135). The historic site is listed on the National Register of Historic Places. Within MA 11 is a Special Interest Area – Pink Beds Bogs that “*Management is directed at maintaining the natural wetlands along South Fork Mills River by maintaining an unaltered ground water level.*” (Forest Plan Amendment 5, page III-202). Construction activities would likely begin in 2004.

1.2 Proposed Action

The Pisgah Ranger District of the Pisgah National Forest is proposing within the Cradle to:

- a) Construct up to eight recreational vehicle (RV) campsites to be used by volunteers;
- b) Construct a 3,800 ft² facility to house six to eight interns or student volunteers;
- c) Construct a 2,000 ft² work center for volunteers to include indoor workspace, an activity room, small kitchen, restrooms, showers, and laundry facilities;
- d) Construct a 30 foot x 50 foot pole shed or maintenance storage facility for tools, equipment, and materials that are now held in three deteriorating metal sheds (the new pole shed would be built in the location of the metal sheds and the metal sheds would be eliminated);
- e) Dredge the pond above and along the Forest Festival Trail of accumulated sediment and repair its dam. The dam will be repaired by first dredging the pond during the summer months, diverting the stream’s flow below the dam, pouring a concrete “face” to armor the existing dam, and allowing the stream to gradually refill the pond while also supplying water to downstream reaches. During dredging, double-scooping and second handling of sediment will be restricted; and

- f) Construct a 2,000 ft² amphitheater just below employee offices and the Forest Festival Trail to be used for educational programs and activities. The amphitheater would have a permeable floor with interlocking bricks, a cover over the stage, a natural berm at the bottom to capture sediment, terraced steps along its sides, and a wooden rail fence would be constructed along the bottom end of the amphitheater to discourage foot travel below the site. About 10-15 trees less than ten inches in diameter would be removed with most being white pine. The amphitheater would be designed to comply with requirements set by the Americans with Disabilities Act. The population of swamp pink (*Helonias bullata*) north of the proposed amphitheater that has been monitored would continue to be monitored.

1.3 Purpose and Need for the Proposed Actions (Why Here, Why Now?)

1.3.1 Recreational Vehicle Campsites

There is a need to increase the amount of RV campsites

Public Law 90-398, the Cradle of Forestry Act, authorized the Secretary of Agriculture to “[c]ooperate with and receive the cooperation of public and private agencies and organizations and individuals in the development, administration and operation of the Cradle of Forestry in America.” In 1988, the Forest Service recruited and organized a volunteer program for the Cradle including the installation of three RV campsites. Presently volunteers contribute over 20,000 hours of labor in support of the operation, maintenance, and presentation of educational programs. As federal budgets have been reduced and costs of operations have increased, the need for more volunteers has expanded in all areas at the Cradle. More people want to be involved in the volunteer program, however the Pisgah Ranger District has no more sites available to place RVs. Every year the Forest Service has to turn down volunteer requests because of this lack of RV sites for volunteers.

1.3.2 Housing

There is a need to increase the amount of housing for interns or student volunteers

A similar situation exists for college interns. This is no housing at the Cradle of Forestry for college interns; yet each year the Forest Service has inquires from students and colleges to participate in the planning and presentation of educational and interpretive programs as part of their requirements for graduation. Providing the students with complimentary housing as part of their reimbursement for expenses makes the internship affordable for the student and the Forest Service. The remote location of the Cradle in relation to universities’ locations makes commuting impossible for students.

1.3.3 Work Center

There is a need to increase the amount of workspace for volunteers

Over sixty volunteers presently work at the Cradle with more volunteers expected in the near future. Space is needed to provide for their physical and social needs which are presently not being met or they are using inadequate facilities.

1.3.4 Storage Facility

There is a need to increase the amount of storage for maintenance equipment and materials

The Cradle is 6,500 acres with seven historic buildings, a 25,000 square foot Forest Discovery Center, and outdoor exhibits including a logging locomotive and steam-powered sawmill. The maintenance of the site requires considerable equipment, tools, materials, and space to make repairs plus space for storage of historic artifacts. Presently, there is a 1,680 ft² work center and three metal sheds of 10 foot x 20 foot size. The three metal sheds are over twenty-five years old and badly deteriorating from rust and wear. The need for storage space has forced storage of materials in inappropriate and unsafe areas.

1.3.5 Pond Dredging and Dam Repair

There is a need dredge the pond along the Forest Festival Trail of sediment and repair its dam

The pond, about the size of a homeowner's living room, should have a depth of at least six feet, however it is only two feet at its deepest which cannot maintain the cool water temperature trout prefer. Leakage through cracks in the concrete dam is so plentiful that the water level rarely goes over the spillway even during times of abundant rainfall. Failure of the dam structure would cause destructive scouring of the streambed.

1.3.6 Amphitheater

There is a need to construct an amphitheater

The amphitheater would be a place to conduct interpretive events in an outdoor setting. Dr. Schenck did much of his teaching in outdoor settings both for his school and for special guests as in the Forest Festival in 1908. Presently, there is no such facility at the Cradle to accommodate groups of 50 – 200 people for an interpretive presentation or event.

1.4 Decision to be Made

Based on the analysis disclosed in the EA, the Responsible Official will make a decision and document it in a Decision Notice and Finding of No Significant Impact. The Responsible Official can:

- Select the Proposed Action Alternative, or
- Select a modified version of the Proposed Action Alternative, or
- Select the No-action Alternative.

1.5 Public Involvement

A scoping letter was mailed on September 13, 2000, to several individuals, organizations, State and Federal agencies, and local news media requesting issues or concerns about a proposal to upgrade the existing water system, construct 6-8 additional volunteer camping sites, provide maintenance on the Biltmore Campus and Forest Festival Trails, and install a security fence along Highway 276. Nine individuals, agencies, or organizations provided comments. To date, the trail maintenance and security fence have been completed. On November 26, 2001, another scoping letter was mailed requesting comments on the following proposal: constructing a 2,000 ft² work center for volunteers; constructing a 3,800 ft² intern housing facility; constructing a pole shed; constructing an amphitheater; rehabilitating the public toilet on the Biltmore Campus Trail; and performing restoration and rehabilitative work on eight historic buildings located on the Biltmore Campus Trail. Five individuals, agencies, or organizations provided comments. In fall 2003, a separate heritage resources report was submitted to the State Historic Preservation Office. Three additional responses were received based on this report. The proposal also appeared in the Schedule of Proposed Actions for the National Forests in North Carolina in fiscal years 2001-2003.

A 30-day Notice and Comment period ran from January 30, 2004, through March 1, 2004, soliciting comments on the EA. Appendix C of the Decision Notice documents the comments received and the Agency response. Mitigation Measures, the amphitheater and dam proposal, botanical effects, and the biological evaluation (BE) from the January 2004 EA were updated slightly to address substantive comments received (see Sections 1.2 and 1.3.5 Chapter 1, Section 2.2.2.1, Chapter 2, Section 3.2.2, Chapter 3, and Appendix B, BE).

1.6 Issues

Issues are defined as a point of discussion, debate, or dispute about environmental effects. Key issues were used to develop mitigation measures. Due to the proximity of a botanical species listed as threatened under the Endangered Species Act, the botanical issue has been identified as key. The other issues are resource areas of concern. Analysis in Chapter 3 discloses anticipated effects to both the key issue and the other issues:

1.6.1 Key Issue 1 – Botanical Resources

The proposed action may impact the federally threatened swamp pink and its habitat, and the Regional Sensitive Carolina hemlock

1.6.2 Issue 2 – Scenic Resources

Scenic quality of the Cradle of Forestry in America may be impacted when new facilities are constructed

1.6.3 Issue 3 – Wildlife Resources

The proposed action may impact the federally threatened bog turtle and its habitat

1.6.4 Issue 4 – Aquatic

Individual aquatic species and their habitat may be impacted when the pond is dredged and its dam is repaired

1.6.5 Issue 5 – Hydrologic Resources

Water quality may be altered when the pond is dredged and its dam repaired, and surface and subsurface flow may be altered when the amphitheater is constructed

1.6.6 Issue 6 – Heritage Resources

Heritage sites may be impacted during construction of facilities

1.6.7 Issue 7 – Soils Resource

Soils may be impacted during construction of facilities

1.6.8 Issue 8 – Other Areas of Concern

Harvest activities may adversely affect park lands, prime farmlands, wetlands, wild and scenic rivers, ecologically critical areas, or local law or requirements imposed for the protection of the environment.

2.0 ALTERNATIVES

2.1 Introduction

This section is the heart of this environmental assessment (40 CFR 1502.14) and considers the alternatives developed in response to the issues regarding the proposed action. Issues were raised during the scoping process and alternatives were prepared in response to them.

2.2 Alternatives Considered

2.2.1 Alternative 1 – No Action

Under this alternative, no work would be done to provide recreational vehicle campsites for volunteers, housing for volunteers, a work center for volunteers, a storage facility for equipment, an amphitheater for 50-200 people, and dredging the pond and repairing its dam. This alternative provides the baseline for analyzing the effects of the action alternative.

2.2.2 Alternative 2 – Proposed Action

As disclosed in Section 1.2, Chapter 1, allow construction of recreational vehicle campsites for volunteers, housing for volunteers, a work center for volunteers, a storage facility for equipment, dredging the pond along the Forest Festival Trail and repairing its dam, and an amphitheater. Maps of the proposal are located in Appendix A.

2.2.2.1 Mitigation Measures

The following mitigation measures should be incorporated in the proposed action to protect aquatic, botanical, and hydrologic resources:

1. Sand and silt material removed from the pond would be hauled off-site to a borrow area on the Headwaters Road (FS 475B)—the same place used for storing fill soil when the Forest Discovery Center and parking area were constructed. Once dried, the dredged material would be added to planter beds, gardens and the seedling nursery. The borrow area is not in a riparian area and depositing and removing the material would not adversely affect heritage resources.
2. No wet concrete would come into contact with the aquatic resources within the project area. A dry working area (free of stream surface flow) would be established for the curing process of the concrete. This prevents volatile changes in the pH levels which cause drastic harmful effects to aquatic organisms.
3. Conduct a bulk density/percolation test after excavation of the amphitheater and before flooring is placed to ensure soils are not compacted where appropriate. Break up compaction as required after the test.
4. Sub floor for the amphitheater would consist of filter fabric, gravel, and permeable bedding. Permeable, interlocking bricks would be laid for the floor.
5. The water table would be monitored before, during, and after construction of the amphitheater to ensure no changes in hydrology. A visual inspection of what can be seen above-ground would be conducted and documented during each monitoring visit.
6. Control runoff from proposed compacted surfaces (roads, parking areas, and roofs) using infiltration basins/trenches to minimize changes in water yield to nearby natural

drainages and to reduce the risk of contamination from road-derived pollutants, such as deicing materials and petroleum products.

2.3 Alternatives Considered but Eliminated from Detail Study

As per 40 CFR 1502.14(a), an alternative was considered but eliminated from detailed study. This alternative is briefly discussed below along with rationale for its elimination.

2.3.1 Alternative A – Construct campsites on the east side of the maintenance road.

An alternative was considered but eliminated from detailed study that proposed building eight RV campsites on the east side of the maintenance road. This alternative was eliminated because it would likely have caused disturbance to Class II archeological sites (a site that requires protection until, or if, an excavation is performed—the site would also further the archeological knowledge base).

2.4 Comparison of Alternatives

The following table compares proposed actions by alternative.

Table 2.1 Comparison of Alternatives

Action	Alternative 1 No Action	Alternative 2 Proposed Action
Construct up to eight recreational vehicle (RV) campsites to be used by volunteers	Does not construct	Does construct
Construct a 3,800 ft ² facility to house six to eight interns or student volunteers	Does not construct	Does construct
Construct a 2,000 ft ² work center for volunteers to include indoor workspace, an activity room, small kitchen, restrooms, showers, and laundry facilities	Does not construct	Does construct
Construct a 30 foot x 50 foot pole shed or maintenance storage facility for tools, equipment, and materials that are now held in three deteriorating metal sheds (the new pole shed would be built in the location of the metal sheds and the metal sheds would be eliminated)	Does not construct	Does construct
Dredge the pond along the Forest Festival Trail and repair its dam	Does not dredge and repair	Does dredge and repair
Construct a 2,000 ft ² amphitheater to be used for educational programs and activities	Does not construct	Does construct

3.0 ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This chapter forms the scientific and analytical basis for the comparison of alternatives as required by the National Environmental Policy Act (NEPA). Included in this chapter are disclosures of effects of the alternatives on the different resources relevant to the issues. Direct and indirect effects occur at, or near the same time and place as a result of the action [40 CFR 1508 (a) and (b)]. They have been combined in this chapter, as it is difficult to completely separate between the two effects. Cumulative effects result “...*from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such action. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*” (40 CFR 1508.7).

3.2 Botanical Resources - *The proposed action may impact the federally threatened swamp pink and its habitat, and the Regional Sensitive Carolina hemlock*

3.2.1 Effects of Alternative 1 – No Action

The no action alternative would have no effect on any threatened, endangered, or sensitive (TES) botanical species.

3.2.2 Effects of Alternative 2 – Proposed Action

Element occurrences of the federally listed swamp pink (*Helonias bullata*) are known to be within a small drain (Southern Appalachian Bog) about 100 feet directly north of the proposed amphitheater site. This proposal would not directly affect this species. However, there are possible indirect effects of visitor use, erosion, and water movement the proposal may have after the amphitheater would be completed. With informal consultation David Wright, USFS Recreation Manager; Carolyn Wells, Botanist USFWS; Mike Milosch, USFS Cradle Manager, and Allen Ratzlaff, USFWS, the following mitigation measures were developed to reduce or eliminate impacts to swamp pink: (1) no wet concrete would come into contact with aquatic resources within the project area, (2) conduct a bulk density/ percolation test after excavation of the amphitheater and before flooring is placed to ensure soils are not compacted; break up compaction as required by test, (3) the sub floor of the amphitheater would consist of filler fabric, gravel and permeable bedding and permeable, interlocking bricks would be used for the floor, and (4) monitor water table before, during, and after construction of amphitheater to ensure no changes in hydrology; correct as needed (see also section 2.2.2.1, Chapter 2). Designing the amphitheater this way would allow water to seep into the water table and would mitigate any possible adverse effects of water drainage caused by the proposed amphitheater. Existing vegetation and swampy ground was deemed adequate to guard the nearby population of *Helonias bullata* from public disturbance. Due to the mitigation measures with the current proposal, the project is “not likely to adversely affect” the nearby population of *Helonias bullata*.

The known local populations of Carolina hemlock (*Tsuga caroliniana*) in the analysis area occur throughout the Pink Beds. *Tsuga caroliniana* is not an uncommon component species of xeric plant communities of the Mill/ Davidson River basins (Newell, Danley). Hence, the population

of *Tsuga caroliniana* is very large and scattered. *Tsuga caroliniana* occurs in proposed activity areas within the amphitheater site. Therefore this proposal might have a direct negative effect on individual *Tsuga caroliniana*. The other individuals of *Tsuga caroliniana* within the Cradle site are far enough away so that there would be no indirect effects of this proposal. Past actions have affected individuals of *Tsuga caroliniana*. It is known that the timber sales Sand Mountain (Caldwell Co.), Maple Sally, (Caldwell and Avery Co.), and Southern Pine Beetle Control (McDowell, Caldwell and Burke Cos.) within the Grandfather Ranger District, have affected individuals of *Tsuga caroliniana*. On a Forest-wide scale, this proposal would have very little effect on *Tsuga caroliniana*. There are so many individuals known, distributed over such a wide area across the Forest, that the species is not monitored in any quantified manner. Therefore, this proposal would have little effect on the total numbers of *Tsuga caroliniana* individuals throughout the Forest but would directly affect some individuals. However, this proposal would have no qualitative effect upon the Forest viability of *Tsuga caroliniana* and would not trend this species to federal listing or a loss of habitat.

There are no other element occurrences of TES plant species within the proposed activity areas. Therefore, no others will be affected. There are no anticipated adverse cumulative effects to botanical resources as a result of the proposal when combined with past and foreseeable actions listed in Table 3.1.

3.3 Scenic Resources - *Scenic quality of the Cradle of Forestry in America may be impacted when new facilities are constructed*

3.3.1 Effects of Alternative 1 – No Action

Under this alternative there would be no adverse direct, indirect, or cumulative effects to scenic quality.

3.3.2 Effects of Alternative 2 – Proposed Action

The Cradle of Forestry is the birthplace of forestry in America. As disclosed in Section 1.1, Chapter 1, Congress designated the Cradle for specific actions. Under this alternative, constructed buildings and the amphitheater would be designed and built to be compatible with existing structures and help promote the Cradle's interpretive objectives. The proposed facilities would meet visual quality objectives set forth in the land management plan as viewed from the principal viewpoints within the Cradle, i.e., the interpretive trails and central visitor parking and visitor center areas.

There are no anticipated adverse cumulative effects to the scenic resource as a result of the proposal when combined with past and foreseeable actions listed in Table 3.1.

3.4 Wildlife Resources - *The proposed action may impact the federally threatened bog turtle and its habitat*

3.4.1 Effects of Alternative 1 – No Action

The no action alternative would have no direct, indirect, or cumulative effects on the federally threatened bog turtle or any other TES terrestrial wildlife species.

3.4.2 Effects of Alternative 2 – Proposed Action

The proposed action would have no direct, indirect or cumulative effects on the federally threatened bog turtle or its habitat. While suitable habitat for the federally threatened bog turtle does occur within the 6,500 acre Cradle of Forestry boundary, none occurs at the project sites (see attached Biological Evaluation). No other TES terrestrial wildlife would be affected by implementation of this project. There are no anticipated adverse cumulative effects to wildlife resources as a result of the proposal when combined with past and foreseeable actions listed in Table 3.1.

3.5 Aquatic Resources - *Individual aquatic species and their habitat may be impacted when the pond is dredged and its dam is repaired*

3.5.1 Effects of Alternative 1 – No Action

Under the no action alternative, the existing condition of the project area would remain in its present state with the exception of the pond. If the pond is not dredged and the dam is not repaired, this pond habitat could be lost due to the continued filling of the pond with upstream sediments or due to the loss of the dam structure as a result of its poor condition.

3.5.2 Effects of Alternative 2 – Proposed Action

Implementation of the proposed project would have no affect on Threatened, Endangered, or Proposed aquatic species. Consultation with the US Fish and Wildlife Service is not required.

There would be no impact to the viability of aquatic Sensitive species on the Pisgah National Forest as a result of the implementation of this project. Virginia Commonwealth University determined that there are no sensitive odonates within the pond.

There would be no impact to the viability of aquatic Forest concern species as a result of the implementation of this project. There are no anticipated adverse cumulative effects to aquatic resources as a result of the proposal when combined with past and foreseeable actions listed in Table 3.1.

3.6 Hydrologic Resources *Water quality may be altered when the pond is dredged and its dam repaired, and surface and subsurface flow may be altered when the amphitheater is constructed*

3.6.1 Effects of Alternative 1 – No Action

Under this alternative new construction would not occur on the Cradle of Forestry compound. Therefore, additional direct and indirect impacts to the water resource would not occur at this time. However, by not maintaining the dam, the risk of adverse affects to the downstream reaches increases annually. The failure of the dam is likely without repair to the structure. Failure of the structure would present a large volume of sediment to the downstream reaches of South Fork Mills River. Such a catastrophic event would have adverse direct and indirect effects on the aquatic ecosystem for many years as the “slug” of sediment is processed over time by the channel. Notable changes would occur to the stream channel, aquatic habitat, and aquatic life to the point where State designated uses (e.g. aquatic life and recreation) could be impaired.

By not dredging the pond, succession of the water body behind the dam would continue. Current wetland conditions and values would remain, but diminish over time as a floodplain and channel form in the fresh deposits of sediment. This process of aggradation behind the dam would continue until the channel stabilized or until failure of the dam.

Cumulatively within the South Fork Mills River watershed, other activities are contributing to adverse impacts to the water resource, largely a result of sedimentation to streams. Other activities that are likely contributing to cumulative effects include a system of trails, several roads adjacent to the stream network, and agricultural activities low in the watershed on private land. The adverse direct and indirect effects anticipated from this alternative would be a major contributor to adverse cumulative effects within the South Fork Mills River watershed.

3.6.2 Effects of Alternative 2 – Proposed Action

Implementation of the proposed action would have an effect on the local hydrology of the analysis area since the amount of compacted area would increase. As compacted areas increase, less infiltration of water into the soil occurs and more water is available for surface runoff. Increasing runoff can change rates and amounts of water delivered to stream channels (water yield) and can provide a route for water contamination where connectivity exists. Changes in water yield can have adverse affects on receiving stream channels that are prone to erosion. Changes in channel stability and water quality can have adverse effects on the aquatic ecosystem, thereby impacting designated uses and species of concern.

Although the proposed action would change the local hydrology of the area, no adverse direct or indirect affects to stream channels and water quality are anticipated since the action would mitigate the change in runoff pattern by installing infiltration basins to promote infiltration. By doing so, the potential for connectivity by surface runoff from the project to the stream network is greatly reduced. Additionally, stream channels would be buffered from potential adverse impacts from construction of the RV sites, work center and pole shed, and intern dormitory by at least 100 feet of grassed and/or forested landscaping. Such distances, along with gently sloping terrain, would allow for sufficient filtration of water and sediments to protect the water resource.

Special consideration is given to maintaining the hydrology of the natural bog area about 60 feet downslope from the proposed amphitheater site. The hydrology of the bog area is likely tied directly to water table levels rather than to surface flow inputs. Water table levels are dependant at least partly on subsurface drainage from the adjacent side slope where the amphitheater is proposed. Since compacted surfaces can affect the distribution and quantity of subsurface water, the amphitheater would be designed to minimize compacted surfaces and promote rapid infiltration into the soil. The implementation of such a design and maintaining a vegetated buffer between the site and the bog is likely to result in no direct or indirect effect on the hydrology of the natural bog. To validate the effectiveness of these mitigation measures, monitoring wells have been installed to measure change in water table levels downslope from the amphitheater. If monitoring indicates notable changes in the water table level, then additional mitigation measures would be implemented to correct the changes.

The proposed work on the dam structure would reduce the risk of dam failure. As long as the dam remains in place, maintenance is required to retain the integrity of the structure to minimize

the risk of failure. Failure of such a structure would put at risk the downstream aquatic ecosystem. Therefore, the proposed dam maintenance would have positive impacts by reducing the risk of aquatic resource damage due to dam failure.

Dredging of deposited sediment from behind the dam would occur in this alternative. Dredged material would be removed from a portion of the impoundment without dumping the material permanently or temporarily in the water (no double handling) and care would be taken to minimize spillage from the bucket. Material would be disposed of off-site, away from any streams or wetlands. Therefore, neither a Section 404 permit from the Corp of Engineers nor a 401 water quality certification would be required.

Currently wetland habitat exists in the upper portion of the impoundment due to deposition of sediment over many years. Dredging would not remove the wetland habitat, but would deepen the current pool habitat. Since the pond surface area exposed to sunlight would not increase the proposed dredging is not anticipated to have an adverse affect on water temperature. Dredging would occur during a dry period with base flow conditions in the stream. Prior to dredging, the water entering the impoundment would be diverted or pumped from the upstream channel and discharged back into the stream below the dam. This would allow for most of the sediment put into suspension during the dredging process to settle back to the bottom before flow is returned to the impoundment. Therefore, the proposed pond maintenance would not have adverse direct or indirect effects on the stream channel or water quality.

Since this alternative would not have adverse direct or indirect effects on the aquatic resource, there would be no adverse cumulative effects associated with the proposed action within the South Fork Mills River watershed. Therefore, this alternative would not add to any potential adverse impacts associated with other reasonably foreseeable projects listed in Table 3-1.

3.7 Heritage Resources - *Heritage sites may be impacted during construction of facilities*

3.7.1 Effects of Alternative 1 – No Action

Under the no action alternative, there would be no direct, indirect, or cumulative impacts to heritage sites.

3.7.2 Effects of Alternative 2 – Proposed Action

There are no archeological or NRHP concerns to the proposed Cradle improvements project.

The proposed Cradle improvements have been evaluated with respect to potential effects to the National Register of Historic Places (NRHP) listed structures within the Cradle. The Forest Service's Cradle mission has always been to accurately maintain and portray the historic appearance and atmosphere of the Biltmore Forest School while providing interpretative and educational facilities for public visitation and participation. The proposed Cradle improvements project exemplifies the continuation of the Forest's Cradle mission.

The project based Heritage Resource survey revealed that the initial RV sites proposal was located within a significant heritage site, and any ground disturbance would generate adverse

effects to this site. The RV sites were subsequently relocated away from the site where subsurface testing proved negative for cultural material.

The proposed dormitory, amphitheater, dam reconstruction, work-center activity structure and pole-shed are located in areas that proved negative for cultural material during survey. These structures are also located outside of the public interpretative subject area and not within line-of-site of the historic structures, and therefore will not affect the historic appearance and atmosphere of the Biltmore Forest School. Historic documentation on the dam structure demonstrates that said structure is less than 50 years of age and is not a NHPA concern. There are no anticipated adverse cumulative effects to heritage resources as a result of the proposal when combined with past and foreseeable actions listed in Table 3.1.

3.8 Soils Resource - *Soils may be impacted during construction of facilities*

3.8.1 Effects of Alternative 1 – No Action

With the exception of the effects from a possible dam failure, this alternative would have no effect on soil resources. Aside from the obvious safety considerations (and potential for damage to a road a short distance downstream), a sudden failure during high-flow could result in bank erosion in near-downstream areas as well as deposition of sediments and debris on/within flood plain and riparian areas adjacent to the present channel for a considerable distance downstream. Such occurrence could adversely affect the productivity of soil resources adjacent to or alongside the stream course. However, slow release of sediments over a longer time period is a more likely scenario, in which case there would be little or no effect on adjacent soil resources.

3.8.2 Effects of Alternative 2 – Proposed Action

Under this alternative, the potential threat to soil productivity downstream from the dam would be reduced.

Sites occupied by the proposed developments (3,800 ft² housing facility; 2,000 ft² work center; RV campsites; 2,000 ft² amphitheater) would be dedicated to the proposed uses on a long-term basis. However, since lands within the bounds of the Cradle of Forestry in America (Management Area 11) are dedicated to management for “educational, interpretive, and historical purposes”—and the proposed developments are in accordance with “The Cradle of Forestry Management Plan”, the proposed construction activities would not change the land status nor remove additional lands from the productive forest base. As estimated, less than 1/3 acre would be occupied by the permanent or long-term developments that are proposed.

On the proposed development sites (noted above), there would be some soil displacement (cutting/filling/shaping) as necessary for the construction of facilities. While short term erosion could occur during the construction phase, all areas of excavation and/or fill, eroded areas, and sediment from such areas would be stabilized within the limits of the construction sites. Small areas adjacent to the construction sites (access/parking, materials staging areas, etc.) may also be subject to soil compaction, which would be mitigated upon completion of the project. As estimated, soil disturbances of any nature would affect less than 1 acre overall, and except for the

<1/3 acre occupied by developments on permanent or long term basis, soil disturbances associated with the proposed activities would be minimal and short term.

As addressed in Section 3.6 above, special care would be taken to avoid adverse impacts on swamp pink habitat and populations by maintaining the hydrology of that area downslope from the proposed amphitheater site. Due to the comparatively larger size of the area that is believed to provide subsurface recharge to the swamp pink habitat within the watershed – and the location of the amphitheater site relative to surface drainage patterns and swamp pink populations – potential effects on such habitat would most likely be minimal and localized. Based on the assumption that the hydrology of the downslope area is closely tied to apparent water table levels and marginally affected by surface flow inputs, wells were installed to monitor changes/fluctuations in water table levels to a depth of five feet. Since the nature of soil materials at (and immediately above) that depth appears to be such as to allow relatively rapid lateral movement in response to a soil moisture gradient (flow from a zone of high moisture content to one of lower content), it is assumed that such installation will provide the most valid indication of any potential changes in subsurface flow recharge of the swamp pink habitat or potential habitat below the site. There are no anticipated adverse cumulative effects to the soils resource as a result of the proposal when combined with past and foreseeable actions listed in Table 3.1.

Field observations over a three-week interval in December 2003/January 2004 (prior to installation of monitoring wells) indicate that substantial amounts of water are retained by slowly permeable, relatively high clay content soils within the top 2 to 2.5 feet. Rather than directly influencing the downslope area, this “layer” is believed to provide slow recharge of the water table at the particular site location, which, in turn, may be more directly associated with the apparent or permanent water table within the swamp pink habitat by gravity and/or lateral flow recharge. Nevertheless, the following mitigation measure should be added:

The water table would be monitored before, during, and after construction of the amphitheater to ensure no changes in hydrology. A visual inspection of what can be seen above-ground would be conducted and documented during each monitoring visit.

3.9 Other Areas of Concern

3.9.1 Effects of Alternatives 1 and 2

Implementing or not this proposal would have no effect on park lands, prime farmlands, wetlands (as per 1977 Executive Orders 11988 and 11990), wild or scenic rivers, or ecologically critical areas as no such areas exist within the project area. Neither alternative would violate local law or requirements imposed for the protection of the environment.

3.10 Reasonably Foreseeable Future Projects

Within the vicinity of the analysis area there have been past actions that have occurred as well foreseeable future actions that are expected to occur. Cumulative effects in the project area have been analyzed by alternative and include the following past and reasonably foreseeable actions:

Table 3-1: Past and Reasonably Foreseeable Future Projects in the Project Area

Project	Year
New wings added to Forest Discovery Center	1993 and 1998
New parking lot constructed adjacent to new wing	1993
Biltmore Campus and Forest Festival Trails reconstruction and paving	2002
Upgrade existing water line and its reservoir that provides drinking water to the Discovery Center	2004
Reconstruct train shed on the Forest Festival Trail	2004
Replace bathroom on the Biltmore Campus Trail	2004
Install handicap accessible ramp on the side of the historic Hiram King house and complete various restoration activities on eight historic buildings along the Biltmore Campus Trail	2004
Demonstrate various harvest types in several stands less than 20 acres along about one mile of access road east of the discovery center	2005+

4.0 PREPARERS AND OTHERS CONSULTED

4.1 List of Preparers

Scott Ashcraft, Archeologist
David Danley, Botanist
Brady Dodd, Hydrologist
Michael Hutchins, IDT Leader
Chris Kelly, Ecologist
Dan Manning, Soil Scientist
Michael Milosch, Project Leader
Lorie Stroup, Fisheries Biologist
David Wright, Forest Recreation Program Manager

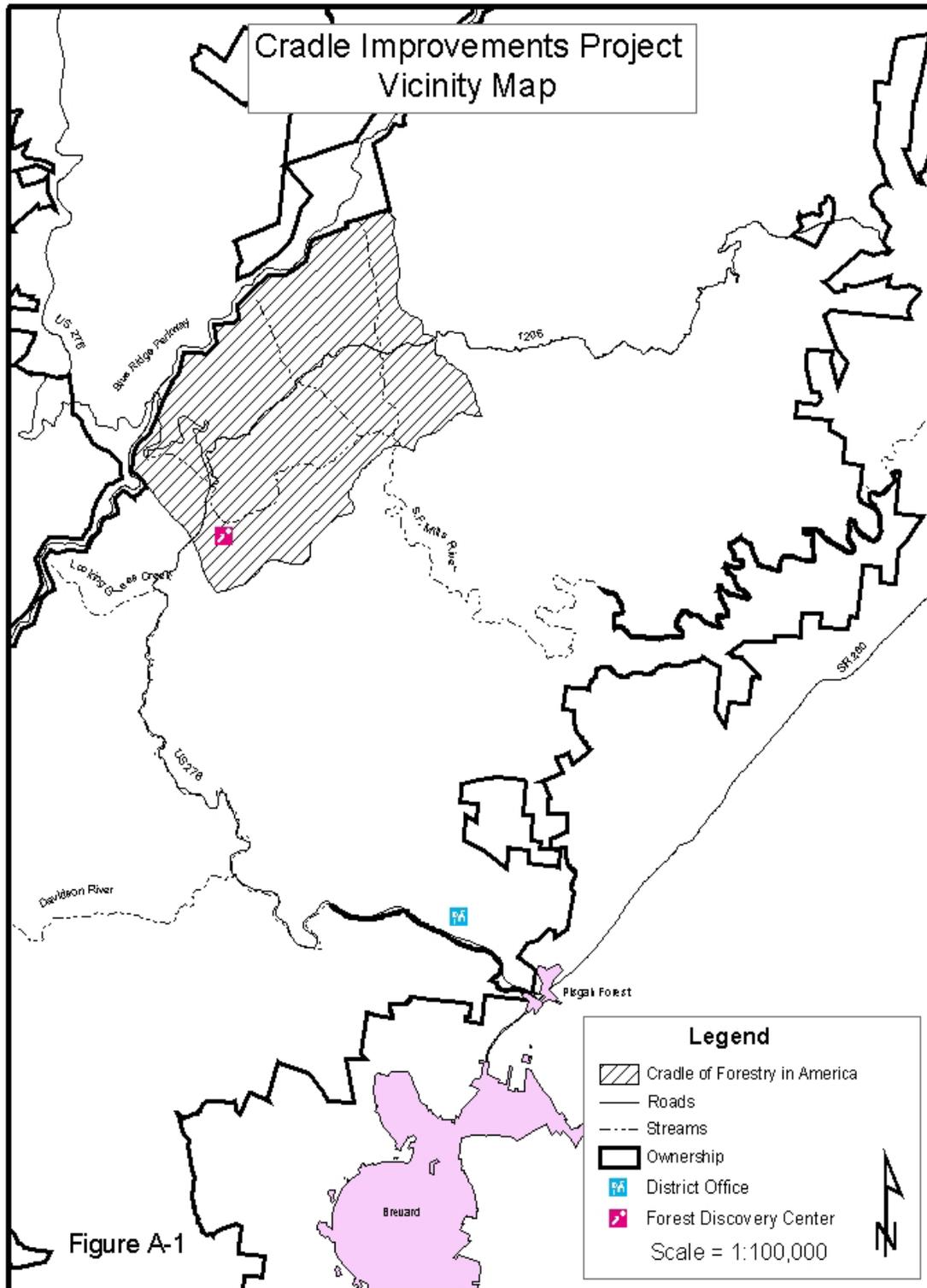
4.2 Other Forest Service Personnel Providing Input

Sheryl Bryan, Fisheries Biologist
Randall Burgess, District Ranger
Mae Lee Hafer, Wildlife Biologist
Benjamin Kizer, District Ranger (transferred)
Ted Oprean, Forester
Rodney Snedeker, Forest Archeologist
Dave Velez, Facilities Engineer

4.3 Other Agencies, Groups, and Individuals Providing Input

Dr. Richard Allen, Eastern Band of the Cherokee Nation
Owen Anderson, North Carolina Wildlife Resources Commission
Chrys Baggett, North Carolina Department of Administration
Marty Bergoffen, Southern Appalachian Biodiversity Project
James Bird, Eastern Band of the Cherokee Nation
David Brook, North Carolina Department of Cultural Resources
Richard Bury, PhD
Brian Cole, USDI, Fish and Wildlife Service
Sherman and Annette Craig
Harry Hafer, Cradle of Forestry in America Interpretive Association
Michelle Hamilton, Eastern Band of the Cherokee Nation
Vida & Art Heckerman
David McHenry, North Carolina Wildlife Resources Commission
Emily Radecki, Southern Appalachian Biodiversity Project
Allen Ratzlaff, USDI, Fish and Wildlife Service
Carolyn Wells, USDI, Fish and Wildlife Service
Artie Wilson, Transylvania County
Ken Woodard, Sierra Club

APPENDIX A – MAPS



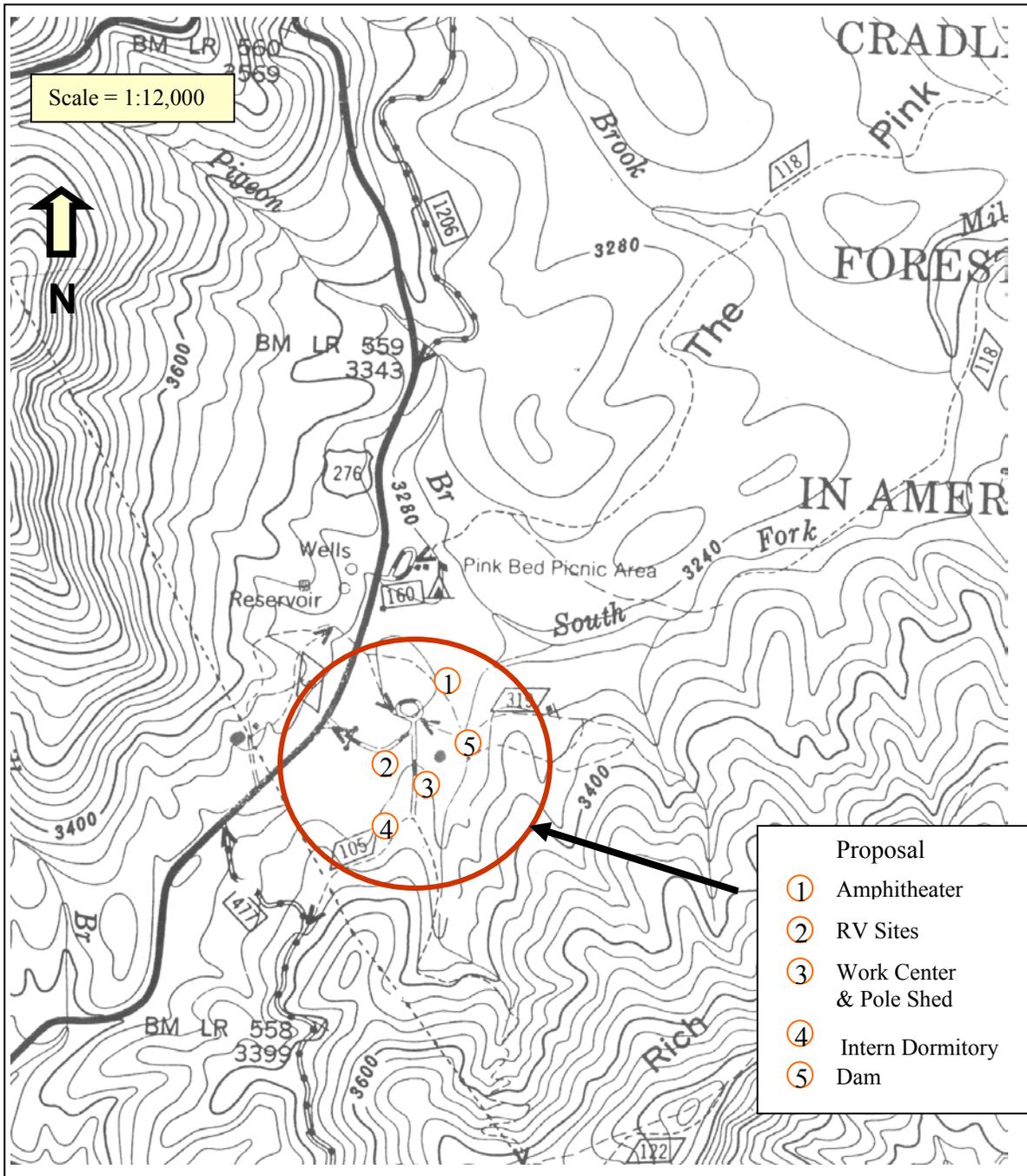


Figure A-2: Location of Project Area on USGS Topographic Map

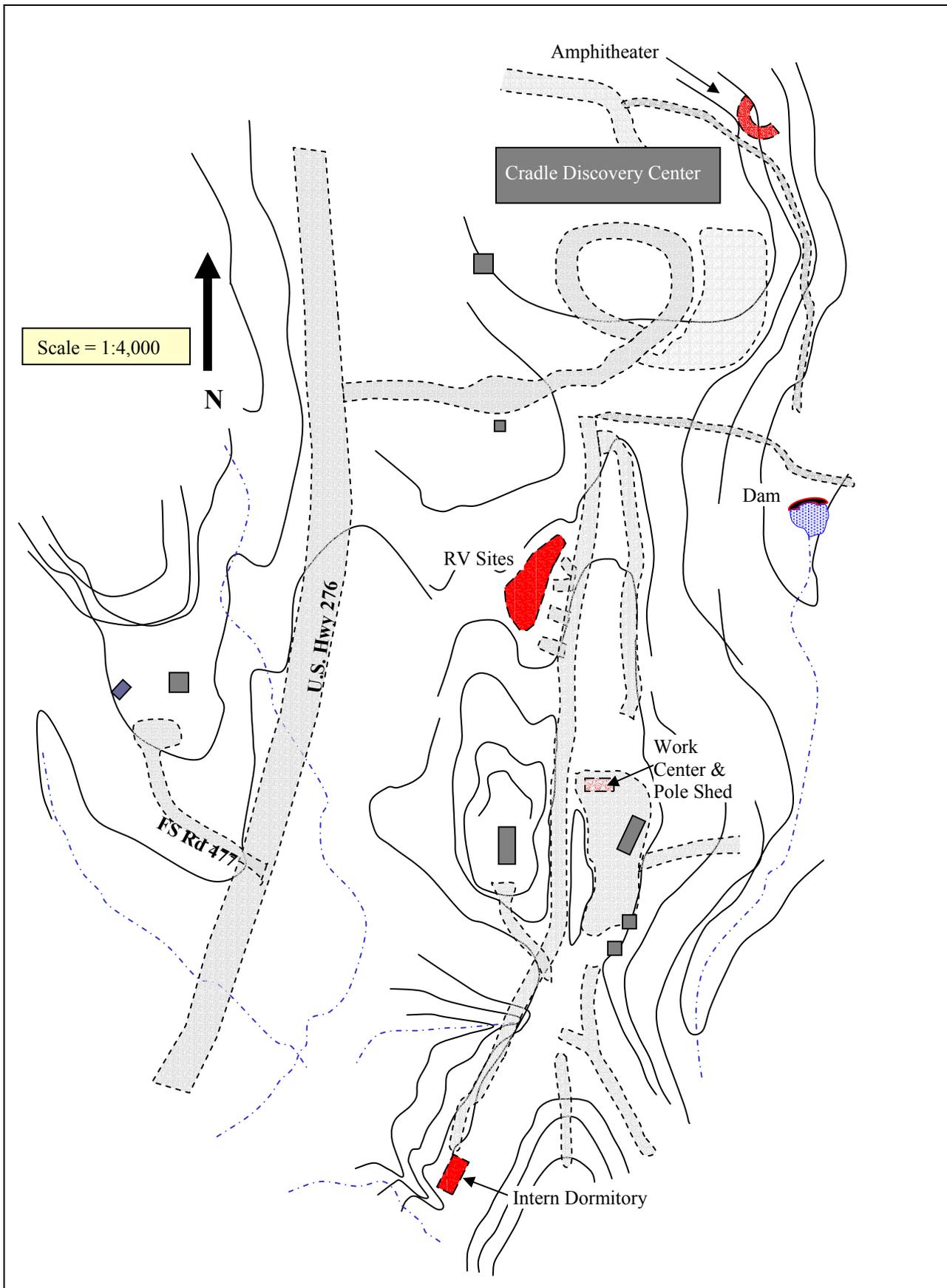


Figure A-3: Location of Project Area and Proposal

APPENDIX B

BIOLOGICAL EVALUATION

FOR THE

ENVIRONMENTAL ASSESSMENT

OF THE

CRADLE OF FORESTRY IN AMERICA CONSTRUCTION PROJECTS

PISGAH NATIONAL FOREST

PISGAH RANGER DISTRICT

TRANSYLVANIA COUNTY

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Abstract

This Biological Evaluation (BE) addresses effects of the proposed facility improvements to the Cradle of Forestry grounds to Federally Threatened, Endangered, and Forest Sensitive species (TES). The phase of the project covered in this evaluation includes dredging a small pond, building two housing units and a storage facility, establishing several more RV sites for volunteers and constructing an amphitheater. All TES species known to occur or likely to occur in the greater *analysis* area are not known to and are not likely to occur in the immediate *activity* areas. This project is not likely to adversely affect *Helonias bullata*. No other TES species will be affected by project implementation.

Mitigation Measures

The following mitigation measures should be incorporated as project design features to protect aquatic resources:

1. Sand and silt material removed from the pond would be hauled off-site to a borrow area on the Headwaters Road (FS 475B)—the same place used for storing fill soil when the Forest Discovery Center and parking area were constructed. Once dried, the dredged material would be added to planter beds, gardens and the seedling nursery. The borrow area is not in a riparian area and depositing and removing the material would not adversely affect heritage resources.
2. No wet concrete would come into contact with the aquatic resources within the project area. A dry working area (free of stream surface flow) would be established for the curing process of the concrete. This prevents volatile changes in the pH levels which cause drastic harmful effects to aquatic organisms.
3. Conduct a bulk density/percolation test after excavation of the amphitheater and before flooring is placed to ensure soils are not compacted where appropriate. Break up compaction as required after the test.
4. Sub floor for the amphitheater would consist of filter fabric, gravel, and permeable bedding. Permeable, interlocking bricks would be laid for the floor.
5. The water table would be monitored before, during, and after construction of the amphitheater to ensure no changes in hydrology. A visual inspection of what can be seen above-ground would be conducted and documented during each monitoring visit.
6. Control runoff from proposed compacted surfaces (roads, parking areas, and roofs) using infiltration basins/trenches to minimize changes in water yield to nearby natural drainages and to reduce the risk of contamination from road-derived pollutants, such as deicing materials and petroleum products.

I. INTRODUCTION

Purpose of Biological Evaluation

The purpose of this biological evaluation is to ensure maintenance of species viability for federally Threatened and Endangered species and Regional Forester's Sensitive species.

Proposed Action, Purpose and Need

This report summarizes and documents the findings of wildlife, botanical and aquatic resource analyses of the proposed improvements to the Cradle of Forestry in America Historic Site on the Pisgah Ranger District, Pisgah National Forest, Transylvania County, North Carolina. Additional improvements not summarized below are being considered for the future. Improvements analyzed for the initial phase include the following:

- a) Construct up to eight recreational vehicle (RV) campsites to be used by volunteers;
- b) Construct a 3,800 ft² facility to house six to eight interns or student volunteers;
- c) Construct a 2,000 ft² work center for volunteers to include indoor workspace, an activity room, small kitchen, restrooms, showers, and laundry facilities;
- d) Construct a 30 foot x 50 foot pole shed or maintenance storage facility for tools, equipment, and materials that are now held in three deteriorating metal sheds (the new pole shed would be built in the location of the metal sheds and the metal sheds would be eliminated);
- e) Dredge the pond above and along the Forest Festival Trail of accumulated sediment and repair its dam. The dam will be repaired by first dredging the pond during the summer months, diverting the stream's flow below the dam, pouring a concrete "face" to armor the existing dam, and allowing the stream to gradually refill the pond while also supplying water to downstream reaches. During dredging, double-scooping and second handling of sediment will be restricted; and
- f) Construct a 2,000 ft² amphitheater just below employee offices and the Forest Festival Trail to be used for educational programs and activities. The amphitheater would have a permeable floor with interlocking bricks, a cover over the stage, a natural berm at the bottom to capture sediment, terraced steps along its sides, and a wooden rail fence would be constructed along the bottom end of the amphitheater to discourage foot travel below the site. About 10-15 trees less than ten inches in diameter would be removed with most being white pine. The amphitheater would be designed to comply with requirements set by the Americans with Disabilities Act. The population of swamp pink (*Helonias bullata*) north of the proposed amphitheater that has been monitored would continue to be monitored.

Location and Description of the Project Area

The Cradle of Forestry is located off Highway 276. The proposed projects are slated for the main campus of the congressionally designated Cradle of Forestry. The campus includes the Forest Discovery Center (visitor's center), historic buildings, paved interpretive trails, and forest management demonstration areas/plots.

Legal Direction and Management Requirements

The proposed projects are analyzed to determine effects on Federally Threatened, and Endangered and Forest Sensitive (TES) species resulting from changed habitat conditions associated with project implementation as they apply to public lands. The Land and Resource Management Plan (LRMP) for the Nantahala and Pisgah National Forests includes practice standards for the Forests, and these standards are intended to protect, manage, and where possible, enhance wildlife, botanical and aquatic resources. This analysis will focus on the potential effects of the proposed activities which would most likely affect these resources.

This analysis was prepared with the best information available at the time.

II. SPECIES CONSIDERED AND SPECIES EVALUATED

Federally Threatened and Endangered and Forest Sensitive (TES) species were originally considered from the Forest's species list. Several of the species were considered for further analysis because they were listed by the North Carolina Wildlife Resources Commission, North Carolina Natural Heritage Program, and U.S. Fish and Wildlife Service as occurring or probably occurring in Transylvania County. Three species, *Clemmys muhlenbergii* (T), *Helonias bullata* (T), and *Tsuga caroliniana* (S) were analyzed as a result of the likelihood of occurrence based on habitat elements and filed records (Table 1).

Table C-1. Potential Threatened, Endangered and Sensitive species evaluated for the proposed improvement projects at the Cradle of Forestry in America.

<u>Species</u>	<u>Type</u>	<u>Brief Habitat Description</u>	<u>Occurrence</u>
Federally Threatened and Endangered Species			
<i>Helonias bullata</i> Swamp Pink (T)	Vascular plant	Southern Appalachian Bog	Known to occur on Cradle grounds, but <i>not</i> in proposed activity areas
<i>Clemmys muhlenbergii</i> Bog turtle (T)	Reptile	Bogs, wet pastures, wet thickets	May occur in analysis area; not likely to occur in activity area
2002 Regional Forester's Sensitive Species			
<i>Tsuga caroliniana</i> Carolina hemlock	Vascular plant	Dry ridges, forests, and swamps	Known to occur in proposed activity area for amphitheater

(T) = Federally Threatened

III. ENVIRONMENTAL BASELINE FOR SPECIES EVALUATED

Existing Condition

The Cradle of Forestry grounds are a mix of open, mowed lawns, and Mixed Pine-Oak Forest, with an abundance of planted white pine and rhododendron, at approximately 3,200 feet elevation. The forest was extensively manipulated by the forestry school in the late 1800s and early 1900s. Southern pine beetles have recently infested and killed many pines in and around the activity areas. The flat, wet areas in the vicinity of the visitor's center and staff housing are predominantly Southern Appalachian Bog and Swamp Forest Bog. The Pink Beds, abutting the Cradle of Forestry, is an extensive Southern Appalachian Bog; a rare community with numerous populations of rare species.

The pond, sometimes referred to as Schenk Pond, is located on an unnamed tributary to South Mills River and is about the size of a homeowner's living room. The habitat within the pond consists of up to 3 feet or more of sand and silt material that has accumulated over the years since the building of the small Civilian Conservation Corp dam (1930's). The pond is stocked annually with trout for educational purposes. There are no other species of fish within the pond.

The pond has almost entirely filled in with silt and sand leaving only 2 to 3 feet of water for the stocked fish.

IV. EVALUATED SPECIES SURVEY INFORMATION

Information for this analysis was collected in several ways: (1) reviewing the list of TES species of the Pisgah National Forest and their habitat preferences, (2) consulting element occurrence records of TES species as maintained by the North Carolina Natural Heritage Program, (3) conducting field surveys in areas designated for ground disturbing activities, and (4) consulting with individuals both in the private and public sector who are knowledgeable about the area and its flora and fauna.

Wildlife resources - Mae Lee Hafer, Forest Service Wildlife Biologist, surveyed the area on September 7, 2000 and October 4, 2001. Focused attention was given during the survey to look for special habitats (e.g., rock outcrops, seeps, and bogs) along the proposed location for the new trail that may be associated with the wildlife species being evaluated. Chris Kelly, USFS Ecologist, and Mae Lee Hafer surveyed the area with Mike Milosch as part of a project scoping meeting/site visit on February 12, 2003.

Botanical resources - Habitat and ranges of TES plant species are based upon information in the *Classification of the Natural Communities of North Carolina* and the Natural Heritage Program *List of Rare Plants of North Carolina*. The site and activity areas (The Cradle of Forestry and surrounding Pink Beds) have been extensively surveyed for botanicals in the past by the USFS and U.S. Fish and Wildlife Service. Specific botanical inventories were conducted in or near the proposed activity areas by the North Carolina Natural Heritage Program and were used in evaluation of this proposal. A field visit was conducted by Dave Danley, USFS Botanist, on March 21, 2003. Additional visits were made to the amphitheater site by Dave Danley and Carolyn Wells, USFWS, on May 20, 2003 and December 2, 2003.

Fisheries resources - All of the projects were evaluated for potential affects to aquatic resources during a site visit on February 12, 2003. Project information was obtained from Mike Milosch, USFS Director of the Cradle of Forestry. Additional information specifically addressing aquatic TES species was obtained from North Carolina Wildlife Resources Commission (NCWRC) biologists, North Carolina Natural Heritage Program (NCNHP) records, U.S. Fish and Wildlife Service (USFWS) biologists, and the Virginia Commonwealth University, which is studying odonate species on National Forests in North Carolina. Odonate species were identified from the area, and no Sensitive or Forest Concern species exist within the pond. Past macroinvertebrate surveys have indicated small populations of mayflies and damselflies. No caddisflies have ever been documented.

V. EFFECTS OF PROPOSED MANAGEMENT ACTION

Wildlife resources - The federally Threatened *Clemmys muhlenbergii* inhabits bogs, wet pastures, and wet thickets such as those found in the nearby Pink Beds. The bogs around the Cradle of Forestry are generally not suitable for bog turtles, given the extensive shaded rhododendron canopy which does not provide for basking areas. Also, implementation of the

proposed projects will stay out of any “boggy” areas, thus not affecting this species. No other TES terrestrial wildlife will be affected by implementation of this project. The housing site, camp sites, and storage structures are not currently suitable wildlife habitat. Therefore, construction of these structures will have no effect on terrestrial wildlife species. Construction of the amphitheater will involve removal of approximately 10-15 small trees, which is not expected to impact any wildlife species. Pond dredging will expand a water source for terrestrial wildlife.

Botanical resources - Element occurrences of the Federally listed *Helonias bullata* are known to be within a small drain (Southern Appalachian Bog) about 100 ft. directly north of the proposed amphitheater site. This proposal would not directly affect this species. However, discussion was given to the possible indirect effects of visitor use, erosion and water movement this proposal may have after the amphitheater was completed. With informal consultation with David Wright, USFS Recreation Manager; Carolyn Wells, Botanist USFWS; Mike Milosch, USFS Cradle Manager, and Allen Ratzlaff, USFWS, the following mitigation measures were decided upon: (1) No wet concrete would come into contact with aquatic resources with the project area, (2) conduct a bulk density/ percolation test after excavation of the amphitheater and before flooring is placed to ensure soils are not compacted; break up compaction as required by test, (3) the sub floor of the amphitheater would consist of filler fabric, gravel and permeable bedding and permeable, interlocking bricks would be used for the floor, and (4) monitor water table before, during and after construction of amphitheater to ensure no changes in hydrology; correct as needed. This system would allow water to seep into the water table and would be acceptable to mitigate any possible negative effects of water drainage caused by the proposed amphitheater. Existing vegetation and swampy ground was deemed adequate to guard the nearby population of *Helonias bullata* from public disturbance. With the current proposal, there will be no indirect effect to the nearby population of *Helonias bullata*. Therefore this project is “not likely to adversely affect” *Helonias bullata*.

The known local populations of *Tsuga caroliniana* in the analysis area occur throughout the Pink Beds. *Tsuga caroliniana* is not an uncommon component species of xeric plant communities of the Mill/ Davidson River basins (Newell, Danley). Hence, the population of *Tsuga caroliniana* is very large and scattered. *Tsuga caroliniana* occurs in proposed activity areas within the amphitheater site. Therefore this proposal might have a direct negative effect on individual *Tsuga caroliniana*. The other individuals of *Tsuga caroliniana* within the Cradle site are far enough away so that there will be no indirect effects of this proposal. Past actions have affected individuals of *Tsuga caroliniana*. It is known that the timber sales: Sand Mountain (Caldwell Co.), Maple Sally, (Caldwell and Avery Co.) and Southern Pine Beetle Control (McDowell, Caldwell and Burke Cos.), within the Grandfather Ranger District, has affected individuals of *Tsuga caroliniana*. On a Forest wide scale, this proposal will have very little effect on *Tsuga caroliniana*. There are so many individuals known, distributed over such a wide area across the Forest, that the species is not monitored in any quantified manner. Therefore, this proposal will have little effect on the total numbers of *Tsuga caroliniana* individuals throughout the Forest but will directly affect some individuals. However, this proposal will have no qualitative effect upon the Forest viability of *Tsuga caroliniana*.

There are no other element occurrences of TES plant species within the proposed activity areas. Therefore, no others will be affected.

Aquatic resources - All of the projects, excluding the pond dredging and dam repair will occur outside the 100 foot riparian area of any perennial streams. Erosion control devices such as silt fences and hay bales will be utilized to prevent any off site movement of soil during the construction phase of the projects. Implementation of the proposed project will have no effect on Threatened or Endangered aquatic species. There will be no impact to the viability of aquatic Sensitive species on the Pisgah National Forest as a result of the implementation of this project. Virginia Commonwealth University determined that there are no Sensitive odonates within the pond.

VI. DETERMINATION OF EFFECT

The amphitheater construction will likely adversely affect individuals of *Tsuga caroliniana*. However, it will not affect local viability of *Tsuga caroliniana* within the analysis area. No mitigation for *Tsuga caroliniana* is recommended. Implementation will have no adverse impact nor is it likely to result in a trend towards federal listing of any other Federally Endangered, Threatened or Forest Sensitive species. An informal consultation with the US Fish and Wildlife Service was sought because of the close proximity of this proposal to the Federally Threatened species: *Helonias bullata*. It was the USFS opinion that this proposal would not require formal consultation because there is no evidence that this proposal will negatively affect *Helonias bullata* (Carolyn Wells, US Fish & Wildlife Service). This project is “not likely to adversely affect” *Helonias bullata*

VI. MITIGATION MEASURES

The following mitigation measures should be incorporated as project design features to protect aquatic and botanical resources:

1. Sand and silt material removed from the pond would be hauled off-site to a borrow area on the Headwaters Road (FS 475B)—the same place used for storing fill soil when the Forest Discovery Center and parking area were constructed. Once dried, the dredged material would be added to planter beds, gardens and the seedling nursery. The borrow area is not in a riparian area and depositing and removing the material would not adversely affect heritage resources.
2. No wet concrete would come into contact with the aquatic resources within the project area. A dry working area (free of stream surface flow) would be established for the curing process of the concrete. This will prevent any volatile changes in the pH levels which will cause drastic harmful effects to aquatic organisms.
3. Conduct a bulk density/percolation test after excavation of the amphitheater and before flooring is placed to ensure soils are not compacted where appropriate. Break up compaction as required after the test.
4. Sub floor for the amphitheater would consist of filter fabric, gravel, and permeable bedding. Permeable, interlocking bricks would be laid for the floor.

5. The water table would be monitored before, during, and after construction of the amphitheater to ensure no changes in hydrology. A visual inspection of what can be seen above-ground would be conducted and documented during each monitoring visit.
6. Control runoff from proposed compacted surfaces (roads, parking areas, and roofs) using infiltration basins/trenches to minimize changes in water yield to nearby natural drainages and to reduce the risk of contamination from road-derived pollutants, such as deicing materials and petroleum products.

VII. LIST OF PREPARERS

Chris Kelly, USFS Ecologist, updated the Wildlife Analysis in 2003 and prepared this Biological Evaluation

Mae Lee Hafer, USFS General Biologist prepared the original Wildlife Analysis in 2001

Dave Danley, USFS Botanist, prepared the Botanical Analysis

Lorie Stroup, USFS Fisheries Biologist, prepared the Aquatic Analysis

/s/ Chris Kelly
March 15, 2004