



National Park Service  
U.S. Department of the Interior  
Great Smoky Mountains National Park  
North Carolina and Tennessee

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**FINDING OF NO SIGNIFICANT IMPACT**  
**Sochan Gathering for Traditional Purposes**

Recommended:

Cassius M. Cash  
Superintendent, Great Smoky Mountains National Park

2/20/19

Date

Approved:

Robert A. Vogel  
Regional Director, Southeast Region, National Park Service

2/27/19

Date

## INTRODUCTION

In compliance with the National Environmental Policy Act, the National Park Service (NPS) prepared an environmental assessment (EA) to evaluate entering an agreement with the Eastern Band of the Cherokee Indians (EBCI) to approve the gathering of sochan (*Rudbeckia laciniata*) from Great Smoky Mountains National Park (GRSM), Tennessee and North Carolina, per Title 36 Code of Federal Regulations (CFR) Part 2.6, *Gathering of Certain Plants or Plant Parts by Federally Recognized Indian Tribes for Traditional Purposes*. The purpose of the proposal is to meet the requirements of 36 CFR 2.6 with both parties entering into a General Agreement and GRSM issuing a special use permit for sochan gathering. The need for the proposal is to provide the EBCI with the opportunity to conduct plant gathering within GRSM for traditional use (personal consumption for food). The EBCI is a federally recognized Indian tribe and has made a request to the GRSM Superintendent to gather and remove portions of the spring leaves of sochan within GRSM boundaries and to conduct the traditional gathering of sochan within the framework and limitations of 36 CFR 2.6, *Gathering of Certain Plants or Plant Parts by Federally Recognized Indian Tribes for Traditional Purposes*.

Alternatives carried forward for analysis in the EA included:

- Alternative A – No Action Alternative. This provides a basis for comparing environmental impacts with the action alternative.
- Alternative B – Sochan Gathering for Traditional Purposes in Limited Areas of GRSM Alternative.

The statements and conclusions reached in this finding of no significant impact are based upon documentation and analysis provided in the *Sochan Gathering for Traditional Purposes Environmental Assessment* (November 2018) and its associated decision file. The EA was made available for public review from November 13 through December 16, 2018. A total of 336 pieces of correspondence that included 43 substantive comments were received during the comment period. Substantive comments were condensed into 20 concern statements and a response to each concern statement is provided in Appendix A. The Proposed Action did not change as a result of the substantive comments. Support for the Proposed Action was expressed in 317 pieces of correspondence.

## SELECTED ALTERNATIVE AND RATIONALE FOR THE DECISION

Based on the analysis presented in the EA and after considering public comments, the NPS selected Alternative B, Sochan Gathering for Traditional Purposes in Limited Areas of GRSM. Under the selected alternative, designated enrolled members of the EBCI would be allowed to gather portions of the early spring leaves of sochan. The EBCI would utilize the early spring green as a traditional food source. Gathering of sochan by the EBCI would be done in a sustainable manner using the traditional gathering method of picking a portion of the leaves by hand. The following specific requirements and limitations would be a part of all traditional gathering of sochan by the EBCI in GRSM:

- Up to 36 EBCI enrolled members would be allowed to annually participate in sochan gathering.
- Group sizes would be limited to six people during traditional gathering of sochan to minimize resource damage from trampling.
- Following traditional practices, permittees would be authorized to gather what is referred to by the Cherokee as the “turkey foot” of the perennial sochan plant. The turkey foot consists of the three terminal lobes of a sochan leaf.

- The turkey foot would only be gathered by hand picking from leaves ranging from 3 to 5 inches long; smaller and larger leaves would not be harvested. Up to 50 percent of the leaf biomass could be removed from each sochan clump.
- A permittee would be allowed to gather a maximum of 1 bushel (35.2 liters) per week of sochan leaves. The annual maximum amount of sochan for each permittee would be 12 bushels (422.4 liters). Permittees would use only official collection bags approved by GRSM to collect and transport sochan within GRSM.
- Sochan would be gathered annually from 1 March through 31 May.
- Gathering activities would be conducted within authorized sochan gathering zones, which are defined as any area with suitable habitat to support sochan within 328 feet (100 meters) of official GRSM roads, trails, or along the border of GRSM and the Qualla Boundary.
- All gathering activities would remain out of sight of areas such as visitor centers, major roads, parking lots, trailheads, campgrounds, and picnic areas when visitors are present and would not occur in research areas at Purchase Knob or in wet areas (i.e., areas with saturated/mucky soils or standing water on the ground surface).
- The NPS and the EBCI would jointly administer a monitoring program for traditional gathering that would consist of three main components: program participation, sochan gathering quantity, and resource impacts.
- NPS law enforcement personnel would enforce EBCI gathering permit conditions.
- All permittees would submit a weekly sochan gathering report to the EBCI Natural Resources Department, and reports would be forwarded to GRSM weekly.
- Monitoring of sochan and associated habitat conditions would be conducted by NPS Resource Management and Science Division personnel using the Carolina Vegetation Survey protocol (Evans 2016; Lee et al. 2008; Peet et al. 2012) throughout the growing season to determine if gathering causes any unanticipated impacts.
- Sochan gathering would be suspended if NPS monitoring indicates a 20 percent or greater decline of sochan within a gathering unit. Area restrictions would be enforced until the sochan recovers to 95 percent of its original abundance in the gathering unit. Monitoring could also be suspended if monitoring indicates other impacts on park resources.
- NPS and EBCI would engage in annual reviews of the status of traditional gathering activities, at which time revisions to the General Agreement could be proposed based on monitoring results or other information. This may include modifications of the requirements described above.
- The General Agreement between the NPS and the EBCI would be limited to five years, and a renewal of the General Agreement would be required at the end of the five-year period to allow the continued traditional gathering of sochan in GRSM by the EBCI.

These requirements and limitations would be included in the General Agreement and implementing special use permit between the NPS and the EBCI.

### **Rationale**

Alternative B (Preferred Alternative), Sochan Gathering for Traditional Purposes in Limited Areas of GRSM, was selected because NPS determined that:

- Traditional gathering of sochan by EBCI from GRSM would meet the requirements of 36 CFR 2.6, *Gathering of Certain Plants or Plant Parts by Federally Recognized Indian Tribes for Traditional Purposes*.
- Sochan gathering under Alternative B is expected to be ecologically sustainable, with no long-term deleterious effect on the reproduction or regeneration of populations being gathered in comparison to equivalent non-gathered natural populations and no discernable adverse effect on other species in the community, or on ecosystem structure and function.
- Provisions of the General Agreement have a high likelihood of successfully avoiding and minimizing impacts on park resources and visitors; ensuring that any impacts are not significant.

### **Mitigation Measures**

The NPS places a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. As part of the Proposed Action and the General Agreement between the NPS and the EBCI that would allow for traditional sochan gathering, Alternative B includes measures to avoid and minimize potential impacts on sochan and other GRSM resources. These include limiting gathering of sochan to EBCI permittees who have completed the appropriate training and plant identification requirements, prohibiting the sale or commercial use of sochan gathered in GRSM, limiting the amount of sochan leaves gathered, monitoring sochan gathering, and implementing corrective actions when needed, including modifications to the General Agreement. Mitigation measures beyond those already included in Alternative B are not warranted.

### **FINDING OF NO SIGNIFICANT IMPACT**

Council on Environmental Quality regulations at 40 CFR section 1508.27 identify 10 criteria for determining whether the selected alternative will have a significant effect on the human environment. The NPS reviewed each of these criteria given the environmental impact described in the EA and determined that there will be no significant direct, indirect, or cumulative impacts under any of the criteria.

### **Sochan**

Sochan gathering, under the terms of the established General Agreement, is expected to be ecologically sustainable with no long-term deleterious effect on the reproduction or regeneration of populations being gathered in comparison to equivalent non-gathered natural populations, and with no discernable adverse effect on other species in the community, or on ecosystem structure and function. Sochan is a common plant, widely distributed in GRSM and across the eastern U.S. and Canada. Sochan is a perennial rhizomatous plant with ample starch storage to recover from the removal of the three terminal lobes of some of the early spring leaves. Analysis in the EA indicates that the gathering of a portion of the spring leaves of sochan is not likely to harm the plant, cause plant mortality, or decrease reproductive capacity.

Furthermore, only about 30 percent of the suitable sochan habitat in GRSM would be open to traditional plant gathering. The monitoring program would be a requirement of the sochan gathering General Agreement and special use permit, and GRSM and the EBCI would ensure the success of the monitoring and any corrective management activities.

## CONCLUSION

As described above, the selected alternative does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement. The selected alternative will not have a significant effect on the human environment in accordance with Section 102(2)(c) of the National Environmental Policy Act.

Based on the foregoing, it has been determined that an environmental impact statement is not required for this project and, thus, will not be prepared.

## References

- Evans, T. 2016. *Great Smoky Mountains National Park Long-Term Vegetation and Soils Monitoring Protocol*. Draft. National Park Service.
- Lee, M. T., R. K. Peet, S. D. Roberts, and T. R. Wentworth. 2008. *CVS-EEP Protocol for Recording Vegetation: Level 3-5 Plot Sampling Only*. Version 4.2.
- Peet, R. K., M. T. Lee, M. F. Boyle, T. R. Wentworth, M. P. Schafale, and A. S. Weakley. 2012. "Vegetation-Plot Database of the Carolina Vegetation Survey." *Biodiversity & Ecology* 4:243-253.

## APPENDIX A RESPONSE TO PUBLIC COMMENTS

This EA was available for public review from November 13, 2018 through December 16, 2018. A total of 336 pieces of correspondence were received that included 43 substantive comments. Substantive comments were condensed into 20 concern statements and a response to each concern statement is provided below.

**Comment 1** – The EA did not include copies of EBCI’s letter to the Superintendent requesting to enter a plant gathering agreement or the General Agreement.

***Response to Comment 1** – Information contained in the EBCI gathering request and the Draft General Agreement was summarized in Chapters 1 and 2 of the EA. Copies of EBCI’s request letter and the Superintendent’s response are available to the public on the NPS PEPC website at <https://parkplanning.nps.gov/grsm>. EBCI’s gathering request to the Superintendent included sochan and ramps (*Allium tricoccum*). After discussing the request, both parties agreed that it would be prudent to forego consideration of the request for gathering ramps pending availability and analysis of additional sustainable harvesting information for this species. Therefore, only sochan gathering is addressed by the current plant gathering agreement. The General Agreement will be made available on the NPS PEPC website when it is signed by EBCI and NPS.*

**Comment 2** – If sochan is common outside GRSM, why should EBCI members be allowed to collect sochan inside the park?

***Response to Comment 2** – Provisions of 36 CFR 2.6 establish a framework for federally recognized Indian Tribes to gather plants and plant parts in National Park units and the EBCI submitted a request to gather in GRSM in accordance with 36 CFR 2.6. Place is an important component of traditional culture. Lands within GRSM were traditionally used by the Cherokee people for plant gathering and they have identified these lands as an important place where they wish to continue this traditional cultural practice. The fact that EBCI members can and do gather sochan outside the park does not diminish the cultural importance of gathering inside the park or in any way affect the process established by 36 CFR 2.6.*

**Comment 3** – The following alternatives should be considered:

- EBCI members growing sochan outside the park.
- Converting land now used for cultivation of hay to cultivation of sochan and other plants of importance to the park.
- Alternative gathering areas such as:
  - Trail corridors only in the Swain County section of the park below 4,500 feet elevation to avoid gathering in high elevation communities, old growth forests, and rare plant habitat.
  - Areas within 10 miles of the EBCI Qualla Boundary and largely outside of the park’s natural zones.

**Response to Comment 3 –**

- *In accordance with 36 CFR 2.6, EBCI's request was specific to gathering sochan in GRSM. Therefore, alternatives that involve cultivating sochan outside the park do not meet the purpose and need for the Proposed Action and were not considered in detail. Cultivation of sochan in GRSM is not necessary because the proposed gathering from wild populations would be ecologically sustainable. Nonetheless, sochan is relatively easy to cultivate and some EBCI members grow sochan in gardens. The park is working with Southern Appalachian Man and the Biosphere and EBCI on the Culturally Significant Plant Species Initiative, which will include cultivation outside the park.*
- *Terms and conditions of the General Agreement as outlined in Alternative B are based on internal and external scoping, and consultation with EBCI. A Plant Gathering Rule Implementation Group consisting of representatives from GRSM, EBCI, U.S. Forest Service, North Carolina Arboretum, and Virginia Tech was formed to facilitate development of the General Agreement. During this process, NPS considered a range of alternatives for the terms and conditions of the General Agreement to meet the requirements of 36 CFR 2.6, including number of permittees, quantity gathered, gathering locations, and gathering methods. The terms and conditions reflected in Alternative B were selected because they are expected to help meet the objective of allowing EBCI members to gather sochan in the park in an ecologically sustainable manner that does not adversely affect park resources and values. NPS considered a range of alternatives for gathering locations during scoping, including gathering throughout the park and limiting gathering to areas along trails and roads (Alternative B, see Chapter 2). As part of the alternative analysis, NPS also considered the need to exclude certain areas from gathering to avoid potential impacts to park resources and values. High visitor use areas, a research site at Purchase Knob, and wet areas with saturated/mucky soils or standing water on the ground surface were identified as areas where gathering would not be allowed to avoid impacts. Based on the scoping process and analysis in the EA, limiting gathering to the specific locations identified in comment 3 would not provide additional protection to park resources and values, and would not enhance the ecological sustainability of sochan gathering. Accordingly, further consideration of these alternatives is not warranted.*

**Comment 4 –** Vegetation trampling by permittees (up to 36 people) and guests (up to 5 people per permittee) is a concern that was not adequately addressed in the EA.

**Response to Comment 4 –** The issue of vegetation trampling was carefully considered during internal NPS scoping and consultation with EBCI. Potential concerns identified during scoping are addressed in the General Agreement, which will include measures to minimize trampling (group size limits and education), monitoring potential impacts of trampling, and a range of possible management actions that could be implemented if unanticipated trampling impacts occur. Vegetation trampling was considered, but dismissed from further analysis for the reasons discussed on pages 3-1 and 3-2 of the EA. As noted in the Text Change Errata, use of traditional methods avoids repeated harvesting from individual sochan clumps in the same season. Specific gathering sites would normally only be accessed once per year by gatherers, which minimizes potential trampling impacts.

**Comment 5 –** The specific parts of the sochan plant that would be authorized for gathering is unclear.

**Response to Comment 5 –** Clarification is provided in the Text Change Errata.

**Comment 6** – The annual total volume of sochan (up to 432 bushels [15,223 liters]) that could be collected under Alternative B represents a significant impact. Such a volume raises the question as to whether any of the harvested plant material could be sold or otherwise used for commercial purposes.

**Response to Comment 6** – *The analysis presented in Chapter 3 of the EA indicates that sochan gathering by traditional methods in accordance with limitations in the General Agreement would be ecologically sustainable. The analysis supports a finding of no significant impact. As stated in Section 2.5 on page 2-6 of the EA, terms of the General Agreement will prohibit sale or commercial use of sochan gathered in the park. Permittees may use sochan gathered in the park for personal consumption or may share it with other EBCI members. The authorized maximum volume of sochan for each permittee would provide about two servings per week for a family of four during the March through May gathering season.*

**Comment 7** – What is the maximum number of leaf sections (turkey feet) that will be allowed to be cut from each sochan clump?

**Response to Comment 7** – *The number of leaf sections gathered from each sochan clump would vary based on clump size and growth stage. Early spring sochan clumps have a range of leaf sizes. Following traditional gathering methods, the turkey foot of the smallest and largest leaves is not harvested. Traditional harvesting focuses on leaves between 3 to 5 inches. This method results in about 50 percent of the total leaf biomass being harvested from a clump. The EA was revised in the Text Change Errata to specify that up to 50 percent of the leaf biomass could be removed from each sochan clump. This provision will be included in the General Agreement.*

**Comment 8** – The EA does not specifically define designated sensitive areas that would be off-limits to sochan gathering. Do these areas include special status species habitat, rare natural communities, old growth forests stands, or high elevation spruce-forests?

**Response to Comment 8** – *The EA was revised in the Text Change Errata to clarify what areas would be off-limits to gathering. As part of the internal scoping process, NPS identified potential stressors associated with the gathering activities and resources that could be adversely affected by the stressors. Two potential stressors were identified: (1) foot traffic, which could lead to trampling and (2) hand picking sochan leaves (turkey foot). The scoping process identified wet areas (i.e., areas with saturated/mucky soils or standing water on the ground surface) as a resource that could be adversely affected by foot traffic and research areas at Purchase Knob where sochan grows as a resource that could be adversely affected by picking sochan leaves. These areas will be off-limits to gathering to avoid potential impacts. NPS determined that the limited foot traffic associated with gathering and hand picking sochan leaves would have a negligible effect on other areas that might be considered sensitive (e.g., special status species habitat, rare natural communities, old growth forests stands, or high elevation spruce-forests). Therefore, designating additional off-limits areas is not necessary.*

**Comment 9** – The 20 percent threshold for sochan decline is not protective and does not account for decreased reproduction or plant health. What is the basis for this threshold?

**Response to Comment 9** – *As discussed on page 2-5 of the EA, a 20 percent decline in sochan abundance in a gathering unit was selected as an early indicator that would allow NPS to implement management actions well before impacts reach unacceptable levels. Factors considered in establishing this protective*



threshold include sochan growth habitats, natural variability, and statistical considerations for detecting change. Other metrics will be collected to monitor overall site changes (e.g., trampling) and reproductive potential (e.g., flowering or fruiting). Long-term trends in sochan abundance will also serve as an indirect indicator of potential changes in reproduction or plant health. All monitoring data will be analyzed annually to determine the need for additional management actions. In accordance with 36 CFR 2.6, the GRSM Superintendent may close areas to gathering at any time to protect park resources and values.

**Comment 10** – Impacts to subspecies of *Rudbeckia laciniata* have not been considered.

**Response to Comment 10** – *The response to gathering is expected to be the same for all subspecies of sochan. Therefore, the analysis in the EA made no distinction between subspecies. As discussed in Chapter 3 of the EA, removal of the turkey foot is not expected to affect survival or reproduction of sochan, and traditional sochan gathering under terms of the General Agreement is expected to be ecologically sustainable.*

**Comment 11** – Sochan grows in wetlands and collection of sochan will impact wetlands.

**Response to Comment 11** – *Sochan grows in wetland and non-wetland habitats in the park. Most of these areas have moist soils, but not saturated soils or standing water. The General Agreement will prohibit sochan gathering in areas with saturated/mucky soils or standing water on the ground surface to avoid impacts to wetlands. The EA text was revised in the Text Change Errata to clarify the term “wet areas.”*

**Comment 12** – The cumulative impacts analysis should consider future gathering of other plants for traditional purposes. As more species of plants are approved, trampling and social trails will likely increase and the ability of park staff to monitor increasing impacts will probably be limited.

**Response to Comment 12** – *The EA was revised in the Text Change Errata to update the cumulative impacts.*

**Comment 13** – The Proposed Action would be precedent setting.

**Response to Comment 13** – *NPS went through a rule making process for Gathering of Certain Plants or Plant Parts by Federally Recognized Indian Tribes for Traditional Purposes (36 CFR Part 2) and the final rule was published July 12, 2016. The decision making process for sochan gathering in GRSM has been implemented in accordance with 36 CFR 2.6, NEPA, and NPS Management Policies 2006. Park managers are required to follow the same decision making process for any future requests from federally recognized Indian Tribes to gather plants or plant parts in the park. The final rule (36 CFR Part 2) has also been applied at other NPS units.*

**Comment 14** – Conclusions in the EA are based solely on a non-peer reviewed unpublished manuscript.

**Response to Comment 14** – *The analysis presented in the EA is based on several sources of information including peer reviewed literature, unpublished data, professional scientific knowledge of NPS staff, and traditional ecological knowledge of an EBCI natural resources professional who has experience gathering sochan in the wild.*

**Comment 15** – The EA does not identify methods, staffing, or funding for the sochan monitoring.

**Response to Comment 15** – *Please see Section 2.3.5 of the EA. Monitoring will be conducted by park staff with a combination of base and project funds.*

**Comment 16** – A sochan survey has not been done for GRSM and information about distribution in the park is lacking.

**Response to Comment 16** – *The park has been collecting sochan observations for over 5 years in concert with other monitoring activities. Over 300 known locations within the park were used to generate a habitat model for sochan.*

**Comment 17** – What adverse impacts, if any, have resulted from EBCI sochan collecting activities outside the park?

**Response to Comment 17** – *Park and EBCI scientists are not aware of any research studies quantifying the effects of traditional gathering on wild sochan populations. Discussions with EBCI Natural Resources Department staff indicate that traditional EBCI gathers typically go back to the same areas to collect sochan annually. According to EBCI Natural Resources Department staff, some EBCI members have been gathering sochan in the same sites for decades with no qualitative difference in abundance.*

**Comment 18** – The mandatory training should include information about how permittees should address interactions with or questions from other park visitors that might observe gathering activities.

**Response to Comment 18** – *The mandatory training will include information about how permittees should address interactions with or questions from other park visitors that might observe gathering activities. The EA was revised in the Text Change Errata to reflect this aspect of the training.*

**Comment 19** – The EA should address potential impacts on wildlife, including insects.

**Response to Comment 19** – *As discussed on page 3-2 of the EA, potential impacts on wildlife, including insects, were considered, but dismissed from further analysis. Any potential impacts on wildlife that depend on sochan would be negligible because gathering is not expected to affect sochan abundance, flowering, or reproduction.*

**Comment 20** – Other groups with cultural ties to lands within GRSM should also be allowed to participate in gathering.

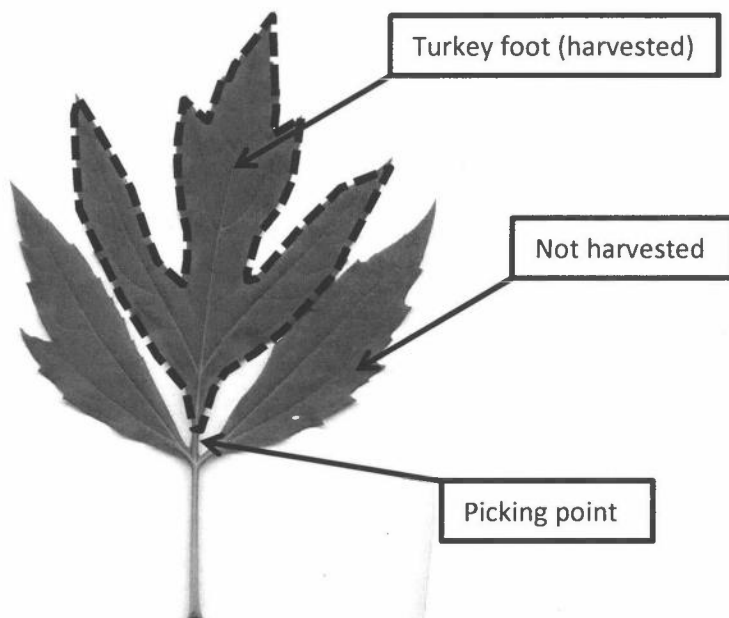
**Response to Comment 20** – *Provisions of 36 CFR 2.6 only apply to federally recognized Indian Tribes. As discussed in Section 1.4 on page 1-4 of the EA, all park visitors may gather specific fruits, berries, nuts, and aboveground fruiting bodies, as well as certain fungi for personal use or consumption in accordance with limits specified in the Compendium of Designations, Closures, Request Requirements and Other Restrictions, Great Smoky Mountains National Park. The collection of other plants or plant parts is not allowed under 36 CFR, Parks, Forests, and Public Property, or Title 16 U.S. Code, Conservation.*

## APPENDIX B TEXT CHANGE ERRATA

The following text changes have been made to the EA to correct or clarify information in the EA.

**Page 2-2 of EA (2.3.2 Sochan Parts Gathered and Quantity Limits):** “Following traditional practices, permittees would be authorized to gather what is referred to by the Cherokee as the “turkey foot” of the perennial sochan plant. As shown in Photograph 2-1, the turkey foot consists of the upper three leaves of the sochan as the plant begins to grow from the rhizome in the spring. The portions of leaves that would be collected prior to flowering would be no more than 12 inches (30 centimeters) long.”

**Change to:** “Following traditional practices, permittees would be authorized to gather what is referred to by the Cherokee as the “turkey foot” of the perennial sochan plant. As shown in Photographs 2-1 and 2-2, the turkey foot consists of the three terminal lobes of a sochan leaf as the plant begins to grow from the rhizome in the spring. Traditional gathering focuses on sochan clumps in ideal harvest condition and on the turkey foot from leaves that are between 3 to 5 inches long. The availability of harvestable leaves progresses with season and elevation. The leaves from very early growth are too small for harvesting and later in the season larger leaves are too bitter. Preferred sochan clumps have a range of harvestable and unharvestable leaf sizes, resulting in about 50 percent of the above ground biomass being harvested from the clump. A sochan clump remains in preferred harvest condition for approximately 10 days each spring, depending on habitat conditions and elevation. Traditional gatherers begin harvesting at lower elevations and gradually move to higher elevations to find sochan in preferred harvest condition as spring progresses. Using these traditional methods avoids repeated harvesting from individual sochan clumps in the same season.”



Photograph 2-2. Three Terminal Lobes of the Sochan Leaf (Turkey Foot).

**Page 2-2 of EA (2.3.2 Sochan Parts Gathered and Quantity Limits):** “A permittee would be allowed to gather a maximum of 0.5 bushel (17.6 liters) per day and a maximum of 1 bushel (35.2 liters) per week of sochan leaves.”

**Change to:** “A permittee would be allowed to gather a maximum of 1 bushel (35.2 liters) per week of sochan leaves.”

**Page 2-4 of EA (Paragraph 4):** “The training would include an overview of the regulations as described in the General Agreement for traditional plant gathering, proper identification of sochan, acceptable sochan gathering methods, background on the EBCI’s historic relationship with native plants, and information pertaining to the nutritional value and preparation of sochan for consumption.”

**Change to:** “The training would include an overview of the regulations as described in the General Agreement for traditional plant gathering, proper identification of sochan, acceptable sochan gathering methods, how to address interactions with other visitors, background on the EBCI’s historic relationship with native plants, and information pertaining to the nutritional value and preparation of sochan for consumption.”

**Page 3-2 of EA (Paragraph 1):** “Sensitive and wet areas would be avoided during gathering activities.”

**Change to:** “Gathering would be prohibited in areas with saturated/mucky soils or standing water on the ground surface and in research areas at Purchase Knob that contain sochan. Permittees would learn how to identify and avoid wet areas during mandatory training. Off-limits areas at Purchase Knob would be covered during training and the specific areas would be identified in the field with signs.”

**Page 3-3 of EA (3.1.3 Analyzing Cumulative Impacts):**

#### **“Past Actions**

- Maintenance mowing
- Trail maintenance

#### **Present Actions**

- Maintenance mowing
- Trail maintenance

#### **Reasonably Foreseeable Future Actions**

- Maintenance mowing
- Trail maintenance
- Other approved traditional plant gathering
- Responses to climate change”

**Change to:****“Past Actions**

- Maintenance mowing
- Trail maintenance
- Off-trail foot traffic associated with visitor use

**Present Actions**

- Maintenance mowing
- Trail maintenance
- Off-trail foot traffic associated with visitor use

**Reasonably Foreseeable Future Actions**

- Maintenance mowing
- Trail maintenance
- Off-trail foot traffic associated with visitor use
- Responses to climate change”

**Page 3-3 of EA (3.1.3 Analyzing Cumulative Impacts, insert at bottom of page):** “In addition to gathering sochan leaves, the EBCI has expressed interest in collecting other plants or plant parts in GRSM in the future. EBCI’s original gathering request to the Superintendent included sochan and ramps (*Allium tricoccum*). After discussing the request, both parties agreed that it would be prudent to forego consideration of the request for gathering ramps pending availability and analysis of additional sustainable harvesting information for this species. This information includes an ongoing national study of ramps being conducted through a partnership with Virginia Tech, the U.S. Forest Service, and the Institute for Sustainable Foraging (Institute for Sustainable Foraging 2017).

While NPS anticipates receiving future gathering requests from EBCI, the specifics of those requests; the findings of ongoing sustainable harvest research; whether NPS and EBCI would ultimately enter an agreement to gather additional species; and the terms and conditions of any future gathering agreements is speculative at this time. Therefore, traditional gathering of other plants is not a reasonable foreseeable future action and is not addressed further in the cumulative impacts analysis. The decision making process for gathering any additional plants must be implemented in accordance with 36 CFR 2.6, which includes preparation of an Environmental Assessment and must conclude with a finding of no significant impact.”

**Page 3-7 of EA (Cumulative Impacts, Paragraph 1):** “Past, present, and reasonably foreseeable future actions identified in Section 3.1.3 that could potentially affect sochan include mowing for maintenance of public areas and facilities, damage to plants during trail maintenance activities, potential trampling of sochan from other future approved plant gathering activities, and responses to climate change.”

**Change to:** “Past, present, and reasonably foreseeable future actions identified in Section 3.1.3 that could potentially affect sochan include mowing for maintenance of public areas and facilities, damage to plants during trail maintenance activities, trampling from off-trail foot traffic associated with visitor use, and responses to climate change.”

**Page 3-7 of EA (Cumulative Impacts, Paragraph 2):** “Trampling of sochan could occur from any off-trail or off-road activities, not just from approved future traditional gathering of other plant species. All future approved and permitted traditional plant gathering would be subject to educational, monitoring, and corrective action requirements and would be curtailed if plant gathering activities were determined to be detrimental to native plant populations. There would be no contribution to cumulative impacts on sochan from future permitted traditional gathering of other plant species.”

**Change to:** “Foot traffic associated with off-trail visitor use has caused trampling impacts (e.g., soil compaction and suppressed vegetation) and development of social trails (unofficial trails created by visitors) in the park. Trampling and social trails are most prevalent near front country campgrounds, backcountry campsites, picnic areas, and major trailheads. Social trails or “angler trails” are also present along many stream corridors in the park. Trampling associated with past and ongoing off-trail visitor use has caused the loss of some suitable sochan habitat, particularly where campgrounds, picnic areas, and campsites intersect stream corridors. Loss of sochan habitat from trampling in the park has not been quantified, but is estimated to be less than 1 percent of the 7,512 acres (3,040 hectares) of potentially suitable sochan habitat in the park. With over 10 million visitors per year, existing trampling impacts on sochan habitat from visitor use are expected to persist or increase in the future.”

**Page 3-9 of EA (Cumulative Impacts, Last Paragraph):** “Past, present, and reasonably foreseeable future actions are the same as those discussed under the No Action Alternative (Alternative A) and would have similar cumulative impacts. Because sochan gathering would be highly managed and be restricted to EBCI permittees who are educated and monitored to properly gather spring basal leaves of sochan using traditional methods, there would be no adverse impact on sochan reproductive capacity, and no contribution to adverse cumulative impacts would occur to sochan from implementation of Alternative B.”

**Change to:** “Past, present, and reasonably foreseeable future actions are the same as those discussed under the No Action Alternative (Alternative A) and would have long-term, adverse impacts on sochan and sochan habitat. These impacts are considered minor because they affect less than 1 percent of suitable sochan habitat in the park. As discussed in the cumulative impacts analysis for the No Action Alternative, trampling associated with past and ongoing off-trail visitor use has caused the loss of some suitable sochan and existing trampling impacts on sochan habitat from visitor use are expected to persist or increase in the future based on high visitation (more than 10 million visitors per year). Foot traffic in sochan habitat would increase under Alternative B. This increase in foot traffic is not expected to result in loss of sochan habitat because:

- The maximum number of permittees would be small (36) and gathering group sizes at specific gathering units would be limited to six persons.
- Traditional gatherers begin harvesting at lower elevations and gradually move to higher elevations to find sochan in preferred harvest condition as spring progresses. Specific gathering

sites would normally only be accessed once per year by gatherers, which minimizes potential trampling impacts.

- Education of permittees would include avoiding multiple passes over the same off-trail area or over the same route during gathering.
- Trampling would be monitored during sochan gathering and modifications made to gathering locations, size of groups participating in sochan gathering, or the number of permittees to eliminate any impacts of trampling on vegetation and soils.

Alternative B would not contribute to the impacts of past, present, and reasonably foreseeable future actions on sochan.”

**Page 5-1 of EA (Chapter 5: References, insert):**

Cade, Tommy. 2018. Personal communication with Tommy Cade, Natural Resources Department, Eastern Band of Cherokee Indians, Cherokee, NC.

Institute for Sustainable Foraging. 2017. “National Study of Ramps adds Additional Michigan Sites.” < <http://sustainablyforaged.org/2017/05/> >. Accessed February 2019.

## APPENDIX C

### NON-IMPAIRMENT DETERMINATION FOR SOCHAN GATHERING FOR TRADITIONAL PURPOSES

#### THE PROHIBITION ON IMPAIRMENT OF PARK RESOURCES AND VALUES

National Park Service (NPS) *Management Policies 2006*, Section 1.4.4, explains the prohibition on impairment of park resources and values:

While Congress has given the NPS the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the NPS must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the NPS. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

#### WHAT IS IMPAIRMENT?

NPS *Management Policies 2006*, Section 1.4.5, *What Constitutes Impairment of Park Resources and Values*, and Section 1.4.6, *What Constitutes Park Resources and Values*, provide an explanation of impairment. Impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

Section 1.4.5 of *Management Policies 2006* states:

An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.



Per Section 1.4.6 of *Management Policies 2006*, park resources and values that may be impaired include the following:

- The park's scenery, natural and historic objects, and wildlife, and the processes and condition that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structure, and objects; museum collections; and native plants and animals;
- Appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- The park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- Any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park, but this would not be a violation of the Organic Act unless the NPS was in some way responsible for the action.

#### **HOW IS AN IMPAIRMENT DETERMINATION MADE?**

Section 1.4.7 of *Management Policies 2006*, states, "[I]n making a determination of whether there would be an impairment, an NPS decision maker must use his or her professional judgment." This means that the decision maker must consider any environmental assessments or environmental impact statements required by the National Environmental Policy Act of 1969; consultations required under Section 106 of the National Historic Preservation Act; relevant scientific and scholarly studies; advice or insights offered by subject matter experts and others who have relevant knowledge or experience; and the results of civic engagement and public involvement activities relating to the decision.

*Management Policies 2006* further defines "professional judgment" as follows:

...a decision or opinion that is shaped by study and analysis and full consideration of all the relevant facts, and that takes into account the decision maker's education, training, and experience; advice or insights offered by subject matter experts and others who have relevant knowledge and experience; good science and scholarship; and, whenever appropriate, the results of civic engagement and public involvement activities in relation to the decision.

#### **NON-IMPAIRMENT DETERMINATION FOR THE SELECTED ALTERNATIVE**

This determination on impairment has been prepared for the selected alternative (Alternative B), described on pages 2-1 through 2-5 of the *Sochan Gathering for Traditional Purposes Environmental Assessment*, November 2018. A non-impairment determination is made for sochan, which is the only resource impact topic analyzed for the preferred alternative.

### Non-Impairment Findings for Sochan

The Great Smoky Mountains National Park (GRSM) *Foundation Document* (NPS 2016) identifies biodiversity and cultural ties to the land as fundamental resources and values. As a native plant that was traditionally gathered by the Cherokee people for food, sochan (*Rudbeckia laciniata*) contributes to the park's biodiversity and its traditional cultural importance. Sochan is a common plant, widely distributed in GRSM and across the eastern U.S. and Canada. Traditional gathering of sochan by Eastern Band of the Cherokee Indians (EBCI) permittees would only remove the three terminal lobes of sochan leaves as the plant begins to grow from the rhizome in the spring. Sochan is a perennial rhizomatous plant with ample starch storage to recover from the removal of a portion of the early spring leaves. The analysis in the environmental assessment indicates that the gathering of a portion of the spring leaves of sochan is not likely to harm the plant, cause plant mortality, or decrease reproductive capacity.

Only about 30 percent of the suitable sochan habitat in GRSM would be open to traditional plant gathering. A monitoring program would be a requirement of the sochan gathering General Agreement and special use permit, and GRSM and the EBCI would ensure the success of the monitoring and any corrective management activities. No impairment of sochan will occur under the selected alternative because sochan can be found in abundance in GRSM, gathering would only remove a small number of early spring leaves from these rhizomatous plants, removing a portion of the early spring leaves of sochan is not expected to harm the plant, and a robust monitoring program will be implemented to evaluate the effects of traditional gathering of EBCI by permittees.

### References

- National Park Service (NPS). 2006. *Management Policies 2006: The Guide to Managing the National Park System*. United States Department of the Interior, National Park Service. August 31.
- NPS. 2016. *Foundation Document, Great Smoky Mountains National Park, North Carolina and Tennessee*. October.