PROTECTING FEDERAL CULTURAL AND HISTORICAL GEOSPATIAL RESOURCES:

A REVIEW AND RECOMMENDATIONS

A Report of the National Geospatial Advisory Committee

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PROTECTING FEDERAL CULTURAL AND HISTORICAL GEOSPATIAL RESOURCES
Executive Summary

The National Geospatial Advisory Committee (NGAC) Subcommittee on Cultural and Historical Geospatial Resources conducted a research study in 2017- 2018. The objective of this research was to understand the issues and challenges associated with the protection and preservation of cultural and historical geospatial datasets and other derived geospatial information that is created, maintained, and/or managed by Federal agencies.

Subcommittee members conducted individual interviews with eleven Federal geospatial officers or those individuals responsible for managing and regulating access to culturally and historically significant geospatial data assets. The data collection effort took place between March and August 2018, targeting agencies with significant land holdings or land stewardship.

Each interview addressed three broad themes: data use policies, denial of data use requests, and views regarding the management of historically and culturally sensitive datasets in the Federal government. This resulted in the following findings:

- **Finding 1**: From the interviews, it is clear that there is a lack of consistency in defining and identifying geospatial data assets associated with sensitive culturally and historically significant resources across Federal agencies.

- **Finding 2**: The use of geospatial data associated with historic and culturally significant resources is highly regulated. However, the regulatory procedures are highly variable across agencies and states.

- **Finding 3**: Decisions to provide or deny access to the data is often made by individuals not well-versed in the geospatial sciences (GIS, database management, remote sensing, qualitative data analysis, etc.).

- **Finding 4**: Data created by individuals or contractors to manage field operations may be proprietary and not easily subject to regulation or oversight.

Based on these findings, the subcommittee recommends:

- **Recommendation 1**: Definitions of cultural resource spatial data.

- **Recommendation 2**: Guidelines on the management, access control, and exchange of geospatial data associated with sensitive cultural and historical resources.

- **Recommendation 3**: Data sharing agreements and strategies.

- **Recommendation 4**: Continue development of current spatial data transfer standards.

- **Recommendation 5**: Develop a training strategy and materials.

Introduction

The National Geospatial Advisory Committee (NGAC) Subcommittee on Cultural and Historical Geospatial Resources conducted a research study in 2017- 2018. The objective of this research was to understand the issues and challenges associated with the protection and preservation of cultural and historical geospatial datasets and other derived geospatial information that is created, maintained, and/or managed by Federal agencies. This paper was developed in response to guidance that was originally provided by the Federal Geographic Data Committee (FGDC) in 2017. The purpose of the study was three-fold: 1) to identify formal and informal policies and procedures-in-use to manage & protect geospatial data assets of cultural and historical significance; 2) to better understand the challenges that agencies face in upholding their obligations within the framework of prevailing laws; and 3) to make recommendations to support the protection of geospatial data assets associated with culturally and historically significant resources while remaining cognizant of Federal open data policies. This paper includes findings and a set of recommendations to address these objectives.

Context

While the protection of the privacy and security of human subjects in the context of providing open access to data is well understood in the geospatial community (e.g., National Research Council, 2007), the protection of geospatial data assets associated with culturally and historically significant resources has received much less attention and scrutiny. The Geospatial Data Act of 2018 supports open data policies and obligates various government agencies and departments to promote greater access and use of government information and data. In this context, the NGAC is concerned about the challenges of protecting and preserving locational information related to sites of historical and cultural significance. While we acknowledge that there is unrestricted cultural and historical geospatial data available to the public, this report will predominantly focus on restricted cultural and historical geospatial information. Archaeological information is often the first type of restricted data that comes to mind, but it is not the only data that is protected. Data may be designated as restricted due to an owner's wishes, specific ethnographic features, the nature of traditional cultural properties, or for a variety of other reasons.

Congress has previously passed legislation to protect culturally significant sites and landmarks with legislation dating back to the Historic Sites Act of 1935 and subsequently the National Historic Preservation Act (NHPA) of 1966, amended in 1992 and the Archaeological Resources Protection Act (ARPA), passed in 1979.

The principal Federal laws enacted to protect sensitive information about historic properties and archaeological resources are Section 304 of the National Historic Preservation Act and Section 9 of the Archaeological Resources Protection Act. While there is some overlap between these two statutes, each focuses on specific kinds of information that can be withheld from general disclosure, with the former utilized more often than the latter (ACHP, 2016).

Section 304 of the NHPA protects information about the location, character, or ownership of historic properties, meaning those properties that are eligible for or listed in the National Register of Historic Places (National Register). An historic property (or historic resource) is defined in the NHPA [54 U.S.C. § 300308] as any "prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register of Historic Places, including artifacts, records, and material remains related to such a property or resource." The location of a historic property places it in a specific

geographic setting, which may include information such as a street address, highway or route number, geographic coordinates, and descriptions of the property's position in relation to local landmarks or natural features such that it could be found.

ARPA's confidentiality provision protects information about the nature and location of archaeological resources, which are defined in the statute as any material remains of past human life or activities, which are of archaeological interest and at least 100 years old. The regulations implementing ARPA, "Protection of Archaeological Resources" (43 CFR part 7) state further that, "[of] archaeological interest means capable of providing scientific or humanistic understandings of past human behavior, cultural adaptation, and related topics through the application of scientific or scholarly techniques such as controlled observation, contextual measurement, controlled collection, analysis, interpretation and explanation."

The language contained in these acts and their various interpretations have created additional challenges for Federal land management agencies such as the National Park Service. For example, in order to protect culturally significant sites, their locational information must be documented and recorded (Marincic, 2018). This can create new data security concerns regarding the accidental or willful exposure of unredacted locational and descriptive or attribute data.

It should be noted that cultural properties (or historic resources) only need to be "eligible" for inclusion on the National Register of Historic Places to enjoy the protections of section 304 of the NHPA. This would make the majority of geospatial assets related to cultural and historic locations protected under section 304 of the NHPA. Additionally, most cultural and historical geospatial assets would also be covered under ARPA (43CFR part 7) as the definition of scientific or scholarly techniques depicts capabilities of most modern geographic information systems. There may also be additional Federal, Tribal, and State laws that further protect this type of information.

Approach and Study Methodology

The subcommittee convened a preliminary study scoping meeting in September 2017. The Federal liaison from the National Park Service provided the members with useful contextual information about the established laws and procedures that currently govern the protection of geospatial data assets such as the 2013 FGDC Cultural Resources Subcommittee Charter, and the Guidelines for the Use of Spatial Data Transfer Standards developed by the National Park Service in 2014.

This study is framed to understand how existing policies are being understood and used within Federal agencies that are responsible for the protection of geospatial data assets of historical and cultural significance. Therefore, subcommittee members conducted individual interviews with Federal geospatial officers or those individuals responsible for managing and regulating access to culturally and historically significant geospatial data assets. The data collection effort took place between March and August 2018, targeting agencies with significant land holdings or land stewardship. The data was gathered using a standardized interview guide, which was then adapted by each interviewer as appropriate. The interview guide, available upon request, was pilot tested before the interviews were carried out. Interviews were recorded when consent was given, and the recordings transcribed. In other instances when recordings were not feasible, the interviewer provided their own notes about the interview. The team then examined the data individually and together as a group in order to make their recommendations.

Data collection began with a letter from the FGDC Executive Director that introduced the subcommittee's study plans through a general email to all member agencies. Participating agencies identified prospective interview candidates. The interviews were scheduled and conducted via a telephone call and the conversations lasted an average of 30 minutes to an hour. Eleven interviews were conducted across seven bureaus / offices from three agencies (see Table 1); some agencies provided multiple interviewees and in one instance, two individuals participated in the same interview and their responses were consolidated for the purpose of this study. The Federal Emergency Management Agency responded but did not participate in the survey, and the Bureau of Indian Affairs failed to respond or acknowledge requests for participation.

Table 1: Participating Agencies

Agency	Bureau/Office
U.S. Department of Agriculture	Forest Service
U.S. Department of Agriculture	Natural Resources Conservation Service
U.S. Department of Defense	Army Corps of Engineers
U.S. Department of Defense	Office of the Secretary
U.S. Department of the Interior	Bureau of Land Management
U.S. Department of the Interior	Bureau of Ocean Energy Management
U.S. Department of the Interior	Bureau of Reclamation

Profile of Respondents

The interviewers gathered background information from the respondents. The typical respondent was a Federal employee with several years of work experience handling a variety of tasks where they would have had an opportunity to encounter problems or challenges related broadly to data security. All respondents were familiar with geospatial data collection and analysis; over 80 percent of the respondents currently managed staff responsible for direct data collection and analysis. About half the respondents were familiar with data archiving. Only one of eleven respondents was the Geospatial Information Officer for their agency. Many of the respondents had broad responsibilities as indicated below:

> *"I serve as the lead technical contact for heritage resources."*
>
> *"I work in cultural resources policy and management."*
>
> *"I coordinate Section 304 consultations under FOIA."*
>
> *"I am a cultural resources and Tribal relations specialist."*

Each interview addressed three broad themes that are discussed in detail in the next section. The first theme documented information about data use policies in place within the respondent's agency. The second theme documented information about how the denial of data use requests are managed within the agency. The third theme gathered information about respondents' subjective views regarding the management of historically and culturally sensitive datasets in the Federal government. Collectively, the

interviews documented formal procedures and noted subjective opinions from the interviewees about the complexities associated with using and implementing these procedures.

Interview Findings and Discussion

Finding 1: From the interviews, it is clear that there is a lack of consistency in defining and identifying geospatial data assets associated with sensitive culturally and historically significant resources across Federal agencies.

The NGAC subcommittee was eager to understand if there was a consistent and recognizable way to identify a historic or culturally sensitive dataset. The respondents were asked: "What are the recognizable characteristics of a culturally or historically significant dataset? In other words, how would you identify such a dataset?" The definitions were wide-ranging, but they all identify location along with additional attribute information. Some respondents recognize that the information can be situated outside of a traditional geospatial database, as in a report or spreadsheet.

> *"Any and all data that is archaeological in nature, containing information about sites, structures or landscape features."*
>
> *"A data standard that is implemented across the department that includes layers such as data about historic buildings, structures, archaeological sites, historic districts, landscapes, and cemeteries."*
>
> *"Cultural and historical datasets are highly restricted – I would identify the dataset by who has access to it. Any dataset created by an archaeologist would be considered cultural and therefore restricted. Any dataset identified by stakeholders that are cultural would be restricted."*
>
> *"Data that includes archaeological survey locations and site boundaries."*
>
> *"Data that describes the character of potential historic properties and their locations. Remotely sensed data, data tables, csv files, and reports each [may] contain sensitive information."*

When the subcommittee asked whether there was *"an agency-wide working definition of a culturally or historically significant geospatial dataset,"* over fifty percent of the respondents indicated that the definition was vague and/or context-dependent (see Figure 1).

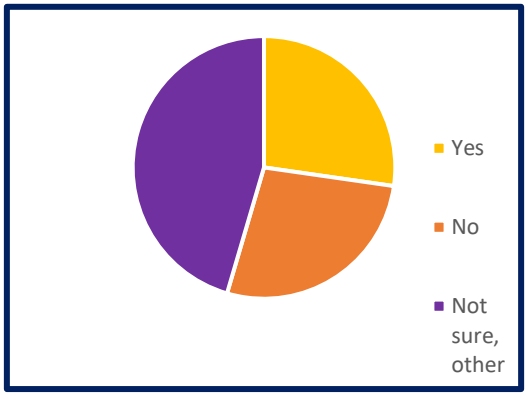

Figure 1: Awareness of Formal Definitions within Agency

Respondents consistently referred and deferred to the National Historic Preservation Act of 1966 amended in 1992 and the Archaeological Resources Protection Act of 1979 amended in 1988 but pointed out that agencies interpreted the provisions of the Act depending on the circumstances. It is important to note that Tribal and State Historic Preservation Offices have their own definitions that can vary from Tribe to Tribe and State to State. Likewise, if historic or culturally sensitive data was first created at a Tribe, State or by another sub-jurisdiction, the data may not be readily identified by the Federal agency as culturally or historically significant and may not be restricted.

Finding 2: The use of geospatial data associated with historic and culturally significant resources is highly regulated. However, the regulatory procedures are highly variable across agencies and States.

Our respondents told us that the use of culturally and historically significant data was highly restricted; most agencies erred on the side of caution, protecting and/or securing data by limiting access to it. Those seeking to access data for 'legitimate' uses, such as scholars or scientists, were expected to provide detailed information about why the data was being requested and how it would be used. In some instances, archaeologists or other specialists working for developers or private companies involved in extraction of natural resources on public lands requested information to avoid accidentally causing harm to those locations. In those instances, the location information was provided after redacting the specific attributes of the location. Several respondents indicated that data use and data sharing agreements were developed to meet the specific data request. These agreements sometimes contained clauses stating that the data could not be released to others.

Inter-governmental data sharing was the norm, although our respondents noted that each agency had a slightly different way of reviewing and interpreting data security and privacy across their data holdings. Agencies working with Tribal governments indicated that they deferred to the Tribal liaison to make a determination about the significance of particular datasets and the determination of the Tribal liaison officer was critical in granting/restricting access to that data.

Our respondents repeatedly told us that every decision was unique as all requests were unique and handled on a case-by-case basis. They stated that blanket requests were seldom made or granted, and that data requests were usually narrowly framed. As one of our respondents put it, "*it's on a need-to-know basis."* However, none of our respondents reported maintaining a consistent log of fulfilled or denied requests although they assumed that these databases existed within their agency.

Finding 3: Decisions to provide or deny access to the data is often made by individuals not well-versed in the geospatial sciences (GIS, database management, remote sensing, qualitative data analysis, etc.).

The NGAC subcommittee learned that the approval or denial of data requests is often made by a staff person handling FOIA requests or is in some way involved in engaging with members of the public directly. This person may or may not be familiar with the legal mandates enshrined in the NHPA and ARPA, the use of geospatial data assets, or how to review the metadata information associated with these datasets. All of this is necessary in order to provide relevant and useful guidance related to data significance and privacy obligations enshrined within. Our respondents, those familiar with geospatial information, were seldom approached to assist in handling data requests.

Finding 4: Data created by individuals or contractors to manage field operations may be proprietary and not easily subject to regulation or oversight.

Geospatial data created during the course of field operations may be more at risk for disclosure when those collecting it are not government employees. For example, individuals or government contractors involved with protecting heritage resources or carrying out projects often develop and maintain internal geodatabases or record sensitive information on paper maps. Researchers and students will collect and compile historical or cultural data on their personal computers. These data are sometimes misplaced, may not be included in contract deliverables, or find their way into the public realm without appropriate redaction. While our respondents were aware of this challenge, they did not have any specific recommendations to address or correct the problem.

Recommendations

The Department of the Interior, National Park Service (NPS) serves as the Lead Covered Agency for the Cultural Resources National Geospatial Data Asset (NGDA) data theme. The NPS also provides leadership for the interagency FGDC Cultural Resources Subcommittee. Under the terms of the Geospatial Data Act, DOI/NPS has multiple responsibilities for the development, coordination, and implementation of the Cultural Resources data theme. These responsibilities include providing leadership across the agencies involved in the data theme and facilitating the development and implementation of a plan for nationwide population of the theme. In developing this plan and in carrying out the other responsibilities outlined in the GDA, the NGAC recommends that the FGDC agencies address the following recommendations:

Recommendation 1: Definitions of cultural resource spatial data.

The National Register of Historic Places defines cultural resource data, as it is classified in the National Historic Preservation Act. Over many years however, the definition of what constitutes "cultural resource" data has expanded to include ethnographic resources, cultural landscapes, and other resource types. The NGAC recommends that the FGDC Cultural Resources Subcommittee work to identify the various definitions of cultural resource spatial data as characterized in existing cultural resource laws and regulations to find commonality. The NGAC also recommends that the Cultural Resources Subcommittee develop a working list of resources and features that would qualify as both restricted and unrestricted "cultural resource spatial data," to help the general public as well as the cultural resource community and Federal/Tribal/State/local governments understand which specific entities the cultural resource standards would apply to and how to share that data appropriately using the guidance developed.

Recommendation 2: Guidelines on the management, access control, and exchange of geospatial data associated with sensitive cultural and historical resources.

The NGAC recommends that the FGDC Cultural Resources Subcommittee develop guidelines on the management, access control, and release of cultural and historical geospatial datasets and other derived cultural and historical geospatial information. These guidelines should address considerations such as:

- Are adequate internal procedures and safeguards in place to properly categorize, manage, and secure datasets?
- Will the release of this geospatial data lead to risks of damage to a cultural or historic site that outweigh the intended benefit of the release?
- Have potentially impacted entities such as Tribal and State governments been consulted about this potential data release as required in Executive Order 13175, and the Geospatial Data Act, Sec. 759(a)(7)?

Recommendation 3: Data sharing agreements and strategies

The NGAC recommends that the FGDC Cultural Resources Subcommittee develop guidelines on implementation of data sharing agreements that address the release of geospatial data associated with sensitive cultural and historical resources.

Possible components of a data sharing agreement may include:

- Detailed descriptions of projects for which data is being released;
- Provisions that data may not be shared with other entities without written consent;
- Expiration dates defining when data should be returned or destroyed; and
- Implementation of a system of accountability to ensure exchanged data is safeguarded.

The FGDC Cultural Resource Agencies should compile existing strategies for sharing sensitive and non-sensitive cultural resource data and develop guidance that can be used by all Federal/Tribal/State/local agencies to facilitate data exchange.

Possible information to include may be:

- Definitions of the various levels of sensitivity for cultural resource data;
- Guidelines as to when distribution of sensitive data is appropriate;
- Information as to how to determine the level of detail (both spatial and descriptive) to be shared; and
- Best practices for executing confidentially agreements with participating parties.

Recommendation 4: Continue development of current spatial data transfer standards

The FGDC Cultural Resource Subcommittee has been working since 2002 to develop appropriate spatial data standards for cultural resources. Based on research and previous attempts by other Federal/State agencies, the creation of cultural resource spatial data content standards would be impractical and costly due to the differences in data elements created, collected, and maintained by Federal/Tribal/State/local governments meeting their regulatory requirements for the National Historic Preservation Act (Sec. 110).

The FGDC Cultural Resource Subcommittee determined that a spatial data transfer standard to facilitate the sharing of cultural resource spatial data among agencies would be more practical and helpful to the cultural resource community as a whole, and for meeting regulatory responses. The subcommittee is near completion of these standards, with a data model and guidance document now in final draft form. The NGAC recommends that the subcommittee complete this task to create the spatial data transfer standards by the end of calendar year 2020.

Recommendation 5: Develop a training strategy and materials

The NGAC recommends that the FGDC agencies develop and implement training on the management of geospatial data associated with sensitive cultural and historical resources.

The training should cover topics including:

- Definitions of cultural resource spatial data;
- Guidelines on the management, access control, and exchange of geospatial data;
- Examples of data sharing agreements, including:
    - Tracking agreements and lifecycle tracking;
    - Non-disclosure agreements;

    - Consultation protocols with stakeholders;
- Examples of conducting proper consultation prior to any data release with potentially impacted entities such as Tribes and States; and
- Information about spatial data transfer standards.

DOI/NPS, and the other agencies involved in the FGDC Cultural Resources Subcommittee, should consider including this training component in the NGDA theme plan required under the GDA.

Conclusion

We recommend that the NGAC continue to do work on this topic. This subcommittee has identified significant inconsistencies regarding the definition, management, access, and use of cultural and historical geospatial information. The issues identified require attention in order for the historic and cultural assets to be adequately managed and protected. Given the complexities (e.g. range of jurisdictions, public and private sector, individuals and organizations) presented by these inconsistencies and the implications associated with misuse of this information, we expect only incremental improvements in policy and community implementation in the near-term should the subcommittee's recommendations be adopted.

We therefore recommend that this subcommittee remain in place to periodically monitor and measure progress, and to identify additional recommendations as necessary to further comply with established law, and to assure proper management, protection, and use of geospatial information related to cultural and historical resources.

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