Acoustic Environment and Soundscape Resource Summary
Washita Battlefield NHS

National Park Service
U.S. Department of the Interior

Natural Resource Stewardship and Science
Natural Sounds & Night Skies Division

The acoustic environment is a resource with intrinsic value. It is important as a natural resource, a cultural resource, or both. It is a critical component of wilderness character and plays an important role in wildlife communication, behavior, and other ecological processes. Results from multiple surveys of the American public indicate that hearing the sounds of nature is an important reason for visiting national parks. Therefore, the value of acoustic environments and soundscapes is related to an array of park resources and has broad implications for park management. The quality of the acoustic environment is relevant in nearly every unit in the NPS System. When developing the foundation document, park staff should consider the acoustic environment as a resource with inherent value. The topics in Attachment 1 discuss the importance of the soundscape and the acoustic environment in relation to park resources and values.

At **Washita Battlefield NHS**, acoustic resources protection and noise reduction are related to the following park priorities:

- enhancing visitor experience
- conducting interpretive programs
- rural, historic and commemorative settings
- preserving quality wildlife habitat

Potential Threats

- Noise from park facilities and operations
- Noise from nearby development, transportation, and aircraft
- Noise from visitors such as visitor vehicles, music, shouting, electronics

Potential Opportunities

- Reduce noise from park operations (time activities to preserve quiet times, purchase quieter equipment)
- Outreach to visitors about reducing noise from sources such as electronics and idling vehicles
- Communicate with visitors about benefits of noise reduction to park experience and wildlife health
- Collaborate with partners and neighbors to manage noise sources that could affect park resources

Existing data/planning:

- Predicted acoustic conditions based on continental acoustic model

Future data/planning:

- Collect acoustic data to measure baseline acoustic conditions
- Develop acoustic goals, indicators and standards in an acoustic resources plan or related park plans or strategies

Quality of the Resource at Washita Battlefield NHS

Parameters useful for assessing a park's acoustic environment include the understanding of a) *natural* conditions without the influence of human-caused sounds, b) *existing* acoustic conditions including both natural and human-caused sounds, and c) the *impact* of human-caused sound sources in relation to natural conditions. The *impact* demonstrates the influence of human activities to the acoustic environment.

The Natural Sounds and Night Skies Division (NSNSD) estimates these acoustic conditions using predictions from a geospatial sound model. For the model, sound pressure levels for the continental United States were predicted using actual acoustical measurements combined with a multitude of explanatory variables such as location, climate, landcover, hydrology, wind speed, and proximity to noise sources (roads, railroads, and airports). The model predicts daytime sound levels during midsummer. The maps are generated using 270 meter resolution - meaning that each square of color on the