Final Report: Summary of Work and Future Directions

Cooperative Agreement No. H2380040002 J2390070027: Metrics of Human Responses to Natural Sound Environments

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Work continuing under RM-CESU Cooperative Agreement Number: H2370094000 J2390090181: Advanced analysis toward metrics of human responses to natural sound environments

Our laboratory-based studies are developing a set of measures that are sensitive to the human experiences of sounds—both natural and anthropogenic—in park settings. To date, laboratory studies have examined a wide range of measures and performance tasks in order to identify those best suited for use in assessing sound and noise effects in NPS settings. We are then taking these independent and dependent variables to park-like settings, including a wildlife museum that is comparable to a national park visitor center, and several outdoor settings that include local and national parks. The expectation is that park managers could use these measures to identify park components that are more and less sensitive to sounds experienced by visitors and take appropriate management action. An additional goal is the publication of peer-reviewed papers and professional reports. The work is continuing under RM-CESU Cooperative Agreement Number: H2370094000 J2390090181, particularly in terms of analyzing the data and submitting associated manuscripts to journals. Findings to date include (**BOLD** reference numbers indicate work performed under the project covered by this report):

- Scenic evaluation ratings and satisfaction ratings decrease in the presence of air or ground traffic sounds and human voices, but not in the presence of bird or breeze sounds [1,2,3,**4,6,7,13**]
- Memory of factual information is disrupted in soundscapes that include ground traffic, human voices, or frequent low-altitude overflights [**5,8**]
- Self-chosen music from MP3 players affects scenic evaluations and satisfaction [**10**]
- Physiological responses to different soundscapes are inconsistent and weak [**9**]
- Basic cognitive processes related to interference, speed of processing, working memory, and problem solving are not affected by different soundscape conditions [**9**]
- The more scenic the area, the more anthropogenic sounds degrade aesthetic ratings [**7**]
- Human voice prevalence and volume affects perception of crowding [**11**]
- The individual difference measures of Need for Cognition and Motivation for Sensory Pleasure are positively correlated with memory scores when viewing natural or cultural park scenes in the presence of anthropogenic sounds [**8**]
- Motivation for Sensory Pleasure is a sensitive measure for deciphering differences between individuals, including gender differences in engaging the natural environment [**12**]

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*__Bold__ numbers indicate work performed under Cooperative Agreement No. H2380040002 J2390070027, the project covered by this report).

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