

Psychological Evaluations of Park Sound Environments



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Psychological Evaluations of Noise

- Noise (unwanted sound) is an ambient stressor
(Bell, Greene, Fisher, & Baum, 2001)
- Therefore noise affects...
 - **Physiology**
 - Heart rate, stress hormones, etc.
 - **Emotions**
 - Happiness, relaxation, frustration, etc.
 - **Attitudes**
 - Satisfaction, enjoyment, usability, etc.
 - **Cognitions**
 - Memory, problem solving, etc.

Psychology, Noise and National Parks

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- Park specific research is scarce
 - CSU tested heart rate (HR), skin response (GSR), and respiration

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 - CSU tested heart rate (HR), skin response (GSR), and respiration
 - Findings were inconsistent (Benfield, Bell, Troup, Jakubowski, McCabe, & Soderstrom, 2009)
 - Lower HR for some natural conditions
 - Higher GSR for some high dB(A) mechanical conditions

Psychology, Noise and National Parks

- Aircraft noise affects mood and emotions

(Bronzaft et al. 1998; Evans, Hygge, & Bullinger, 1995; Job et al. 2004; Stansfield et al. 2005)

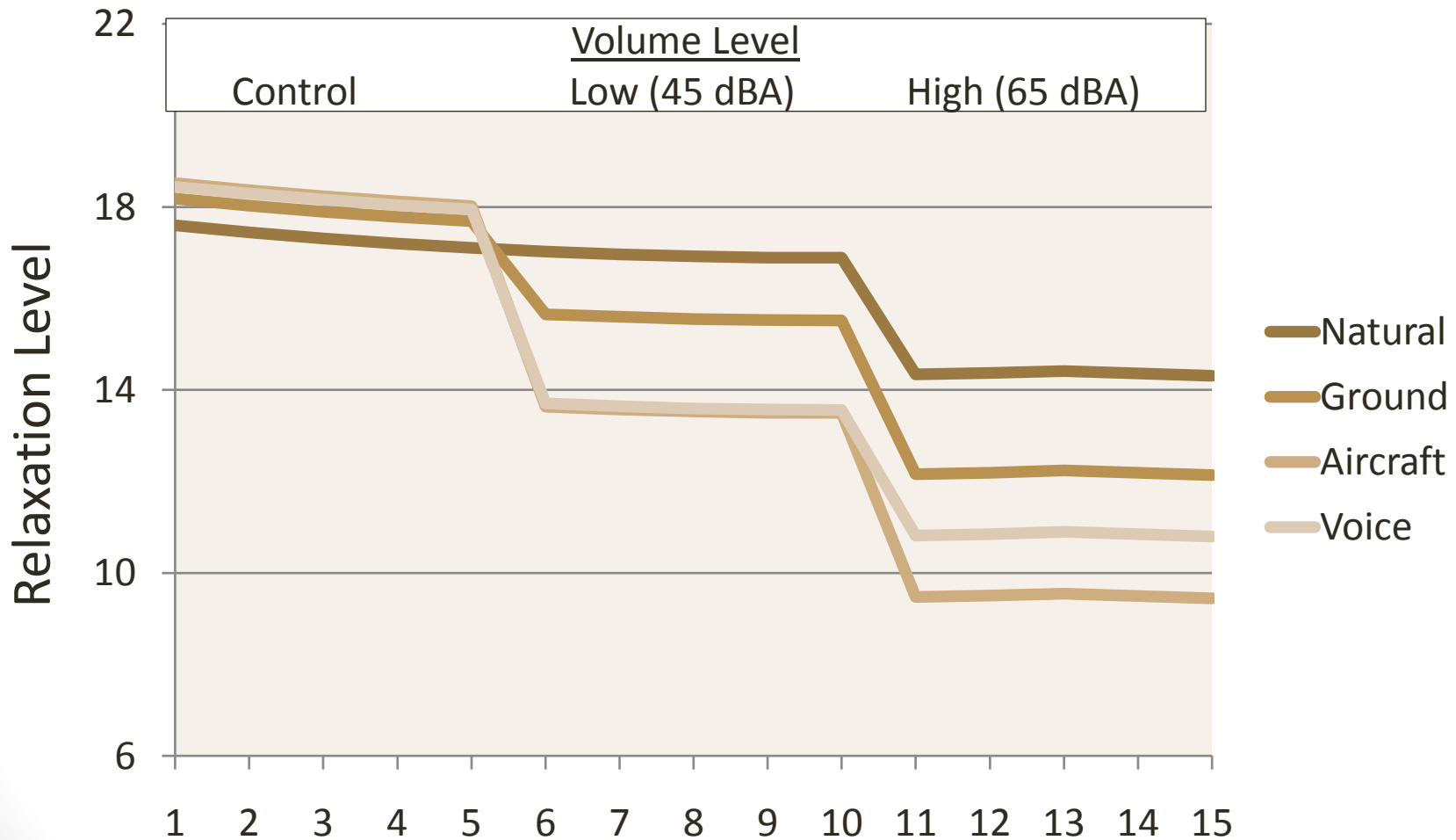
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(Bronzaft et al. 1998; Evans, Hygge, & Bullinger, 1995; Job et al. 2004; Stansfield et al. 2005)
- **Well-documented in Park settings**
 - **Aircraft rated as annoying to park visitors** (Fidell et al., 1996; Kariel, 1990; Pilcher, Newman, & Manning, 2009)

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 - **Aircraft rated as annoying to park visitors** (Fidell et al., 1996; Kariel, 1990; Pilcher, Newman, & Manning, 2009)
 - **Experimental simulations show...**
 - **Increased negative affect; decreased positive affect** (Mace, Bell, & Loomis, 1999; Mace, Bell, Loomis, & Haas, 2003)
 - **Increased hostility; decreased serenity** (Benfield, Bell, Troup, & Soderstrom, 2010a)

Psychology, Noise and National Parks



Background

Physiology

Mood

Attitude

Cognition

Gaps &
Needs

Psychology, Noise and National Parks

- **Aircraft noise relates to negative evaluations**
(Aasvang & Engdahl, 2003; Collins & Evans, 1994; Evans et al. 1995; Wardman & Bristow, 2008)

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- Shown in Park settings and simulations
 - Visitors do not want to hear or see aircraft (Pilcher, Newman, & Manning, 2009; Tarrant, Haas, & Manfreda, 1995)

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 - **Aircraft noise decreased scenic evaluations**
(Benfield, Bell, Troup, & Soderstrom, 2010a; Mace, Bell, & Loomis, 1999; Mace, Bell, Loomis, & Haas, 2003)

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 - **Aircraft noise decreased scenic evaluations** (Benfield, Bell, Troup, & Soderstrom, 2010a; Mace, Bell, & Loomis, 1999; Mace, Bell, Loomis, & Haas, 2003)
 - **Larger effect in beautiful settings** (Benfield, Bell, Troup, & Soderstrom, 2010a)

Psychology, Noise and National Parks

- **Aircraft noise hurts cognitive processes** (Belojevic, Jakovljevic, & Slepcevic, 2003; Schapkin, Falkenstein, Marks, & Griefahn, 2006; Stansfield et al., 2005)

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- **Some evidence in Park settings**
 - **Decreased memory of interpretative info** (Benfield, Bell, Troup, & Soderstrom, 2010b)

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 - **Lessened personal reflection and thought** (Benfield, Nurse, Troup, & Bell, 2011)

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 - **Decreased memory of interpretative info** (Benfield, Bell, Troup, & Soderstrom, 2010b)
 - **Lessened personal reflection and thought** (Benfield, Nurse, Troup, & Bell, 2011)
 - **No effect on speed of processing & working memory** (Benfield, Bell, Troup, Jakubowski, McCabe, & Soderstrom, 2009)

Psychology, Noise and National Parks

Stress specific research needs/gaps:

- Physiological evidence
 - Cortisol levels, blood pressure, etc.

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- On-going assessment of mood and attitude effects

Psychology, Noise and National Parks

General research needs/gaps

- Expansion of National Park settings & simulations
 - Cultural park specific outcomes

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- Increased emphasis on individual differences
 - Noise sensitivity in visitor populations
 - Field adapted measures of personality

Questions?

