



How Social Media Data Can Be Harnessed To Understand The Effects Of National Parks On Mental Health

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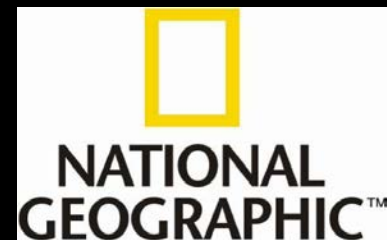
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WPC 11-14-2014

<http://wpc.wcs.org>

www.wcs-heal.org





HEALTH & ECOSYSTEMS: ANALYSIS OF LINKAGES



UBC
FISHERIES
CENTRE



BRIGHAM
AND
WOMEN'S
HOSPITAL



SFU
SIMON FRASER UNIVERSITY
THINKING OF THE WORLD



Winner of Two Pulitzer Prizes

Biophilia

EDWARD O. WILSON



The human bond with other species

The Biophilia Hypothesis



EDITED BY Stephen R. Kellert
AND Edward O. Wilson

"This book is an absolute must-read for parents." —The Boston Globe

Last Child in the Woods

Saving Our Children
from Nature-Deficit
Disorder



Richard Louv

Biophilia

"...the innately emotional
affiliation of human beings to
other living organisms. Innate
means hereditary and hence part
of ultimate human nature."

--E.O. Wilson



World Happiness Report 2013

10% of the world's population suffers from clinical depression or crippling anxiety disorders. They are the biggest single cause of disability and absenteeism, with huge costs in terms of misery and economic waste

	Percent of the world's population	Total number of cases in the world
Depression (incl dysthymia)	6.8	404 million
Anxiety disorders	4.0	272 million
Childhood behavioral disorders (ADHD, conduct disorder)	1.2	85 million

What predicts happiness?

The environment is missing from the conversation on environmental factors

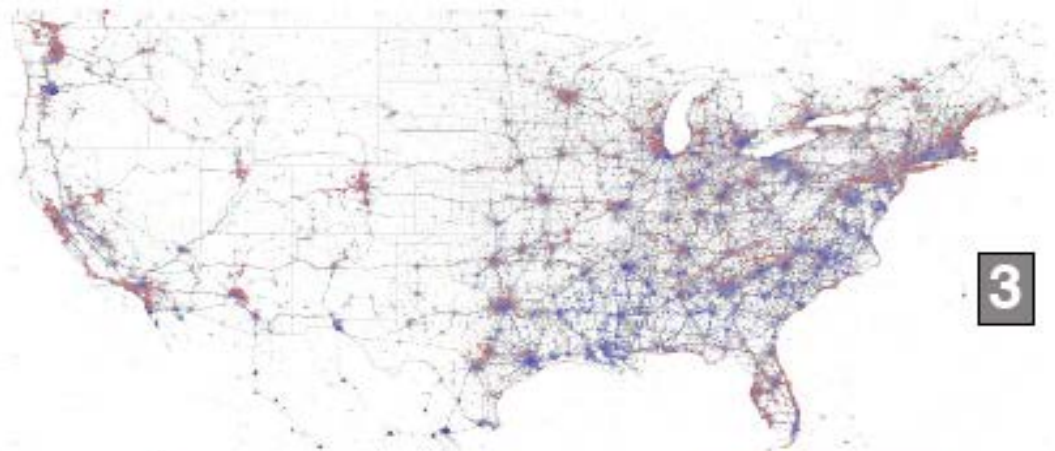
<i>Level of determinant</i>	<i>Risk factors</i>		<i>Protective factors</i>
Individual attributes	Low self-esteem	↔	Self-esteem, confidence
	Emotional immaturity	↔	Ability to manage stress and adversity
	Difficulties in communicating	↔	Communication skills
	Medical illness, substance abuse	↔	Physical health, fitness
Social circumstances	Loneliness, bereavement	↔	Social support of family and friends
	Neglect, family conflict	↔	Good parenting/family interaction
	Exposure to violence/abuse	↔	Physical security and safety
	Low income and poverty	↔	Economic security
	Difficulties or failure at school	↔	Scholastic achievement
	Work stress, unemployment	↔	Satisfaction and success at work
Environmental factors	Poor access to basic services	↔	Equality of access to basic services
	Injustice and discrimination	↔	Social justice, tolerance, integration
	Exposure to war or disaster	↔	Physical security and safety

How much do people

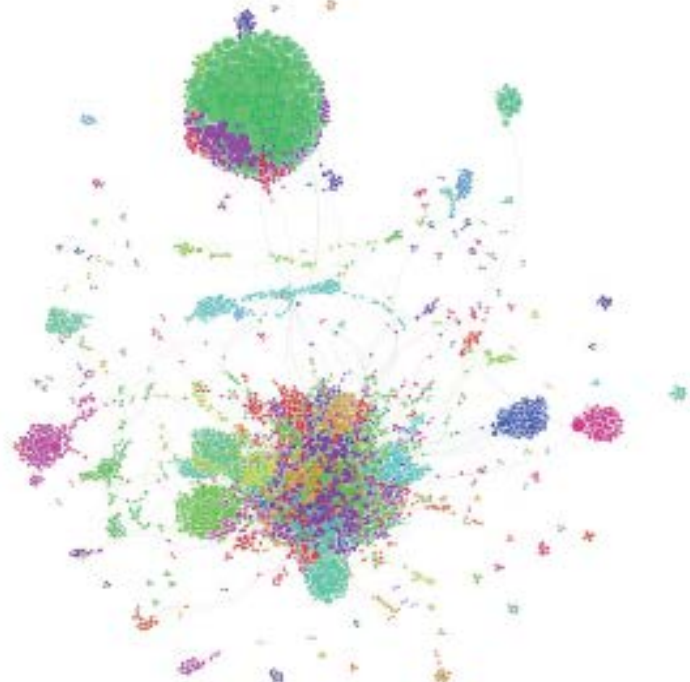
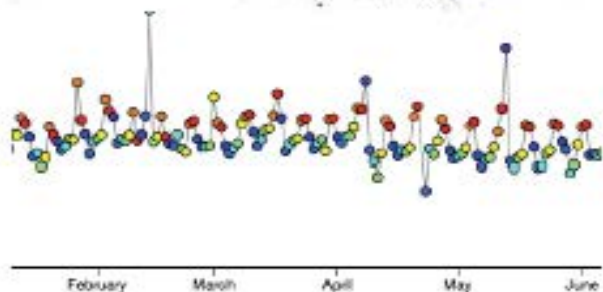


Nature?





3



the hedonometer



1



2

happy	8.30
hahaha	7.94
fresh	7.26
cherry	7.04
pancake	6.96
piano	6.94
and	5.22
the	4.98
of	4.94
down	3.66
worse	2.70
crash	2.60
:(2.36
war	1.80
jail	1.76



A

We find which words contribute most to the change in average happiness using a Word Shift Graph.

Using the overall average happiness of Tuesdays as a reference baseline, we order words based on their net contribution toward making Saturdays happier or sadder.

B

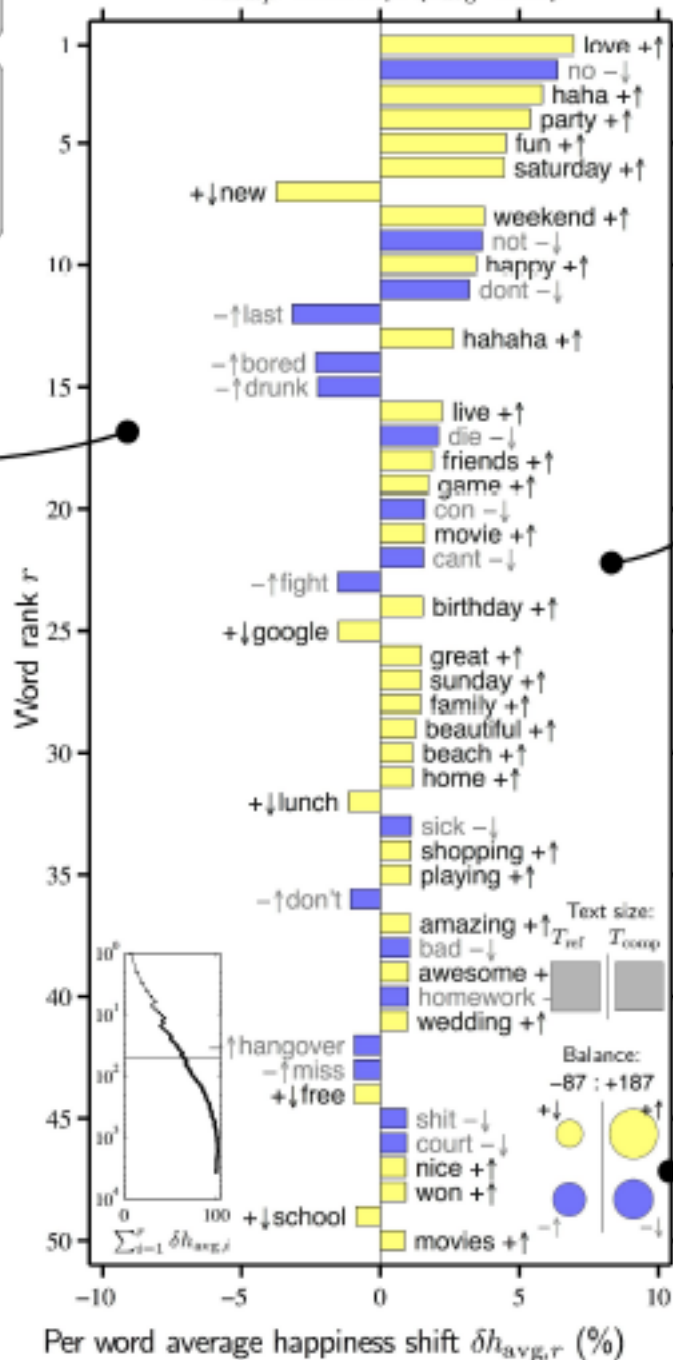
Words making Tuesdays appear happier than Saturdays are on the left side of the word shift.

Two ways this happens:

(1) Negative words being used more on Saturdays: last, bored, drunk, fight, don't, hangover.

(2) Positive words being used less on Saturdays: new, google, lunch, free.

T_{ref} : Tuesdays ($h_{avg}=6.03$)
 T_{comp} : Saturdays ($h_{avg}=6.06$)



C

Words making Saturdays appear happier than Tuesdays are on the right side of the word shift.

Two ways this happens:

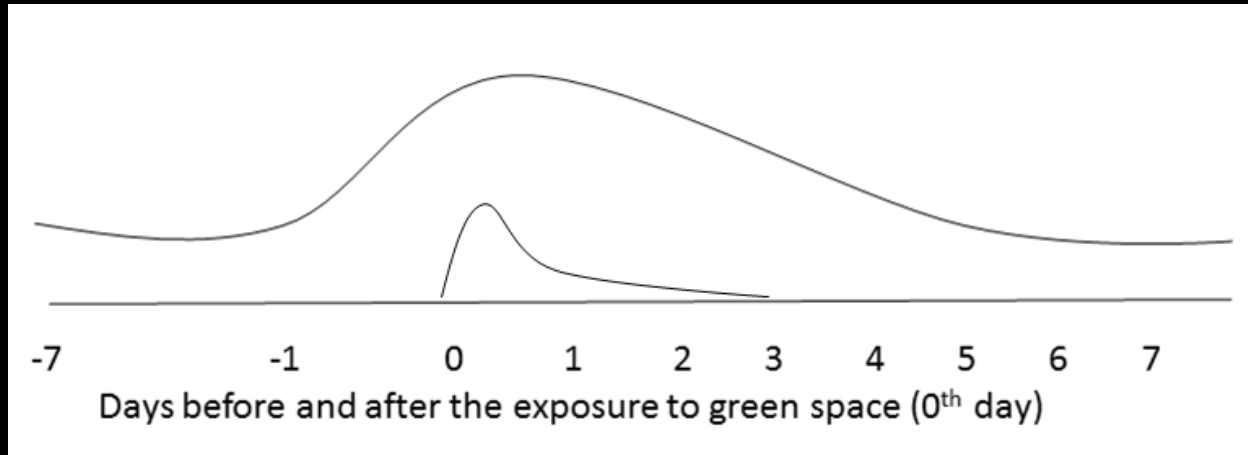
(1) Positive words being used more on Saturdays: love, haha, party, fun, Saturday, weekend, happy, movie, family, beautiful.

(2) Negative words being used less on Saturdays: no, not, don't, die, bad, homework.

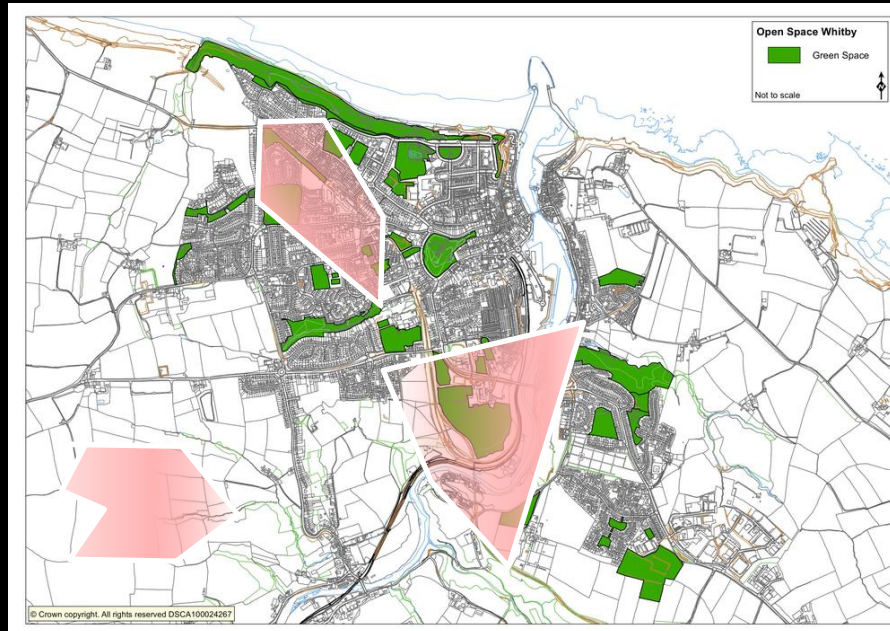
D

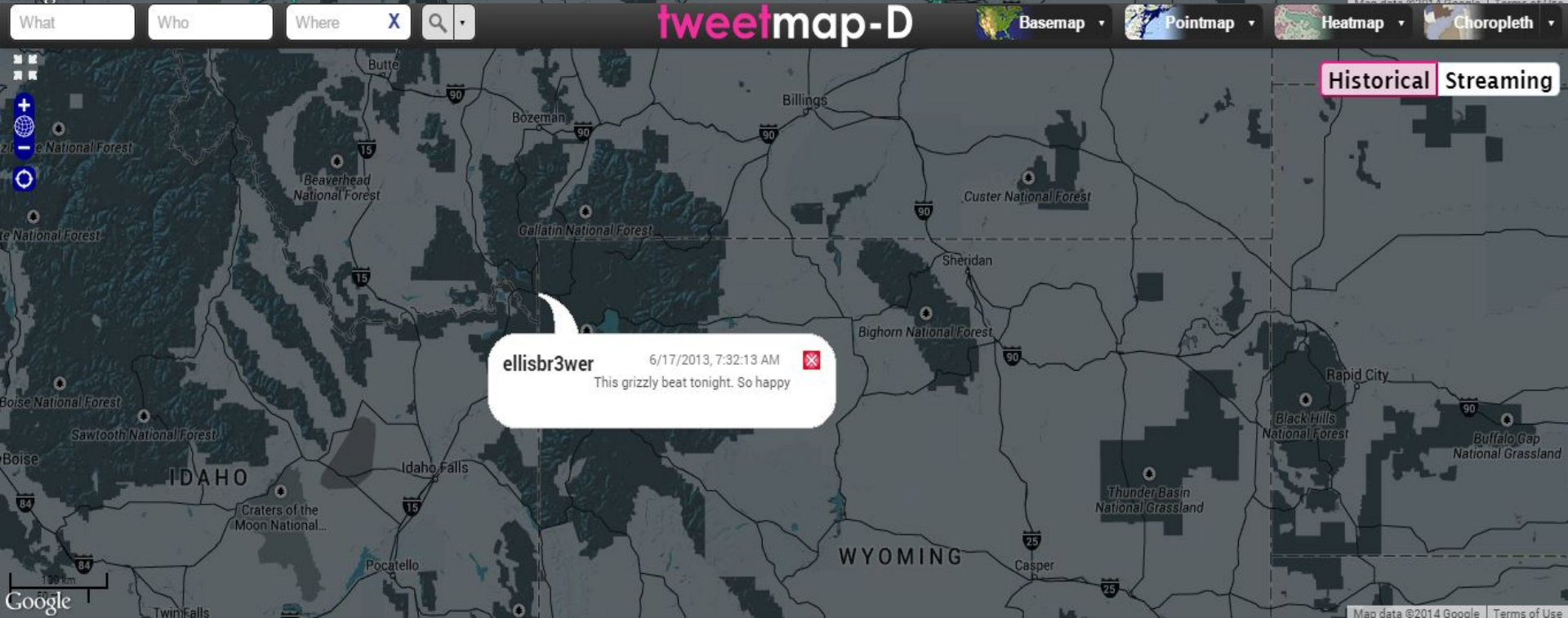
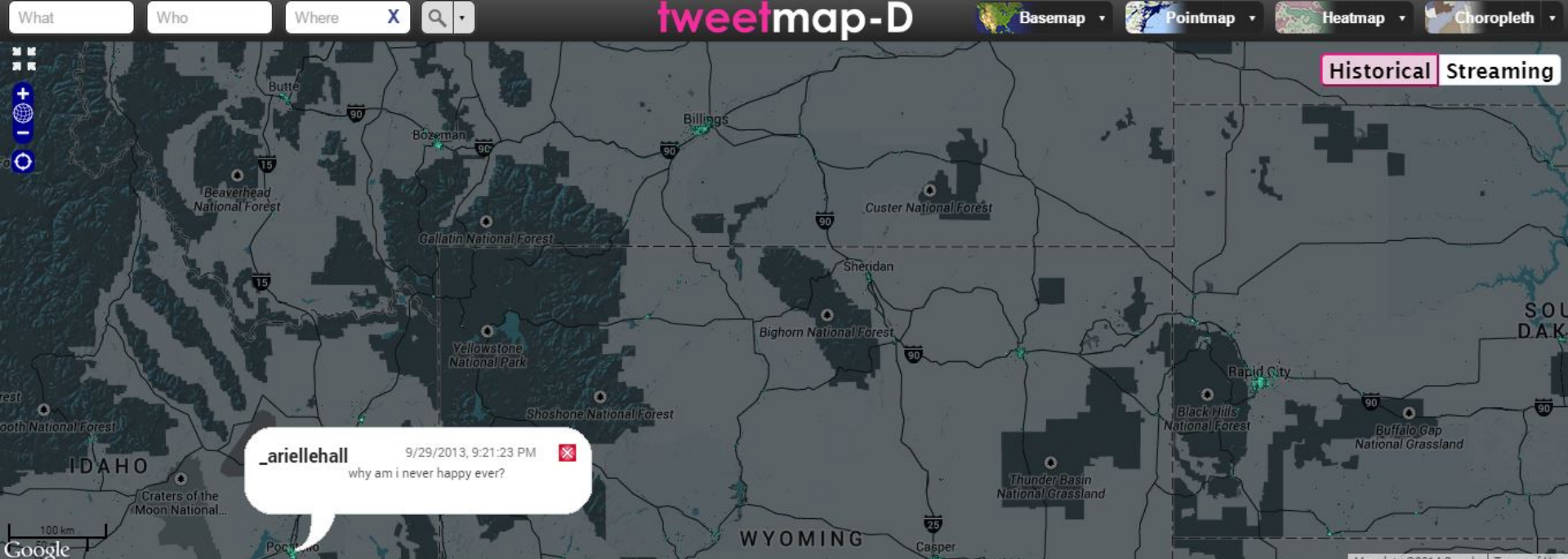
Overall, words contribute more to the right (positive) side, and Saturdays have a higher average happiness than Tuesdays.

Retrospective cohort study design



Cross-sectional “dose-response” study design





Importance for Policy



R_x

Prescription

**Kids who play outdoors are
healthier, happier
and do better in school**

*Spend at least one hour outside daily.
Run, jump, skip, hop, holler, roar--
explore the great outdoors!*

Refills: unlimited

By order of Dr. _____

I SUPPORT NATIONAL PARKS

- ✓ More Park Rangers
- ✓ Better Park Roads
- ✓ Clean Park Waters
- ✓ Establish New Parks

#SupportTheParks



children & nature
NETWORK

Nature Play Prescription

Dr. _____

Name: _____ Date: _____

Your Healthcare Provider encourages you to:

- Go outside and play in nature.
- Limit your "Screen Time" to no more than 60 mins each day.
- Read stories about nature.
(Or have someone read them to you.)

Signed:

Provider: _____

Parent/Child: _____

Thank You!

- Sean Taylor, Carlos Diuk and Lufi Paris (Facebook)
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- Sam Myers, Arthur Kleinman (Harvard)

