

Public appreciation of species diversity:
Swiss findings and comparison with
intuitions from the 2017 re-introduction of
B. bison in western Canada

PN and CP

Introduction

Junge and Matthies have studied Swiss people's attitude toward biodiversity in agricultural field margins. They conclude there is an awareness of biodiversity gradients that are appreciated by the local population.

Further, in a second study, they hypothesize that there may be an economic penalty associated with reduced tourism if the aesthetic contribution of biodiverse grasslands is not optimized.

Separately, a major ecological project in western Canada, the re-introduction of *B. bison* as a keystone species, may allow a slightly more nuanced assessment of public perception towards biodiversity.

Abstract

Is the value of biodiversity too difficult for the public to internalize?

Are ecologists forced to engage the public based on aesthetic values?

We examine the recent re-introduction of *B. bison* into western Canada to compare apparent public valuation of both “biodiversity” and “aesthetics” to see if other strategies come into play.

We then assess the Junge studies for variation between “biodiversity” and “aesthetic” benefits and compare the two experiences.

Background: investigating beauty in Switzerland

Junge *et al* 2009: Swiss people's attitudes towards field margins for biodiversity conservation:

- Participant preference for biodiverse attributes increases with age
- Some negative “beauty” ratings were associated with increased biodiversity
- Study participants contradict earlier findings regarding tidiness issues, accepting the fact that the field margins look different in winter.
- Well designed ecological compensation measures hold promise for developing biodiverse and aesthetic agricultural environments

Background: investigating beauty in Switzerland

Provision of aesthetic beauty as a service: Lindemann-Matthies et al., (Using grasses and forbs, experiments assessed the public's ability to discern features of, and their preference for)

- Evenness (equality to species abundance) contrasted with species richness (166 visitors)
- Various species spatial distributions or aggregation patterns (204 visitors)
- Various degrees of species richness (288 visitors at a botanical garden)
- Plus field studies of larger alpine meadow plots (282 tourists)

Result: diversity and aesthetics

- Appreciation increases with true species richness
- The appreciation of the best monoculture was always lower than the mean appreciation of the most species rich arrays.
- **“People found those communities most beautiful that were either most diverse or were perceived to be most diverse.”**
- **Implications for tourism**

Further study?

Meyer (2008) suggests that “cultural sustainability”, as it relates the effect of landscape architecture, must challenge the consumer to move from ego-centric to biocentric appreciation. What mechanisms are available to make this happen?

Stein and McMordie (2002) discuss “character” as an element of the multi-dimensional notion of beauty that motivates the observer. Can conservation efforts be responsive to this observation?

We looked closely at the public news flow associated with the re-introduction of *B. bison* in western Canada.

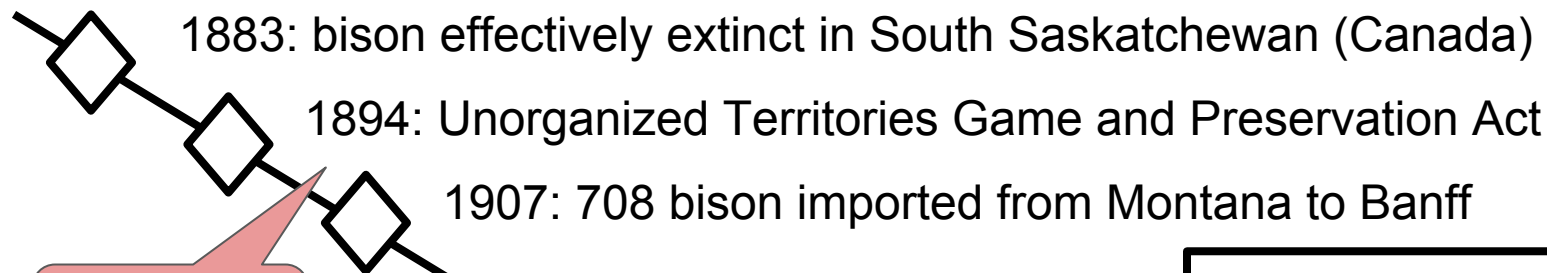
Background: Banff Reintroduction

Prior to Westward Expansion (~1800)

- North American *B. bison* population estimated to be 30 million
- Indigenous people depended on the bison for their way of life



[Buffalo Hunt, with Wolf-Skin Mask.] - George Catlin (1796-1872) | Amon Carter Museum of American Art



Banff Timeline

<https://crowfootmedia.com/2015/03/29/bison-banff-national-park/>
https://en.wikipedia.org/wiki/History_of_bison_conservation_in_Canada

2000: Canada National Parks Act: calls for the “restoration of ecological integrity”

Conservation focus

2015: the Buffalo Treaty and funding from the Govt of Canada

2017: wild bison return to Banff

Articulation of cultural benefits

Materials and Methods: design and data collection

- We screen-scrape the public record related to the the 2017 re-introduction of *B. bison* in western Canada and assess the relative weights of messages, those of “biodiversity” and “aesthetics”, flowing to the media audience.
- There was no attempt to randomize and sample our search results, our goal was to find at least 30, arguably unique, public news stories over the course of a year. Note that many news organizations, in writing an article, leverage a press release or “backgrounder” issued by the newsmaking organization. This means that certain statements, phrases, and quotes will be found repeated in different news articles. We believe this content is still relevant as unique data as its use should reflect the community attitude of the market that each news organization serves. []



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Materials and Methods: design and data collection (cont)

- We count keyword occurrences, accumulate them into the two categories and produce a weighted snapshot for each observation
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Keywords and Data consolidation

- Conservation
- Ecosystem / ecology
- Environment
- Biodiversity
- Fence
- Roam
- Keystone
- Icon(ic)
- Species



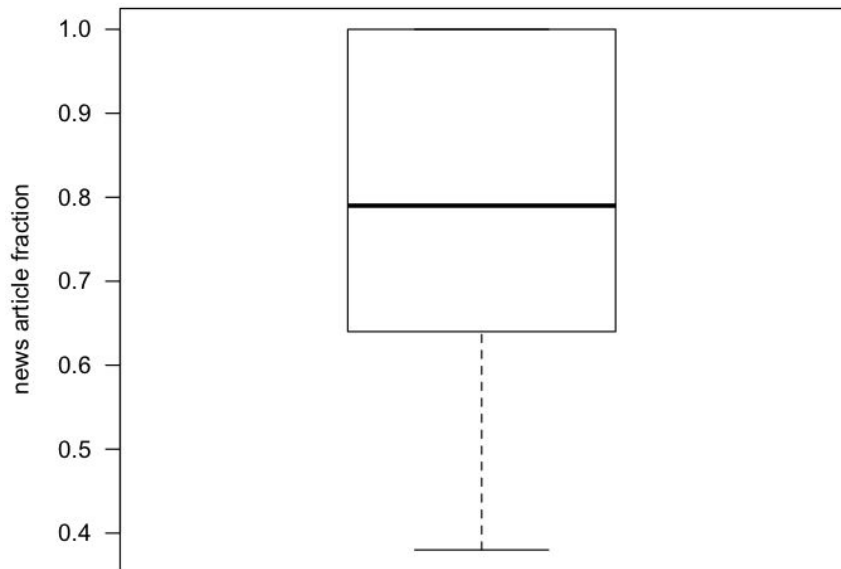
“biodiversity”

- First Nations
- Indigenous
- Aboriginal
- Cultural
- Spiritual
- Mythic
- Buffalo treaty
- Aesthetic

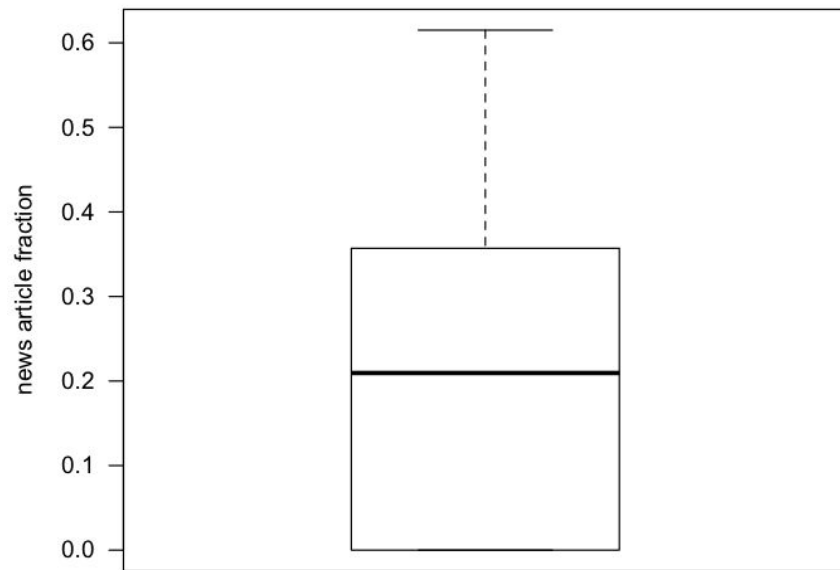
“aesthetic”



Results / Discussion



biodiversity keywords



aesthetic keywords

Conclusion

- XXXXX

Thank you! Questions?

References	
Stein, S., McMordie, M. Beauty and Character: Values Beyond Beauty in Architecture. Interchange June 2002, Volume 33, Issue 2, pp 183–191	https://link.springer.com/article/10.1023/A:1016552320002
Splendid Isolation: Patterns of Geographic Range Collapse in Endangered Mammals Mark V. Lomolino and Rob Channell Journal of Mammalogy Vol. 76, No. 2 (May, 1995), pp. 335-347	
Parks Canada Backgrounder	https://www.canada.ca/en/parks-canada/news/2017/02/bison_reintroduction.html?wbdisable=true
Meyer, E.K. Sustaining beauty. The performance of appearance. Journal of Landscape Architecture Volume 3, 2008 - Issue 1	http://www.tandfonline.com/doi/abs/10.1080/18626033.2008.9723392

Links	
Ensuring Ecological Integrity, the Reintroduction of North America's Largest Land Animal	https://www.youtube.com/watch?v=4q1AudFTLEA
Project Data	
Parks Canada: Bison 101	https://www.pc.gc.ca/en/pn-np/ab/banff/info/gestion-management/bison/info

references

[1] <http://www.pc.gc.ca/en/pn-np/ab/banff/info/gestion-management/bison>

[2]

<http://calgaryherald.com/news/local-news/bringing-bison-back-to-banff-will-have-immediate-effect-on-birds-bugs-expert>

[3]

<http://www.cbc.ca/news/canada/calgary/historic-treaty-signed-among-10-first-nations-and-tribes-in-banff-1.3190715>

The Buffalo Treaty 2015 (3)

An alliance intended to engage tribes and First Nations in continuing dialogue on bison conservation

- Uniting the political power of the tribes and First Nations of the Northern Great Plains**
- Advancing an international call for the restoration of the bison**
- Engaging youth in the treaty process**
- Strengthening and renewing ancient cultural and spiritual relationships with bison and grasslands in the Northern Great Plains**

Data collection strategy and limitations

- The event happened on
- The park system issues a “backgrounder” containing scientific and operational details and quotes. Many of these were effectively “copy-pasted” into unique news articles
- So there is an element of repetition in the february march content
- The First Nations peoples typically do not document their deliberations and opinions on the internet [] so this is one sided, repetitive data
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Plains bison reintroduction (1)

Wild bison return to Canada's first national park

On February 1, 2017, Parks Canada made history. After missing from the wild for over a century, 16 bison were successfully translocated to the Panther Valley, in Banff National Park.

Their homecoming is an ecological, historic and cultural triumph and coincides with the 150th anniversary of Canada's confederation.

This is the first step in the five-year project to inform decisions regarding restoring wild bison in Banff over the long-term.