



Direction on options to secure trash
from bears in the city of Boulder

Sharon Baruch-Mordo
The Nature Conservancy

Aspen Bear Study

Ph.D. Colorado State University



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Ph.D. Colorado State University

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Stochasticity in Natural Forage Production Affects Use of Urban Areas by Black Bears: Implications to Management of Human-Bear Conflicts

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The Carrot or the Stick? Evaluation of Education and Enforcement as Management Tools for Human-Wildlife Conflicts

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Abstract

The rapid expansion of human-wildlife conflict and its ecological consequences are increasing. We use data from bears to examine its variations. We examine ecological covariates dependent on n

Abstract

Evidence-based decisions which have been implemented frequently to alter human behavior were co-occurring with bear conflicts were co-occurring to better secure attractants in communities and 3) elevated law enforcement response including: violation of refuse containers. As human behavior is changing human behavior broadly we demonstrate



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Use of patch selection models as a decision support tool to evaluate mitigation strategies of human-wildlife conflict



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ABSTRACT

Human-dominated landscapes offer spatially concentrated and reliable food resources that attract wild-

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volunteers
- Drs. Ken Burnham, Phil Chapman,
& Jim zumBrunnen
- Noon/Crooks labs and fellow grad
students

- **The bears**

Overview



- 🐾 Review relevant aspects of the Aspen study
 - Bear behavior
 - Human behavior
- 🐾 Follow up with implications to city of Boulder
- 🐾 Summary and overall recommendations

Bear Movements

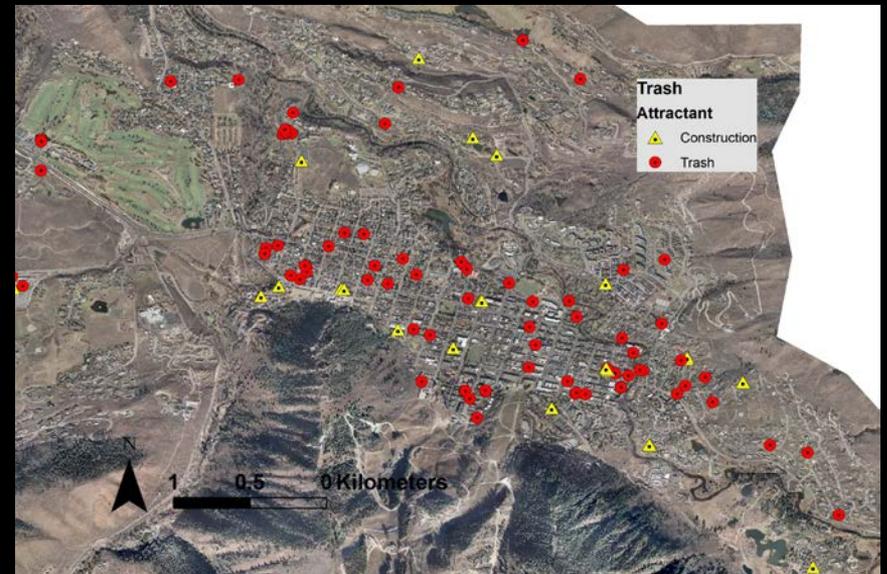
>50 bears collared
GPS fix every 30 minutes



Bear Movements

🐾 Bears move a lot!

🐾 No single attractant *in space* (i.e., can't control just a few locations & assume problem solved)

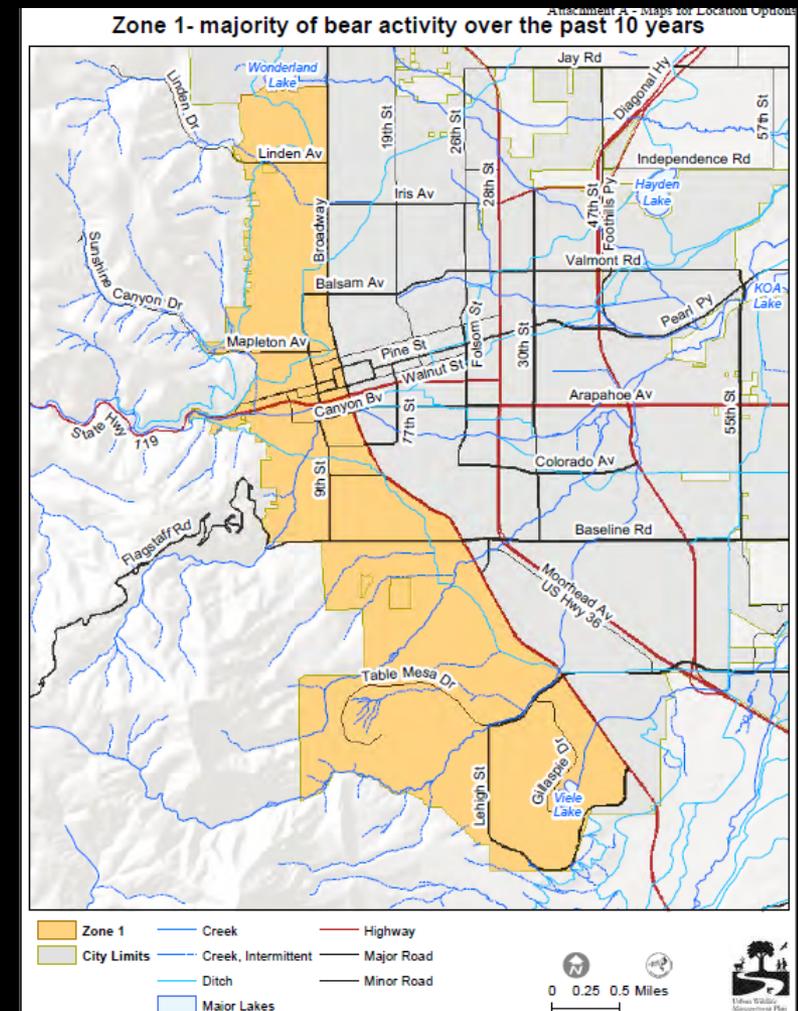


Bear Movements → Implications to Boulder

🐾 Need broad area of implementation for ordinance

– Support zone one

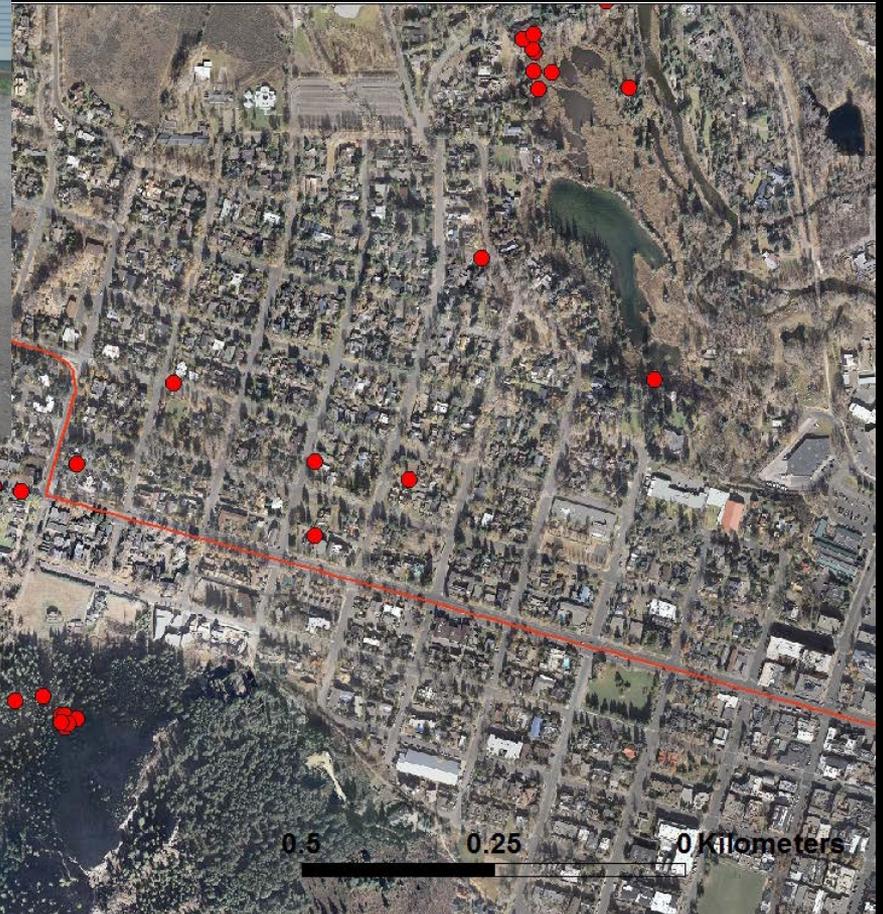
🐾 Order of implementation not as important as commitment to timeline to completion



Bear Attractants



Backtracking

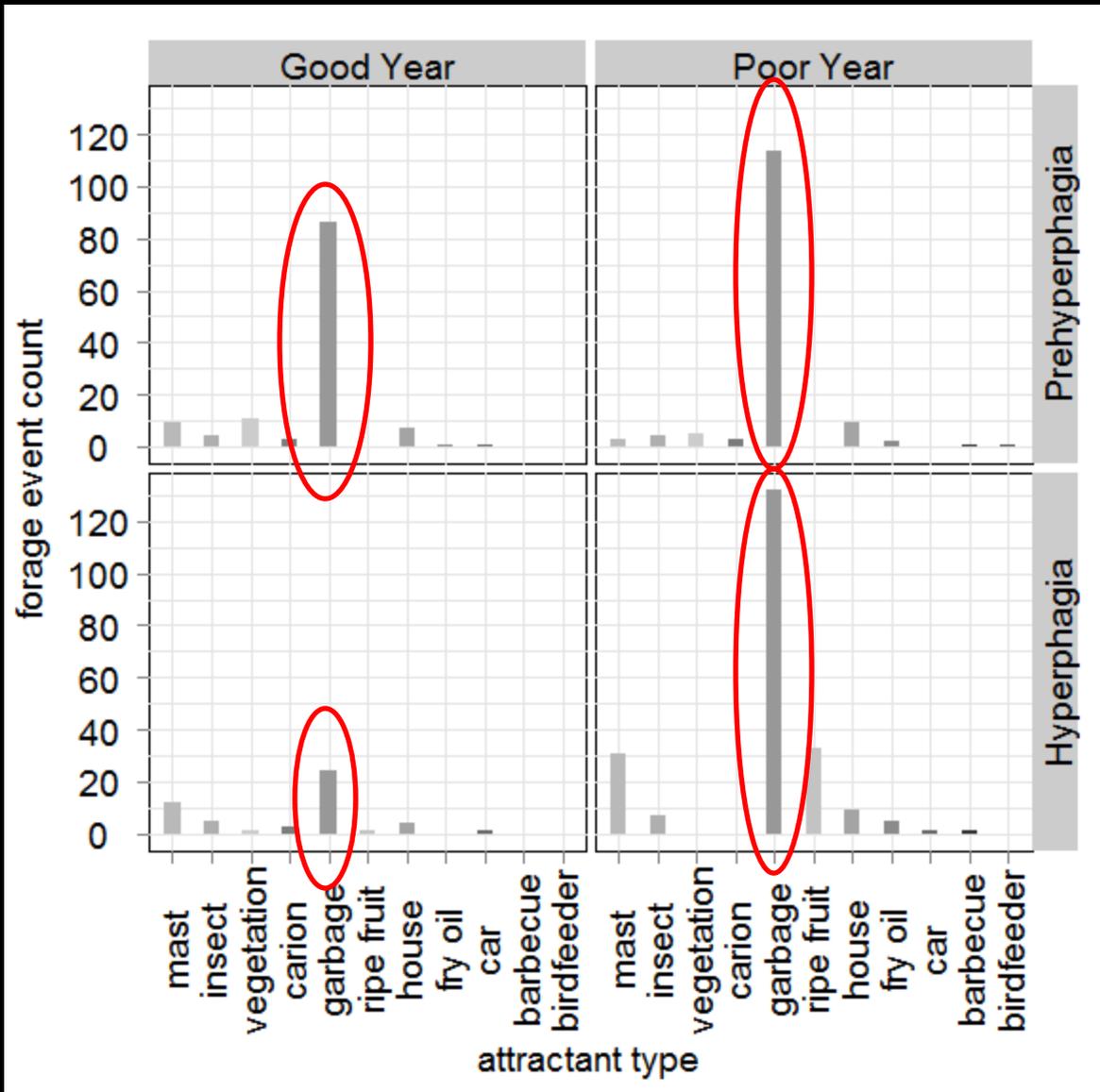




Aspen



Trash main attractant



Bear Attractants

- 🐾 Random sampling: 76% containers bear-resistant, only 57% were properly secured
- 🐾 Most common securing methods resulted in 70% of feedings events:

Carabiner top

(48% properly secured)



Bear Attractants

- 🐾 Random sampling: 76% containers bear-resistant, only 57% were properly secured
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Carabiner top

(48% properly secured)



Bar top

(62% properly secured)



Bear Attractants

- 🐾 Random sampling: 76% containers bear-resistant, only 57% were properly secured
- 🐾 Most **common** ≠ **successful** securing methods resulted in 70% of feedings events:

Carabiner top

(48% properly secured)



Bar top

(62% properly secured)





Bear Attractants → Implications to Boulder

- 🐾 Trash (and compost) should be secured to bears **AT ALL TIMES!** (strengthen option II.c.)
 - Do not allow for unlatching before collection = not bear proofing trash
 - Build-in \$2 “unlatching” fee into the monthly rental fee
 - Consider avoiding any latching mechanisms all together → think **human-proof**
 - Currently unclear what design options suggested by Western Disposal and One Way Inc.

Best Design Features

- 🐾 All metal construction
- 🐾 Simple door closure
 - Single “bear saver” latch
 - Self-closing door
 - Round door handle
- 🐾 Avoid free-standing
 - Bolted down enclosures or rooms
- 🐾 Fairly air tight (avoid gaps)



Best container designs (residential)

Single residence



Best container designs (residential)

Communal residence



Best container designs (commercial)

Compactors



Changing Human Behavior

Testing Education & Enforcement

 3 experiments:

Site-specific
education
(2007)



Bear Aware
campaign
(2008)



Elevated
enforcement
(2008)



Changing Human Behavior

Testing Education & Enforcement

 3 experiments:

Site-specific
education
(2007)

No treatment effect!

Bear Aware
campaign
(2008)

Elevated
enforcement
(2008)



Changing Human Behavior Testing Education & Enforcement

 3 experiments:

Site-specific
education
(2007)

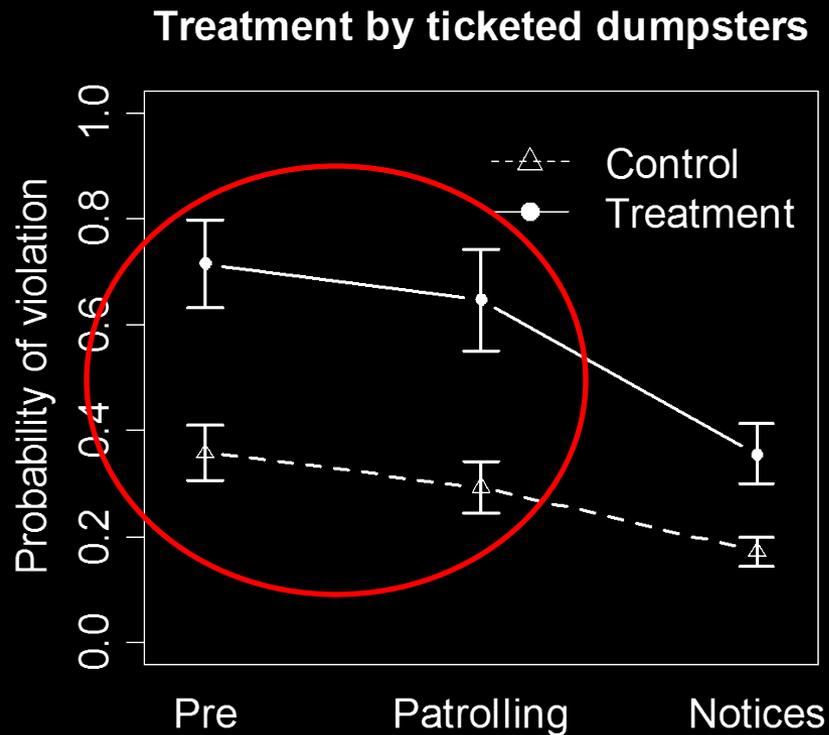
**No treatment effect!
BUT...**

Bear Aware
campaign
(2008)

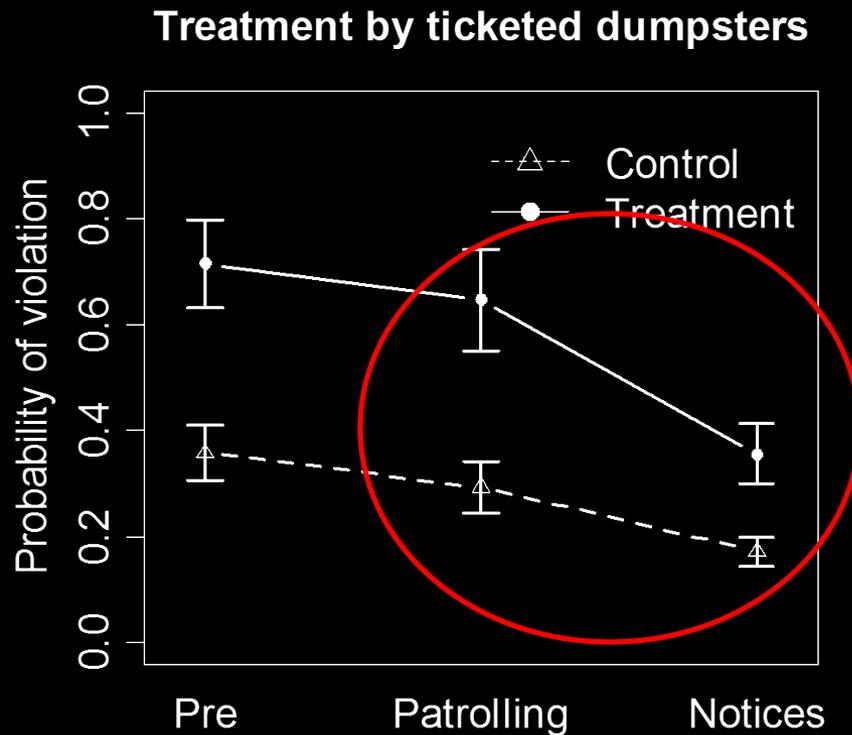
Elevated
enforcement
(2008)



Proactive enforcement more effective in changing people's behavior!



Proactive enforcement more effective in changing people's behavior!



Changing Human Behavior → Implications to Boulder

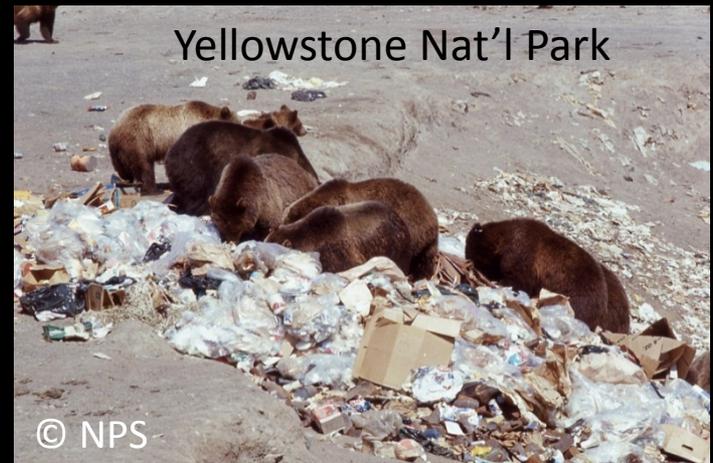
- 🐾 Need to proactively enforce ordinance
 - Dispense tickets and follow-up
 - At times need to dispense multiple tickets

- 🐾 Support III.a-c but recommend year-round enforcement not just during “bear activity”



Other General Recommendations & Thoughts

- 🐾 Centralize attractants in space and time
 - Where possible use communal dumpsters
 - Require fewer collection days per subdivision → also easier to enforce
 - Consider registration system for containers
- 🐾 Assess success by measuring change in people's behavior
- 🐾 A long-term community commitment
 - Additional attractants



Risks of Status Quo

Risks to public safety

– Liability

Judge Finds Feds Liable for \$2M in Fatal Bear Attack

A Utah judge has awarded nearly \$2 million to the family of an 11-year-old boy who was mauled to death by a bear but the verdict won't necessarily make it much easier for plaintiffs to hold wildlife officials liable for animal attacks.



Samuel Ives

The black bear that attacked **Samuel Ives** during a weekend camping trip on June 17, 2007 had struck another camper earlier the same day. After eluding a pursuit by state wildlife agents, it returned after dark to the same campsite in American Fork Canyon and ripped Samuel from his tent.

In what he called a "heart-wrenching" case, U.S. District **Judge Dale Kimball** found the U.S. Forest Service liable for failing to warn the Ives family of the prior bear attack on Jake Francom or close the campground, saying it was foreseeable that the bear "would return to the campsite where it had earlier attacked campers and had found food."

Risks of Status Quo

🐾 Risks to public safety

- Liability

🐾 Negative impacts to the bear population

- Lower survival for urban bears



Risks of Status Quo

- 🐾 Risks to public safety
 - Liability
- 🐾 Negative impacts to the bear population
 - Lower survival for urban bears
- 🐾 Costly cycle of conflict
 - “Removing the bear without addressing the attractant perpetuates the cycle”
(McArthur *in* Hristienko and McDonald 2007)

"In every case communities understandably took tentative steps in the beginning of their policy formulation process concerning nuisance bears. These tentative steps were evaluated and in most cases were judged unsatisfactory, which eventually lead to accepting the need for bear-proof garbage containers requiring added expense and change in human behavior."

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Peer-Edited Article

Nuisance Bears in Communities: Strategies to Reduce Conflict

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Human-bear conflicts are becoming of greater concern as remnant bear populations occupy habitat that is being encroached upon by human development. In some communities, specific policies dealing with human-bear interactions have been adopted. The research reported here is a review of these policies within selected communities and analysis of the dynamics leading to their adoption. A framework depicting forces influencing the formulation of policy on wildlife management devised by Kellert and Clark was used to describe the policy development in the communities studied. Categories of constituency forces described in the framework include biophysical-behavioral, social-structural, valuational and institutional-regulatory. The time and order sequence of influential forces leading to policy formulation is a central focus of the paper. The communities utilized in the analysis

Summary Recommendations

- 🐾 **Broader implementation:**
 - Zone one location I.a. (great to keep option to expand)
 - Commit for a timeline of implementation
- 🐾 **Storage options:**
 - Strengthen option II.c. to
 - Clarify required receptacle designs
 - No un-latching before pick-up
- 🐾 **Enforcement:**
 - Support III.a-c. but recommend proactive, year-round enforcement

