

Paid Hunting Operations Conservation and Revenue Potential

Luke Macaulay
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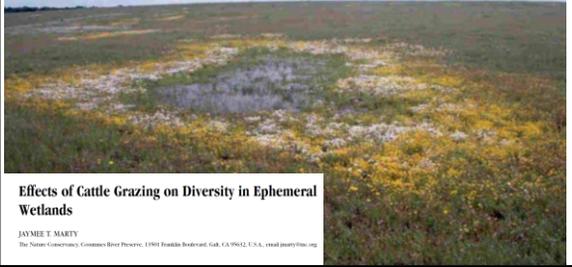
Shifting attitudes toward grazing



Cars, Cows, and Checkerspot Butterflies: Nitrogen Deposition and Management of Nutrient-Poor Grasslands for a Threatened Species

STUART B. WEISS
Center for Conservation Biology, Department of Biological Sciences, Stanford University, Stanford, CA 94305, U.S.A., email: weiss@stanford.edu

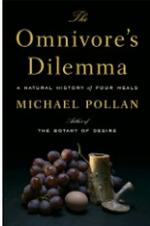
Grazing effects on biodiversity and ecosystem function in California vernal pool grasslands



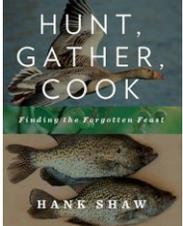
Effects of Cattle Grazing on Diversity in Ephemeral Wetlands

JAYMIE T. MARTY
The Nature Conservancy, Coonara River Preserve, 13901 Pinnacle Boulevard, Oak, CA 94642, U.S.A., email: jtmarty@tnc.org

Shifting attitudes toward hunting



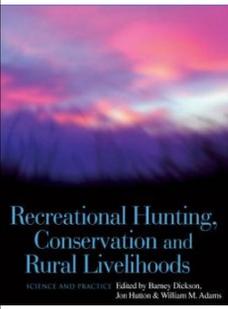

The Original Organic



Hipsters Who Hunt
More liberals are shooting their own supper.
By Emma Harris



Hipster hunting is good for you, and for the planet.



Wildlife in the Market Place: Using the Profit Motive to Maintain Wildlife Habitat

PATRICK F. NOONAN, *Conservation Resources, Inc., Box 39606, Washington, DC 20034*
MICHAEL D. ZAGATA, *Ecological Sciences, Tennessee Inc., Box 2511, Houston, TX 77001*

Trophy Hunting and Wildlife Conservation in Zambia

DALE M. LEWIS AND PETER ALPERT

Edited by Barney Dickson, Jon Hutton & William M. Adams

But there's a much longer history...

"Sport" Hunting
 Negative connotation, but...

- Sportsmanlike
- Ethical Hunting - Fair Chase
- Don't waste meat
- Conservation-oriented



Sport hunters led reforms, became conservationists





What's the point of all this?

Today's hunting has roots in conservation, and a new generation is interested in local organic and wild foods

Arguably more humane than our factory-farmed meat industry

The public broadly supports hunting (74%) and the right to hunt (94%) (National Shooting Sports Foundation 2011).




Challenge conservation organizations to think differently about hunting



My background

- Researching Hunting in California & Spain
- Value of recreational hunting on private land
- ~ 60 Interviews
- Hunting Symposiums
- Hunter and hunting club member



Needs

- Wildlife habitat
- Game animals
- Ability to recruit and manage hunters

Types of Hunters – What’s your market?

(Kellert 1980)

1. Trophy
2. Meat
3. Nature

Organizational Setup

- Long term annual lease
- Day-use fees
- Outsource to Outfitter

What are the benefits?

Gross Revenue

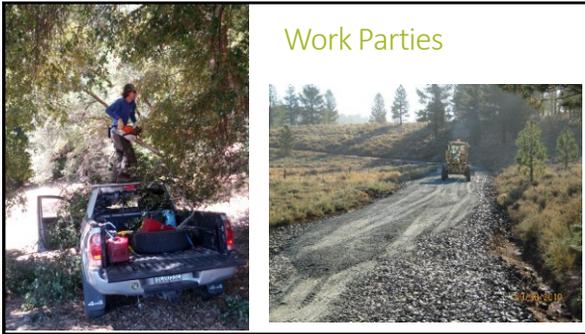
Cattle: \$2.5 - \$29/acre
Hunting: \$0.23 - \$13/acre

	Combined Gross Revenue
Tier 1	\$35.3
Tier 2	\$24.2 - \$29.2
Tier 3	\$10 - \$13.5
Tier 4	0 - \$4.8

Conservation Benefits

- Data collection
- Invasive plant species
- Invasive game species
pigs & turkeys
- Get paid instead of spending to eradicate pigs

Work Parties



Eyes on the ground

- Reduction of poaching
- Notify about problems
 - water developments
 - fences
 - cattle
- Detect marijuana grows



Concerns

Liability

- Insurance
- Liability release forms




HUNTING LEASE AGREEMENT

[EACH MEMBER OF A HUNTING PARTY MUST HAVE HIS/HER OWN LEASE AGREEMENT.]

THIS HUNTING LEASE AGREEMENT is made this ____ day of _____, 20__ by _____ who owns or is otherwise entitled to _____.

People who hunt for free

- Owning land is expensive
- Regulatory requirements increasing
- High hunting pressure and low success rates on many public hunting lands
- Many hunters are willing to pay for access to private land

Multiple use





Best practices

- Understanding carrying capacity of property
- Know herd composition
- Private Lands Management

The graph plots Population size on the y-axis against Time on the x-axis. A dashed horizontal line at the top represents the 'Carrying capacity of environment'. A blue curve starts at the origin (0,0), rises steeply through a region labeled 'The rate accelerates', reaches a peak labeled 'Point of maximum growth', and then curves downwards through a region labeled 'The rate slows down' as it approaches the carrying capacity line.

Inventory

- Camera traps
- Spotlight surveys
- Aging harvested deer

The collage includes: a camera trap in a field; a close-up of a deer's lower jaw with teeth labeled 'Teeth 4, 5 & 6 Worn Completely Smooth'; and a cross-section of a deer's antler with sections labeled A, B, C, and D.

A vision for the future

- Earn income to incentivize and fund conservation of wildlife habitat
- Reduce the need to subdivide property for cash
- Provide additional opportunities for people to experience and interact with nature

Thank you

luke.macaulay@gmail.com
703-798-8459

Start up needs

- Develop contract and rules
- Recruit responsible hunters or outfitter

The sign lists rules for hunting on the property, including a \$500 requirement for a check-out fee, a list of allowed and prohibited weapons, and contact information for Luke Macaulay at 703-798-8459.

PR Bridge

Positive Public Relations – hunters speak well of the property, Dye Creek example. Instead of a polarized hunting / environmentalist community, can build bridges

Benefits

- Revenue
- Conservation
- Eyes on the Ground
- Good PR

Overview

- My background
- Needs
- Types of hunters
- Organizational setup
- Benefits and Costs
- Keys to running well – from conservation and economic standpoint. Get the most potential out of the property

Market Hunting



Access to land

Was oftentimes granted to friends and family or acquaintances on request



However situation is changing

- Owning land is expensive
- Regulatory requirements increasing
- High hunting pressure and low deer quality and numbers on many public hunting lands
- Many hunters are willing to pay for access to private land – myself included



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Classes

Private Lands

- 1) 60% of US private
- 2) High Biodiversity Value
- 3) Most Prone to Fragmentation and Degradation



Effect of habitat area and isolation on fragmented animal populations

Laura R. Pugh¹, Karen E. Mulgan², Anthony R. E. Sinclair³, and Justin S. Brashers⁴
¹Department of Biological Sciences, UNH, and Department of Zoology, 100 North College Street, Durham, NH 03824; ²Center for Studies in the Environment and the Center for Conservation and Restoration, 110 University Ave., Raleigh, NC 27697; ³Wildlife Conservation Society, 61 Route 9W, P.O. Box 1162, Haverhill, MA 01830; ⁴Department of Biology, University of New Hampshire, Durham, NH 03824

NATURE RESERVES: DO THEY CAPTURE THE FULL RANGE OF AMERICA'S BIOLOGICAL DIVERSITY?
J. MICHAEL SHERIFF¹, FRANK W. SMITH², R. GUYAN SHERIFF³, R. EDWARD WHITMAN⁴, CHAD GIBBNEY⁵, and JOHN BROWN⁶

Why recreational income?

Is there a land use effect?
 Test conservation argument of hunting
 National estimates lacking - Differential state/local estimates



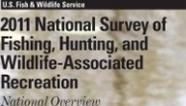

Two national datasets

USDA Agricultural Resource Management Survey (ARMS)
 13 years
 ~227,000 observations
 ~5,800 observations with recreational income
What farmers are earning – Supply



2009 AGRICULTURAL RESOURCE MANAGEMENT SURVEY COSTS AND RETURNS REPORT

U.S. Fish & Wildlife Survey of Fishing, Hunting, and Wildlife-Associated Recreation
 2001, 2006, 2011
 ~58,000 observations
What hunters/anglers/wildlife watchers are paying – Demand



2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation National Overview

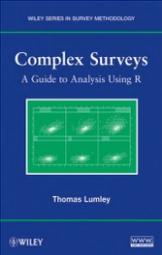
Questions

- 1) How much money?
 Type
 Size Class
 Where
- 2) How much land area?
 Type
 Size Class
 Where
- 3) What are the conservation and land use implication of these funds?

Analysis Techniques

‘survey’ package
 by Thomas Lumley of U. of Washington

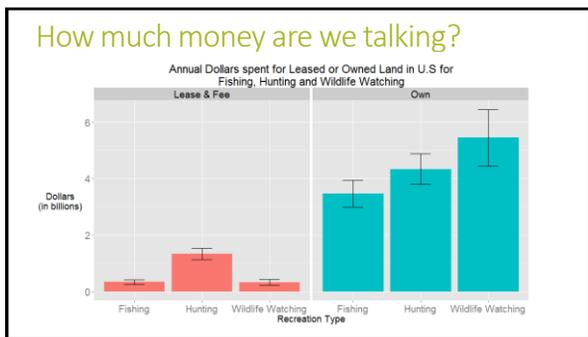
Sampling weights to create estimates of entire US population

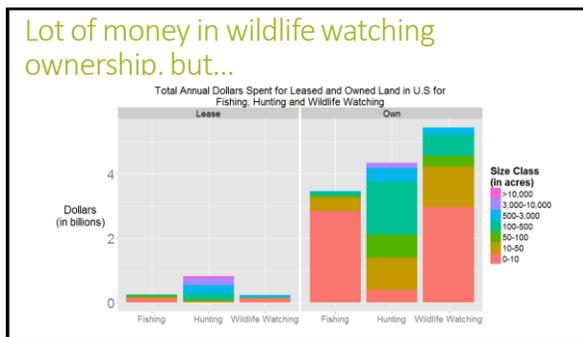
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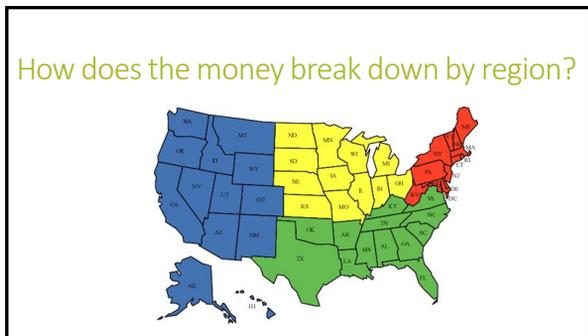
How much money are we talking?



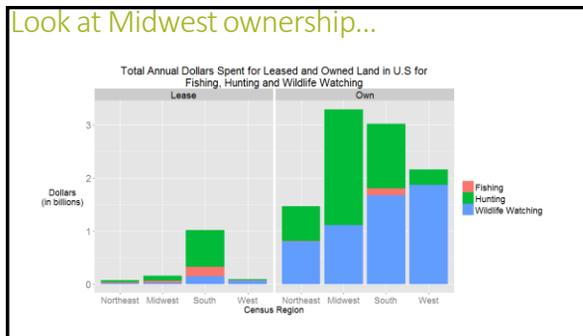
Lot of money in wildlife watching ownership. but...



How does the money break down by region?



Look at Midwest ownership...



Questions

1) How much money?

- Type
- Size Class
- Where

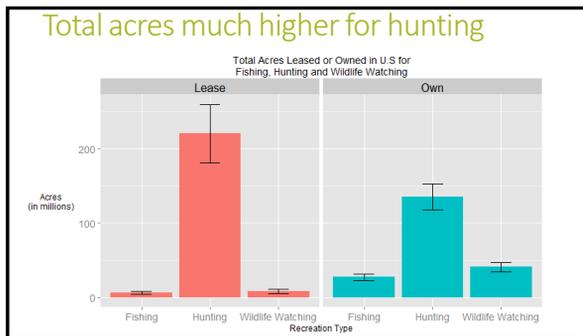
2) How much land area?

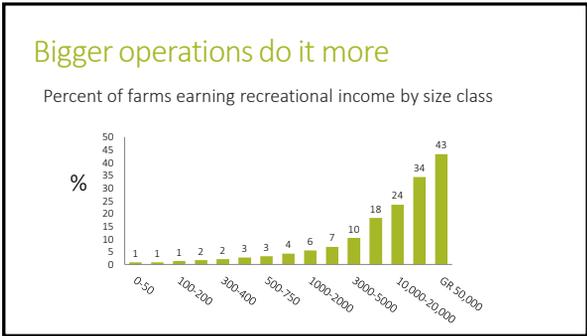
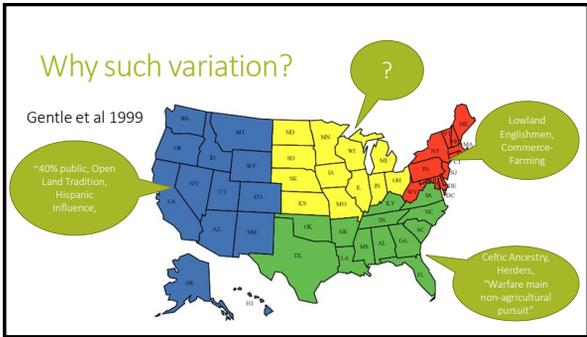
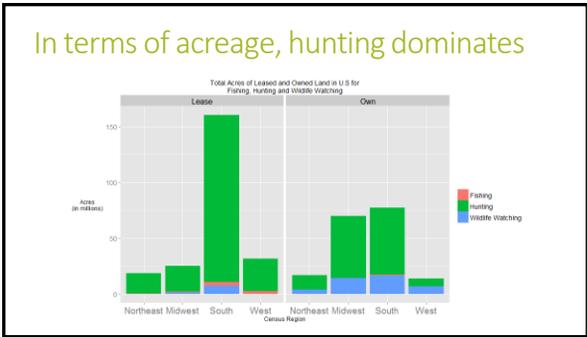
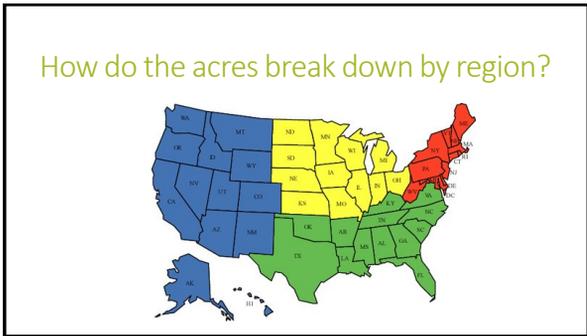
- Type
- Size Class
- Where

3) What are the conservation and land use implication of these funds?



Total acres much higher for hunting





Questions

- How much money?
 - Type
 - Size Class
 - Where
- How much land area?
 - Type
 - Size Class
 - Where
- What are the conservation and land use implication of these funds?

Conservation Activities on these lands

Higher participation in **government working lands** conservation programs
4.7% vs. 1.5%
 Significantly more likely to pay for **private conservation practices**
1.3% vs. 0.6%

```

> summary(glm(yesps48~yesworkland, family=quasibinomial2)) #
Call:
glm(yesps48 ~ yesworkland, family = quasibinomial2)

Survey design:
covariates: none, weights: none, data: none(14236)

Coefficients:
(Intercept)  5.72019  Dns  0.07206  1.29199  0.15119 ***
(Dispersion parameter for quasibinomial family taken to be 0.9866158)

Signif. codes:  0.*** 0.001** 0.01* 0.05. 0.1. 0.5. 1.

Number of Fisher Scoring iterations: 6
    
```

Land Use Implications?



- 1) Hunting lease funds support really large properties
- 2) Ownership leads to smaller land sizes
- 3) Owning for wildlife watching may result in ranchette-type development
- 4) Geographic variation

Take Away

- 1) Recreation funds reduce the opportunity cost of converting land to other uses.
- 2) Hunting has a positive impact for habitat conservation beyond Pittman-Robertson taxes
- 3) Informative for national and state conservation policy

Future Research

$$P_{ijkl} = \frac{\exp(\beta'_{jk} \mathbf{x}_{ijkl})}{\sum_{l=1}^K \exp(\beta'_{jl} \mathbf{x}_{ijll})}$$



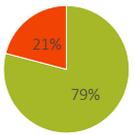
Acknowledgements

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 UC Berkeley: Department of Environmental Science, Policy & Management
 Goertz Chair
 Safari Club International
 USDA National Agricultural Statistics Service (NASS)



Livestock earns the most by far (forests not included)

Mean Annual Recreational Income

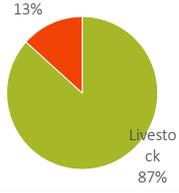


■ Livestock ■ Crops



Farms or ranches? (forests not included)

Crops Acres



■ Livestock

