



## Choice for goods under threat of destruction



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### HIGHLIGHTS

- A framed field experiment mimics a common conservation dilemma.
- 214 adults from 76 institutions made choices for sets of wine.
- The threat of destruction shifts preferences towards the more rare option.
- Conservation professionals and economists exhibit similar behaviors.

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### ABSTRACT

The choices related to preservation often involve consideration of the fate of the non-selected land. Yet, theory traditionally assumes that the fate of non-selected goods does not influence consumers' preferences. Results from a framed field experiment involving the private choice of wine show that consumer preferences can dramatically shift for items under the threat of imminent destruction. This shift (upwards of 58% increase) may explain why conservation professionals, despite decades of scientific evidence, have failed to adopt cost-effective techniques that would yield large conservation benefits at no additional cost. Interestingly, economists exhibit similar preference shifts.

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Throughout the world, government agencies and conservation organizations protect environmental and ecological services provided by undeveloped lands. In the US alone, more than \$50 billion has been approved for state and local spending on land conservation since 1988; \$10 billion since 2008 (Trust for Public Land, 2010).

These conservation efforts typically consider multiple parcels of land for preservation and each parcel varies in both quality (benefits provided) and cost. Given limited budgets, these efforts often cannot protect all available parcels. When selecting which lands to conserve, most government agencies and conservation organizations use a technique known as benefit targeting (BT), where parcels available for protection are rated in terms of attributes (e.g. presence of endangered species or protection of water quality) that reflect environmental and ecological services the properties can provide. Conservation efforts use BT to rank


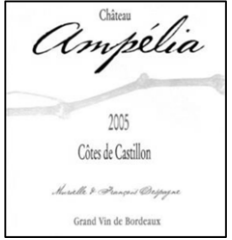



properties and then protect the land in order of rank until the budget is exhausted. Unfortunately, the relative cost of acquiring each property is rarely included in analysis. Numerous studies have shown that ignoring the relative cost produces a less desirable outcome in terms of environmental services acquired per budget dollar (Underhill, 1994; Babcock et al., 1997; Ando et al., 1998; Balmford et al., 2000; Wu et al., 2001; Messer, 2006; Ferraro, 2003; Wu, 2004; Newburn et al., 2005; Ferraro and Pattanayak, 2006; Kaiser and Messer, 2011; Fooks and Messer, 2012; Duke et al., 2013).

For instance, in 2012 the National Park Service (NPS) considered 34 projects totaling nearly 93,000 acres on its National Priority List. The total cost for these projects was approximately \$110 million, which far exceeded NPS's available budget of \$25 million. Using a BT system, the NPS selected two projects in Florida: one for \$5.5 million that protected 43,000 acres in the Big Cypress National Preserve and the other for \$25 million that protected 477 acres in the Everglades National Park. If costs had been taken more into account, the NPS could have re-allocated the \$25 million and instead of protecting less than 500 acres in the Everglades, could

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**Table 1**  
Example of two wine options.

	Name of wine	Year	Wine advocate rating	Retail cost	Label
<b>Option A</b> <i>One bottle of bordeaux wine</i>	Château Brane-Cantenac	2005	94	\$100	
	Château Ampélia	2005	88	\$25	
<b>Option B</b> <i>Four bottles of bordeaux wine</i>	Château Côte de Baleau	2006	83	\$25	
	Château Les Trois Croix	2006	87	\$25	
	Château Villars	2005	87	\$25	

have protected 28,607 acres from high quality projects in a dozen different states for the same cost.

Despite the scientific evidence and examples like this one, the question remains why is BT still favored nearly exclusively by conservation organizations? A partial explanation may be that parcels are targeted because their preservation represents significant value to society through attributes such as uniqueness (Boyce et al., 1992; Krutilla, 1967) and that not preserving these lands may mean irreversible loss.

To test this possible explanation, we designed a framed field experiment to mimic the setting facing conservation professionals using a between-subject design consisting of two treatments differing in terms of the outcome for the non-selected good. The design has similarities to experiments by Boyce et al. (1992) involving auctioning a good that invokes intrinsic value. Our experiment was conducted with two populations: conservation professionals and economists.

In each experimental session, participants were assigned identification numbers and asked to read instructions (see Table 1). Five bottles of wine were displayed at the front of the room, and

participants were instructed to confidentially select one option of red wine from the Bordeaux region of France, with each option retailing for a total of \$100:

**Option A:** One bottle of wine with the highest quality score for \$100.

**Option B:** Four bottles of wine with high quality scores for \$25 each.

Each bottle rating in Option B varied, but all had lower ratings than the bottle in Option A. The quality scores were determined by Robert Parker's Wine Advocate rating system, which scores wine on a 0–100 scale.

Participants made selections using paper with identification numbers. At the end of the experiment, approximately 10% of the participants were randomly selected to have their choices implemented, ensuring incentive compatibility.

To assess participants' baseline preferences, half the sessions were told nothing about the fate of the wine in the option not chosen (No Destruction treatment). The other sessions were told the wine in the option not chosen would be destroyed with a

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