

COMMENTARY

Rarity, willingness to pay and conservation

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In standard economic theory, the price of goods, whether low-fat hamburgers or trophy sheep, is expected to rise when demand increases or supply diminishes. Standard economic theory also assumes that consumers act rationally, but that is another story. All else being equal, rare things tend to be dearer than common things and in some cases, rarity increases value. Conservation biology usually sees rarity as a problem. Rare species, especially at small population size, tend to have higher risk of extinction than common species. When species become rare because of human actions, community ecology may be altered and ecosystem services may diminish. For example, if a sport-hunted species becomes rare, fewer individuals can be sustainably harvested. If some people have a certain willingness to pay to harvest that species, and prices are set by markets, the lower supply should lead to an increase in price. Within this framework, Palazy *et al.* (2012) seek to understand whether rarity may lead to an anthropogenic Allee effect (Courchamp *et al.*, 2006) in the special case of trophy-hunted species. They find that once other variables are controlled for, rarity does tend to increase the cost of trophy hunts, although the effect is rather weak. That result raises two questions: (1) Is this a problem? and (2) What motivates people to hunt endangered species?

The relationship between rarity and willingness to pay for a trophy hunt is not necessarily a problem for conservation. First, let us agree on what we are talking about. This is not a case of rich people wanting to kill pandas, Arabian oryx or Sumatran rhinos. It is a case of people willing to spend more to legally kill a markhor than an ibex, a grizzly than a black bear or a sable antelope than a wildebeest. As long as quotas are ecologically and evolutionarily sustainable, trophy hunting can be a part of a conservation strategy for some endangered species, if some of the funds generated are actually used to protect the species or its habitat (Leader-Williams, Smith & Walpole, 2001). Herein lies a problem: many hunts are trumpeted as 'Conservation Hunting' (Freeman & Wenzel, 2006), but few are. Most trophy hunts of ungulates are sustainable and produce revenues for the guiding industry, but their impact on conservation (if any) is not necessarily positive. One notable

exception is the markhor hunting program in the Torghar area of Pakistan, a species which, interestingly, is largely responsible for the positive effect of rarity on price in the paper by Palazy *et al.* When the rarity–price relationship leads to poaching or corruption in the issue of hunting permits, then we clearly have a real problem, but that is neither the subject of this discussion nor an issue on which Palazy *et al.* provide information. I suggest that a much more deleterious effect of rarity on conservation may be found in luxury goods derived from wildlife, such as certain foods (tuna, shark fins and turtle eggs come to mind) or status symbols (shatoosh, ivory and horned beetles are likely candidates).

If quotas are reduced to account for rarity, and price is determined by supply and demand, rarity should lead to higher trophy fees. The best way to maximize profit would be an auction, with permits sold to those with the highest willingness to pay. Auctions of trophy hunts can be spectacularly successful (Festa-Bianchet, 2003), but are rare. Trophy fees may have a weak relationship with demand because governments have a monopoly and may set fees artificially low. Most profits go to guiding companies, whose willingness to reinvest in conservation would be an interesting area of research. Palazy *et al.* (2012) suggest that high trophy fees are evidence of high demand. As fees increase, however, fewer trophy hunters can afford them. Many hunters can spare \$7000–10 000 to hunt an Asiatic ibex, but very few would even consider spending \$30 000–50 000 to hunt an argali. High fees may be also driven by lower supply. The data used in this paper are weakly related to the actual cost to the hunter, because government-imposed trophy fees are typically a fraction of what hunters pay. For example in Canada, nonresident permits for trophy sheep are typically a few hundred dollars, but guiding fees are in the tens of thousands. In much of Europe, fees vary according to the size of the horns or antlers of the animal taken. Cultural, political and administrative differences between countries make it very difficult to compare the costs of trophy hunts for different species. The method used by Palazy *et al.* is an acceptable first approximation, but a more detailed economic analysis of the amounts that trophy

hunters spend according to rarity and other factors is warranted.

Perhaps the most important question for conservation is the motivation of trophy hunters. We may seek to discourage this activity if it was detrimental to conservation, similarly to efforts to reduce overexploitation of several marine species, or species used in luxury markets, by publicizing the conservation consequences of overharvest and the availability of alternative products. In the battle for public opinion to affect consumer choices, trophy hunting is a powerful tool: most people hate it, much more than they may dislike other forms of hunting. A picture of an overweight middle-aged white guy sitting on a bloody dead bear will attract a lot more attention, emotion and donations than yet another report on fish overharvest or on habitat destruction. On the other hand, to include trophy hunting as part of a conservation strategy (Leader-Williams *et al.*, 2001), we may want to know why anyone would willingly part with a small fortune to kill a goat. Marketing may have a stronger effect than rarity on the cost of a hunt. Many conservationists are aware that hunting within pristine habitat, seeing wildlife and contributing to conservation can be powerful motivators for many hunters. Others may want to exploit the picture of the bloodied bear, as effectively done by animal rights groups. So far, commercial interests, rather than conservationists, have most effectively used marketing to extract money from hunters. Emphasis on the competitive, 'mine is bigger than yours' aspect of trophy hunting has spawned the offer of 'products' such as artificially fed animals with large 'trophies', hybrid oddities marketed as novelty items and canned 'hunts' of semi-captive animals (Knox, 2011). Search 'Texas dall' on Google to see some successful marketing. Negative consequences for conservation include the introduction of exotics, genetic pollution, disease transmission and predator extirpation. These practices also reinforce the negative perception of hunters by much of the public, and make it harder to use trophy hunting as a conservation tool. It is difficult and controversial to support killing animals to promote conservation (Lindsey *et al.*, 2006). The paper by Palazy *et al.* underlines

the need to clarify what 'conservation hunting' really means. It cannot simply mean 'sustainable'; it must involve measurable and transparent benefits to conservation.

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