

Status Symbols, Ecosystems and Sustainability

Arthur Fishman

Abstract

Why is it that so many of the consumption goods we value and love are ecologically degrading? From ivory to rice cultivation in semi arid regions, examples abound of goods so highly desired, even when functional substitutes exist, as to generate ecologically unsustainable production levels that lead to extinctions and depletion of precious resources. While the reasons for the high valuation of these goods are complex and manifold, this paper suggests that one factor is a taste for rarity: the rarer an item the more humans will covet it and hence the greater will be its exploitation. Thus these products have become so sought after not in spite of, but precisely because of, their ecologically low supply.

The research question

This essay addresses the following question: Why is it that so many of the consumption goods we value and love are ecologically degrading? More puzzling, we continue to prize these goods even when adequate substitutes which are less damaging to the environment are available.

Recent research suggests that in many cases, tragically, ecologically degrading consumption goods are valued not in spite of their negative ecological impact but precisely because the ecological unsustainability of their consumption. We introduce the concept of *rarity value*. This refers to an intrinsic value attributed to a good solely on account of its rarity, independently of its

functionality or lack thereof. Goods which are ecologically limited in supply are thus more highly sought after. Clearly we expect the price of an item to be higher the rarer it is. This is because rarity increases the cost of acquiring the item. The rarity value thesis says more: it asserts that rarity increases the value of the item and that therefore its price increases by more than the cost of procuring it. In the case of an 'ordinary' good (which has no rarity value), there is a market for the good only as long as the procurement cost is less than the utilitarian value of the good. Also, the intrinsic value of the good to consumers is independent of the procurement cost. Thus the quantity demanded decreases as the procurement cost goes up and once the cost is high enough, demand evaporates. In the case of a good with rarity value, by contrast, each increase in production cost shifts up demand by more than the cost increase; In fact, the item is desirable precisely because it is costly to supply. Thus that no matter how high the production cost, demand never slackens but, to the contrary, increases. This hypothesized effect has been named the *Anthropogenic Allee Effect* by F. Courchamp et al. (2006).

Rarity value and ecological degradation

Following Courchamp et al. (2006), we may enumerate several avenues of nature related activities through which rarity value leads to ecological degradation.

Collecting rare specimens

An obvious example of an activity where rarity is valued is that of hobby collections, where the rarest items are the most valued and thus demand the highest prices. As the value of a rare item increases, more time, effort, or resources may be devoted to its acquisition, increasing the pressure on the species as it becomes rarer.

Paradoxically, legal protection of endangered species, by increasing the price that the rarest species can bring on the collection market, may exacerbate this effect by providing a

powerful incentive to poachers and smugglers to hunt and illegally.

Scientists have been among these enthusiastic collectors of natural specimens. Following the overexploitation of the great auk, *Pinguinus impennis* for food and feathers, the species became very rare. As a consequence, these birds became a valuable item for collectors—among them, ornithologists and museum administrators, who were eager to acquire eggs or skins of the rare and soon to be extinct bird, thereby precipitating its extinction [see Courchamp et al (2006) for relevant references]

Even more paradoxically, a recent article suggests that scientific research warning that a species is endangered may itself precipitate a species extinction. Immediately after being described in the scientific literature, the turtle *Chelodina mccordi* from the small Indonesian island of Roti and the gecko *Goniurosaurus luii* from southeastern China became recognized as rarities in the international pet trade, and prices in importing countries soared to highs of US\$1,500 to US\$2,000 each. They became so heavily hunted that today, *C. mccordi* is nearly extinct in the wild and *G. luii* is extirpated from its type locality. The declaration of a species as endangered by a conservation organization provides official proof that the species is rare and therefore more valuable. Hence, paradoxically, declaring a species endangered may accelerate its extinction.

Trophy hunting represents another form of collection. In the past, trophies were valued as a sign of manhood and virility, because strength and courage were required to kill them. Nowadays, however, prestige has shifted from dangerous to rare animals; since rarer species are harder to find, greater wealth is required to kill them, and greater prestige is gained by killing them.

Luxury items

This is perhaps the most perfidious of them all. Thorstein Veblen is famous for coining the concept of *conspicuous consumption*. This

refers to consumption for the sole purpose of displaying wealth and/or social status and its origin is probably rooted in the evolutionary urge to attract females. Especially deplorable examples in the ecological context includes the consumption of rare species as luxury food items.

When closing deals, wealthy Asian businessmen wishing to display their affluence will pay large amounts of money to eat a plate of lips of a large Napoleon wrasse, *Cheilinus undulatus* (a single pair of lips costs US\$250). By the mid 1990s, Napoleon wrasse became the most sought-after reef fish in the world, and is currently number one on the "top ten most-wanted species" list published by the World Wide Fund for Nature. Populations in South East Asia are now extinct on many reefs, and very few large individuals survive in the remaining fragmented populations (see Courchamp et al (2006) for relevant references).

Many other species are likely to be vulnerable due to the demand for other types of luxury items, such as exotic woods, furs, turtle shells, snake and crocodile skins, and so on.

One celebrated – albeit hypothetical – historical example of luxury consumption which has been credited with bringing down an entire civilization is the story of Easter island. This island was completely deforested of indigenous palm trees, which were used to roll and transport stone from quarries at the centre of island to erect huge *moai* statues, which apparently were erected as symbols of status and power for by the wealthy and powerful. This eventually led to the complete deforestation of the island, which in turn is credited with leading to mass starvation, cannibalism, the decimation of most of the population and complete societal collapse. Jared Diamond in his book *Collapse* poses the question: "Who cut down the last palm tree?"; that is, why didn't deforestation stop when it became apparent that these practices were unsustainable? In light of our discussion, we can answer that precisely as deforestation progressed and tress became increasingly rare, the prestige value and hence the demand for

new maori statues increased, which accelerated, rather than retarded deforestation and eventual collapse.

The dramatic decline of sturgeon populations, exploited for their caviar, is another sad example: most species are threatened and the most coveted are on the verge of extinction. The overexploitation continues unabated despite caviar's ever-increasing price and the imminent loss of these species continued overexploitation of sturgeon species (Pala, 2005), Pikitch et al (2005), Stone, 2002, Stone, 2005). This phenomenon is consistent with the rarity value thesis: Demand for caviar has not decline, but increased as sturgeon has become rarer.

Gault, Meinard & Courchamp (2008) conducted an interesting experiment to further confirm this. In that experiment caviar from identical cans was placed in identical turins at a prestigious cocktail party. One turin of caviar was labelled 'rare', the other was labeled 'common'. Subjects overwhelmingly preferred the caviar labeled rare, although the caviar in both was turins was identical in every other respect.

Abalones, of which six species suffer from overfishing on the Pacific coast of North America, are another illustration. Considered a delicacy in California, white abalones, the rarest of the six abalone species, have declined by over 99.99% due to increasing overfishing, in part illegal (the fishery was closed in 1996), while at the sametime, prices have escalated. Although white abalones were the first marine invertebrate on the United States endangered species list in 2001, this species could become extinct within a decade unless extraordinary recovery measures are implemented (see Courchamp et al (2006) for relevant references)

Another example is blue fin tuna. The population of blue fin tuna, coveted for Sushi, is on the verge of collapse. Jacob Lowenstein of Columbia University has been sampling New York restaurants to test whether tuna claimed to be blue fin is indeed so. He has found that other types of tuna are often falsely claimed to be blue fin,

showing that consumers attach a value to it despite being unable to recognize it. He also finds that this kind of deception is less frequent in high end restaurants than in lower end restaurants.

Ecotourism

This activity provides another source for the feedback loop between rarity and increased demand. Ecotourism ventures have expanded greatly in recent years, with the public increasingly wanting to experience closeness to natural ecosystems or species. Such activities often involve encountering and/or observing rare species. Given that some ecotourism activities have been shown to generate disturbances that are detrimental to the fitness of observed species we can assume that rare species, especially those that are charismatic, will be disproportionately impacted upon by ecotourism.

Technology and entrenched taste for rarity

Often, environmental sustainability relies on “substitution” of natural goods by man-made or natural alternatives. But when rarity raises value, even perfect artificial substitutes may fail to decrease pressure of the environment.

For example, in the past ecological limits turned some consumption goods into status symbols in certain regions. Until modern times, these goods could only be produced by traditional technologies that were dominated by natural conditions. Rice could not be cultivated where rainfall was deficient. Elephants could not be hunted on a massive scale. This very fact could make a product rare and thus assume the nature of a status symbol – a product reserved for elites - in traditional societies and cultures. When new exploitative, unsustainable means of production were introduced, they were adopted on scale to meet the high demand that persisted simply as a result of their past rarity and status symbol legacy, not necessarily because of intrinsically valuable functionality, thus leading to ecological degradation of entire ecosystems and species.

For example, high power rifles became available for the hunting of elephants. Tube wells were drilled to irrigate rice fields. Demand may have also increased due to rising incomes. The high psychological valuation of these products, rooted in long-standing perception as a status symbol, became engrained into cultural norms, and was slower to adapt to changing supply as compared to the rate of introduction of exploitative technologies. As a result, production was increased, far exceeding natural rates, and at a cost to ecological stability and in an unsustainable manner. Elephant populations could not withstand massive hunting. Groundwater resources could not recharge fast enough to meet extraction rates and became depleted.

As an example, consider the cultivation of water-intensive rice in Semi-Arid regions of India (e.g. Telangana). Because of the lack of water, rice was not traditionally grown in these areas. After the introduction of tube wells, rice cultivation grew dramatically, traditional crops were neglected, and groundwater aquifers were depleted. The seemingly stubborn insistence on the continued cultivation of rice and failure to substitute less water intensive grains may thus have its roots in the status role played by rice before tube well technology was introduced.

Conclusion

The above discussion suggests that market forces can not remedy these problems; indeed market forces maybe at their root. What is needed is a change of attitude, a change of consciousness. Rarity value is rooted in the entrenched perception that consumption of ecologically endangered species and products as symbols of status. To combat this, a new perception of status must evolve. Education must be targeted to foster the perception of such activities as a badge of shame, not of prestige. A new perception of status must evolve, which rather than glorifying wasteful consumption, honours the conservation, care and nurture of our planet and its ecology.

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