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Pandanomics: What Is Giant Panda Conservation Worth? Billions Every Year

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A new analysis shows that panda conservation provides great value for local people, culture and the environment, generating 20 times more money than the cost to conserve and maintain the cuddly bears.

Cute, cuddly and eminently distinctive, everybody loves giant pandas. So much so that, in exchange for political favors or for lucrative trade deals (ref), the Chinese government offers countries aroud the world the opportunity to rent a giant panda. But this "opportunity" comes with a hefty price tag: panda rent can cost as much as one million dollars annually for a period of at least ten years. Add to that the cost of building a state-of-the-art zoo enclosure, which runs many hundreds of thousands of dollars, and the annual cost to feed and properly care for pandas, which only eat bamboo, which can be as high as $500,000 or so each, according to a spokesperson at Zoo Atlanta (more here). Although it is unclear how much money China actually spends on its captive-breeding efforts nor on conserving wild panda habitat, it's safe to say that those costs are also high.

Considering these extreme costs, the wisdom of investing so much money, time and effort into giant panda conservation has been the subject of considerable controversy -- wouldn't the same sum of money be better spent on a number of other, equally deserving, but less cherished, endangered species? Are giant pandas worth the enormous investment they get?

"Many detractors have argued that spending valuable resources on panda conservation is wasteful," said lead author of the newly-published study by a large

international collaborative of scientists (ref), conservation biologist Fuwen Wei, a professor of zoology at the Chinese Academy of Sciences, in a press release.

One of the most notable panda critics was BBC presenter and naturalist, Chris Packham, who, in 2008, famously said: "I'd eat the last panda if I could have the money we've spent on panda conservation back on the table for me to do more sensible things with." (Quoted from here.)

Despite Mr. Packham's vote of no-confidence, the newly-published analysis concludes that captive-breeding pandas and setting up reserves in the last remnants of panda habitat actually are a sound investment (ref).

"Our analysis contradicts this view and demonstrates clearly the great value of the panda, both for its cultural and intrinsic value and for the ecosystem services provided by panda reserves," Professor Wei said.

In fact, after reading that study, one could conclude that pandas are the quintessential Chinese cash cow.

The study authors based their conclusion upon the Common International Classification of Ecosystem Services (CICES) framework. In that framework, "Ecosystem services" include: (1) provisioning services, (2) regulatory services, and (3) culture. In their study, the authors report that panda reserves offer a variety of provisioning services that are valued by local people such as growing crops, grazing animals, procuring water supplies, and harvesting firewood and useful plants. Important regulatory services include the hydrologic benefits of managing precipitated water runoff, sediment retention, carbon sequestration, nutrient retention, and more.

In their analysis, the authors estimated the value of each "ecosystem service" associated with pandas and their reserves reported in numerous previous studies. They converted those numbers to US dollars and used elementary school maths to calculate the mean value for each (it is worth noting that the numbers were much

larger than most elementary school children use). Their median estimate was US$632 per hectare per year.

Multiplying this number by the total estimated area of the 67 panda reserves established by 2010, the authors of the study estimate "pandanomics" yields between US$2.6 and US$6.9 billion per year, and also noted that protecting the giant panda provides somewhere between 10 to 27 times more value than the cost of maintaining the reserves where the dwindling wild population lives.

"Now, we know that the system of reserves and protections for pandas are working to reverse the panda's decline and that these efforts have benefits for society and nature at large," said Professor Wei. "This should provide added motivation for people to continue backing panda conservation to bring about the eventual recovery of the species."

Probably most important is that, in addition to monetary and economic benefits, conservation of wild pandas may help China protect a wide variety of other, less beloved, species that live alongside these iconic beasts. Even in China, the giant panda is so popular that it has inspired a national reversal of that nation's previously abysmal conservation and environmental history. Beginning in the early 1960s, China established the first four panda reserves and prohibited hunting of a host of wild animals, including the giant panda. Between 1990 and 2010, wild giant panda reserves doubled in size such that, by 2010, panda reserves had been established in more than half of all suitable panda habitat, for a total of 67 panda reserves with a total combined area of more than 33,000 km^2.

One could think of giant pandas as a conservation success story: just last year, pandas were downlisted from "endangered" to "vulnerable," although their highly specialized diet, extremely low reproductive rate, and need for large, relatively undisturbed tracts of lowland bamboo forest means they still are considered to be at high risk for extinction.

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Unfortunately, habitat fragmentation due to human encroachment is still a big challenge for protecting and maintaining the genetic diversity in the dwindling population of wild pandas. The next step is to address this issue by improving connectivity of fragmented habitat as well as protecting pandas from competition by livestock, which also enjoy eating bamboo.

Source:

Fuwen Wei, Robert Costanza, Qiang Dai, Natalie Stoeckl, Xiaodong Gu, Stephen Farber, Yonggang Nie, Ida Kubiszewski, Yibo Hu, Ronald Swaisgood, Xuyu Yang, Michael Bruford, Youping Chen, Alexey Voinov, Dunwu Qi, Megan Owen, Li Yan, Daniel C. Kenny, Zejun Zhang, Rong Hou, Shiwei Jiang, Hongbo Liu, Xiangjiang Zhan, Li Zhang, Biao Yang, Lianjun Zhao, Xiaoguang Zheng, Wenliang Zhou, Yali Wen, Heran Gao, and Wen Zhang (2018). **The Value of Ecosystem Services from Giant Panda Reserves**, *Current Biology*, **28**, published online on 28 June 2018 ahead of print | doi:10.1016/j.cub.2018.05.046

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