Review of: "Biodiversity, Anthropogenic"

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Potential competing interests: No potential competing interests to declare.

Title: “Biodiversity, Anthropogenic”

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The author highlights the role that domestication of plants and animals has played in the history of mankind, which is good and useful. It is obvious that ‘taming’ and ‘domesticating’ are two different issues and the author touches upon that but could have expanded that aspect. However, there are two issues the author needs to be corrected.

Firstly, the notion that indigenous societies are known to conserve their natural resources is wrong. What helped many indigenous societies to safeguard their resources was the societies’ small number of people and therefore the lack of pressure to drive species to extinction. There are numerous examples of indigenous societies having caused the disappearance of a species: in New Zealand the Maori set fire to forests and scrublands so that the moa birds could be slaughtered when they tried to run from the fire and the Australian megafauna was wiped out by Aborigenes. If native people are conceived to have been in protecting and conserving species, then it is because their populations were small. In cases where the human population swelled, species used as food were under pressure and sometimes wiped out and sometimes domesticated. Species that were considered ‘useless’ or ‘toxic’ were eradicated or put under pressure to survive. There are a few instances where native tribes recognized what could cause the decline of some of their resources (see Meyer-Rochow 2009 on Food Taboos), e.g., banning the use of soap in some streams or declaring young and undersized fish taboo. Generally speaking, however, even an indigenous person would rather kill and consume the last specimen of a species than to die from starvation. The examples that the author invokes to support the notion of “the noble savage” are wrong: the Maasai did not live by “hunting-gathering” but were a cattle-owning and cattle-breeding society. The Sentinelese to mention in this context is also wrong as we know next to nothing about their environments’ history and the tribe’s lifestyle and Sentinel island’s fauna and flora.

The second erroneous conclusion is that domestication leads and has in the past led to new species. It has not! All domesticated animal species, for example, not only will mate with their wild ancestors but will have fertile offspring! This is why the housedog in all its ‘races’ is not considered a species, but a subspecies, namely *Canis lupus familiaris* and the domesticated pig is *Sus scrofa domesticus*, a subspecies of the wild pig with which it frequently interbreeds when left unguarded. As long as fertile offspring ensues from matings with wild relatives, we must not talk about separate species! However, the situation is different when the wild ancestral species has been wiped out and is simply no longer available, which has been the case in some domesticated species. That domesticated species can be ‘used’ (as the authors

correctly point out) to reverse the extinction of a species and ‘rescue’ the ancestral species has been shown in case of the European bison and a few other species. To cut a long story short: domesticated species are not ‘new species’: they are varieties or sub-species that can have fertile offspring with ancestral species. Where the ancestors are not clearly known, as with the rice, the wheat, the orange or the domesticated honey bee *Apis mellifera*, on simply has to give it a scientific name, knowing fair well that it is NOT a new species, but a species that had to be assigned the status of a species, because the true stem species is n longer known. Incidentally, the origin of the silkmoth as a domesticated species is not China (as stated by the author in Table 1) but the region now known as Assam (see Cloudsley-Thompson, J.L. 1976 “Insects and History”.

The authors correctly point out the effect that selective breeding has had on the various subspecies; one only needs to look at the different races of dogs, cats, pigeons, chicken, etc., and in this way has certainly ‘enriched’ the polymorphism of a species. Of course domestication can result not just in changes of the physical appearance of a species, but also can also affect the physiology, the character, the behaviour of a species, but these changes are not features that determine whether a subspecies is a new species or a variety. Humans differ tremendously morphologically, physiologically and even behaviourally, but we are not different species, but according to some evolved into subspecies or varieties than are now no longer separated geographically and can mate unrestrictedly.

To point out the role that the domestication of wild species in agreement with Darwin’s view had, is laudable, but the author must not too enthusiastically embrace the idea that domestication leads to an increase in biodiversity. It leads to an increase in varieties; varieties that would probably not occur in the wild given the survival of the fittest, i.e., the most suitably adapted to survive biological and physical stresses. The authors also need to be very cautious in championing the idea that indigenous people were better guardians or custodians of Nature than modern, urban humans. The authors do point out that some religions make a point to advise their followers to preserve Nature as, for example, the Brahmin Indian custom of always leaving a bit of food on the plate for the gods. Actually, to leave some seeds is a preservation measure to make sure plants, too, will have offspring. Likewise, the Jewish custom never to eat a bird and its egg together or to consume milk (supposed to nourish the offspring) and consume meat (of course only of a kosher mammal), can be interpreted as guides to preserve Nature. Judaism very precisely talks of humans as the “custodians of Nature” and this attitude was also found in the Japanese Shintoism, the Chinese Taoism and other religions.