



Conservation of Parasites

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“Conservation of parasites? What a terrible idea!”

That is a common reaction whenever I mention the subject. My standard response is an agreement, “Yes, it sure is. Parasites are indeed terrible, by definition. Parasites harm their hosts.”

But remember, nature itself is very terrible. Predators kill their prey. Parasitism can be viewed as predation on the installment plan. As the old saying goes, “Mother Nature is not very motherly” [1].

Parasites must be conserved because they are integral components of ecosystems. To a large extent, parasites actually regulate ecosystems. This may seem like an absurd claim because it goes against common wisdom. No one wants to play host to a parasite. However, the biological facts speak for themselves.

Most of the species on Earth are parasites [2]. Parasites are symbionts that harm their hosts. So that is a contribution? Strange as that may seem, yes, it is. Parasites harm their hosts as individual organisms-but they benefit them at the species level. It is species that evolve, not individuals.

In order to evolve, a species has to survive. Species will not survive if their habitats are destroyed. Species have to contribute to the ecosystem that provides their habitat. If some species become monocultures, their ecosystem is in peril.

Nature does not only abhor a vacuum. Nature abhors monocultures. Parasites prevent monocultures. Thus, parasites enable ecosystems to survive. Biodiversity is based on parasitism.

Monocultures are not common in nature. What may appear to be a monoculture is usually one predominant species with plenty of other species that are not readily visible. True monocultures are one species and no others. Agriculture strives to grow monocultures but they almost always fail. When they do succeed,

it is only temporary. Some invasive aliens are good at producing monocultures, but that too is temporary.

Nature tends to regulate itself through competition and predation. When these two activities do not succeed, disease steps in. Diseases are caused by pathogens, which are parasites. Agricultural monocultures are very prone to diseases.

Another beneficial contribution by parasites to biology is sex. Sex is the response of most host species to parasites. Sex changes the genomes of the host so that the host species can try to escape their parasite species. Parasites also have sex, so that they can avoid any defense their hosts evolve. The result is a continuous arms race between co-evolving host and parasite species. If a host species goes extinct, and is the only host that parasite has, the parasite will also go extinct.

Thus, there is a need to conserve parasites [3].

What often happens in the real world is that a parasite species on a host species that went extinct, finds a new host species. Likewise, a host species that has gotten rid of a parasite species is soon infested by a different parasite species. Parasite species compete among themselves for hosts.

Most practicing veterinarians deal with pets and livestock and not with ecosystems. However, some veterinarians do have wounded wildlife as patients that are intended to be released back into the wild. In these cases, efforts should be made to retain any parasites that the wild animal originally had, unless they would interfere with the rehabilitative healing [4].

However, when the rehabilitating animal is an endangered, threatened, or uncommon species, then perhaps the parasites should be removed. These decisions would have to be made on individual cases [5].

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