WHICH ANIMALS DO PREDATORS REALLY EAT?

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Predators have been thought to serve prey species by removing the old, sick and mained. This alleged selective elimination of the weak is central to the dogmas of natural selection and evolution. Recent evidence seems to indicate that random selection plays a major role in determing which animal is eaten. Further evidence indicates that at least under certain situations there is selection against the strong and healthy. Evolutionary (or anti-evolutionary) implications are obvious; and a critical reevaluation of the evidence is needed.

Introduction

Predators are viewed by evolutionists as providing a service to prey species by removing the very young, the old, sick and maimed. Instead of being detrimental to the prey species the predator, in selectively removing the inferior individuals, is considered important to the overall survival and supposed evolution of the prey.

The predator is also considered important to the survival of the prey by removal of the surplus. It is often said predators are necessary to keep prey population in control. Without predators it is maintained prey species would reproduce unchecked until the carrying capacity of the environment was exceeded, then catastrophically decline. The Kaibab Plateau incident is generally cited in support of the necessity of predators. Predators were removed from the Kaibab forest in northern Arizona in the early 1920's; and the deer population increased and subsequently died off.

This interpretation has been long since dismissed. According to Lauchkhart,[1] "Game men are now convinced that the removal of cougar from the Kaibab had nothing to do with the boom and burst of the deer herd. The deer increase apparently was the aftermath of some habitat changes."

Caughley[2] concluded little can be learned from the original deer population estimates of Rasmassen,[3] except that a rise and decline occurred some time between 1924 and 1930. Burk[4] dismissed the Kaibab incident as a long-persisting myth. Howard[5] suggested "the deer-predation story should not be cited in future literature".

Many species have been found to regulate population density independent of predator effects. Pocket gopher density showed no correlation with coyote density fluxuations.[6] Voles limited population density to available food resourses without predators or climatic irregularities.[7] Wynne-Edwards amassed extensive evidence for endogenous population density regulation[8] and his evidence has been reviewed[9] and evolutionary (or anti-evolutionary) implications discussed.[10] Rodents, hares, and grouse were found to decrease when 22 species of predators were controlled.[11] Several laboratory studies have revealed reduced reproduction under crowded conditions.[12-18]

What Is Predator's Role?

What then is the role of the predator? From Darwin to the present time predators have been said to provide a filter, eliminating the inferior from the genetic pool. Supposedly through natural selection predators continually upgrade the breeding stock (and in turn are genetically improved by the difficulty of feeding on an ever improving prey species) and provide the selective "force" for evolution. Predators are admitted to be important to evolutionary processes only if they differentially alter the gene pool. Random sampling of the prey species would not alter the gene frequency.

The concept of the weak, diseased and genetically unfit falling victim to the hunting predator is certainly plausible at first thought. Indeed, if unarmed man were the hunter he would of necessity kill the weak, slow or young. It is reasoned that the predator would save energy and be more assured of a meal if it sought the slow and weak. Surely the surviving genetically superior prey would have an advantage and due to that advantage continuing throughout geologic time should leave more progeny.

Evidence from nature, however, seems to indicate that luck plays a major part in determining which animal is eaten. Luck is not selective and could not alter gene frequency. The question, then, of which animals do predators really eat is of considerable importance, and has wide-ranging evolutionary (or, again, anti-evolutionary) implications.

Casual observations from hunting, trapping and fishing show that the vast majority of wild animals are usually healthy, vigorous, disease-free and have found enough to eat to show significant fat deposits. Where are the weak, the hungry—the food for predators? The often heard (but rarely confirmed) reply is that these animals have already fallen victim, and thus are no longer visible. Again the important question of whom predators eat has not been clearly answered.

Reports of Observations

While maintaining several species of snakes under laboratory conditions for over two decades, I have observed that snakes seem to prefer healthy active prey. If snakes are simultaneously offered two mice, one healthy, the other listless and ill, the snake will invariably select the healthy active mammal first. In fact, the ill mouse may remain unnoticed in a secluded corner for hours.

The following observations were made by veteran predator-trapper/biologist Roy McBride, and were gained through personal communication. McBride has 20 years experience trapping livestock predators in North and Central America and is currently studying radio tagged mountain lions in Texas. In the spring of 1972 he was attempting to capture a Grey Wolf (*Canis lupus baileyi*) in southwestern Durango, Mexico. The animal's tracks were easily recognized as the wolf was missing two toes from its front left foot.

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The wolf was killing weaning-sized steers and heifers of the 300-500 pound size. The ranchers weaned all the calves at the same time; and many in the herd were young, weak and in poor health. These weak steers tired quickly and could be easily thrown by one cowboy. Of the 96 steers and heifers reportedly killed by the wolf, McBride personally examined 55 kills before capturing the wolf. Without exception the wolf was "selecting" the top healthy animals in spite of the abundance of weak prey. The young weak calves remained unharmed.

While following radio-tagged mountain lions McBride has seen a lion hunting deer (one can tell that they are hunting by stops at elevated points of lookout, in contrast to straight line non-hunting movement) actually walk out around a live deer entangled in a fence. Is not this reminiscent of a young dog or cat enjoying chasing a rodent only to ignore it when it becomes injured and falls motionless?

On another occasion four mule deer does were seen staying together on a hill near the Mexican border. A female mountain lion killed three of the four deer in a 90 day period, but left the fourth deer which was always with the other three deer. The fourth deer was in very poor condition due to a "shrivelled front leg". It is McBride's conclusion that predators "select" certain prey before the chase; and that with reasonably favorable conditions of weather cover and terrain they have no difficulty in taking healthy "top end" animals.[19]

A recent study reveals similar results regarding the snowshoe hare, *Lepus americanus*.[20] Causes of mortality were determined for radio-tagged animals by examing the carcass. Predation was the cause of mortality in 21 of 26 recorded deaths. Specific predators were identified in 15 of the 21 predator killed hares. Predators included lynx, coyote, weasel, horned owl, and goshawk.

Recent recapture data provided a condition index[21] used to assess the physical condition of the predator-killed hares. Only one of the 21 predator-killed hares had a condition index value significantly below the mean value for survivors ($P < 0.05$). Again the evidence seems to indicate that predators are not preferentially removing the weak and unhealthy.

The available evidence, at least for certain predators under some conditions, indicates predators are fully capable of capturing healthy "top of the line" prey; and that chance determines which animal is eaten. In fact, the evidence seems to indicate that the sick and weak are preferentially avoided.

Implications Examined

Upon closer examination does not this seem both logical and adaptive? The weak, slow prey is often suffering from an infectious disease. Any predator preying on these individuals would risk infection. Many viral and bacterial infections can be transmitted by contact, or through the nasal or buccal mucosa. Many endoparasites enter a host via the gastronintestinal tract.

It would seem that avoidance of the slow prey individuals would be adaptive by minimizing exposure to communicable diseases and parasites. Animals weak from undernutrition and or malnutrition are often more susceptible to disease and it would again seem maladaptable to select for these animals. It might also be mentioned that healthy prey would always provide a better meal both quantitatively and qualitatively.

Methods employed by predators also fail to indicate a positive selection for the unhealthy, weak, or listless individuals. Many predators are opportunistic and build traps (ant lions, web building spiders) or lie in ambush (many insects and reptiles). These animals simply take what individual happens to come along. No active selection for the less fit occurs; in fact, it would seem the opposite is true. The animals taken are the healthy individuals that are out foraging for food.

To the predators that actually hunt prey vision is often important. Animals responding to visual cues are often profoundly sensitive to the slightest movement. Once spotted, the healthiest of prey can usually be captured. In fact, the listless slow prey remain unnoticed in the protection of their burrow or naturally occurring cover.

Again there is no evidence that the healthy animals are preferentially avoided. In fact the opposite appears to be true, especially among mammalian carnivores. They seem to enjoy the chase, fight and kill. Dogs that learn the excitment of chasing and killing livestock often can be "cured" only by destruction. Many predators seem to enjoy the chase that only a healthy animal can provide. In fact, animals that refuse to run seem to confuse and frustrate predators.

The widespread occurence of death fraying seems to substantiate this deduction. If predators are simply looking for an easy meal, death fraying would seem the worst possible behavioral response to attack; yet many animals do just that. Many insects, isopods, spiders, amphibians, and reptiles remain motionless when disturbed. A common example occurs when a dog finds a box turtle or hognosed snake. In both cases the dog will energetically "attack" the reptile only to lose interest quickly when the new-found prey fails to run.

The death fraying response is so well developed in certain marsupials that the expression "playing possum" is a part of everyday language. The opposum has a highly specialized physiological response that enables it actually to "faint" under stress. Large capillary beds vasodilate, blood pressure drops, and the animal loses consciousness. How can this possibly be protection from a predator that is hunting the "weak and slow"? This response is seen as adaptive only if the predator is searching for active animals. In fact, the chase seems to be an important prelude to the kill. Animals that remain motionless when attacked escape not by becoming invisible to the predator but by confusing the normal find-chase-kill sequence.

Predators that were capable of overpowering only unhealthy, weak or old prey would not be able to survive long in nature. Trapping data and field observations reveal only a very small proportion of most prey species are in poor condition. Most predators have considerable over-kill ability. Many carnivore mammals and predatory reptiles can easily out-run (or ambush), over power, and kill animals many times their size and weight. Consider a 60 pound wolf downing a 400 pound steer or the potency of venomous snakes.

A parallel argument exists regarding herbivores. Although most plant-eating animals select the species eaten there is little evidence for selection of the genetically inferior members of the plant population. Of course, other factors such as intraspecific competition, seed production, germination, etc., are said to play a major role in plant selection. It would seem that at least in heavily grazed grasslands a situation parallel to the predator-prey examples exists; yet apparently there is no significant selection of the "less fit". In fact, many herbivores seem to select preferentially the tall lush plants. Again many of the same arguments apply with regards to relative nutritional value. Certainly negative selection is working among herbivores.

Summary

In summary, evidence and logic clearly indicate many predators are quite capable of catching and often prefer to catch healthy "top of the line" prey. Random selection plays a significant role in determining which animal is eaten. The evolutionary (or anti-evolutionary) implications are widespread and obvious. Predators have long been thought necessary to maintain population density of prey species and to provide the mechanism for improvement of prey gene pool by selectively eliminating the inferior individuals. Both aspects of predator-prey relation permeate much of modern evolutionary dogma.

If, then, fecund individuals are not selected for, and if predators (or herbivores) do not selectively harvest phenotypically inferior individuals, natural selection is a dogma without a mechanism. Clearly a critical re-evaluation of the facts is warranted, and, indeed, needed.

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Design in Inorganic Nature

Many writers have pointed out the obvious good design to be seen in living beings, in that the parts are adapted to the whole, and the whole to the being's way of life. The high point, perhaps, of such studies is Paley's Natural Theology.

Later, Darwin and others attempted to destroy the force of such evidence of the work of a Designer. They argued that all of the adaption was to be ascribed to chance and to natural selection. Later the "chance" became somewhat more specific, as mutations.

Creationists have replied that all mutations are harful, that variability is limited, and that the alleged natural selection would not be effective anyway.

Another example of adaption is to be found in the inorganic world. The Earth is obviously adapted to be the home of living beings. It is right in such respects as chemical composition, the presence of water, the temperature, the lengths of day and night, and of the year, and in many other features. Clearly, this suitability can not be ascribed to survival on the part of the Earth. Nobody believes that many (proto-) Earths once came about, and that the one which was suitable as a home for living beings survived.

Evolutionists, then, try another argument. They say that the suitability proves nothing; for if the Earth were not suitable for living beings we should not be here to notice the fact. *(Continued on page 86)*