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# NEWS and VIEWS

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## Aviculture and the Theory of Co-evolution

by Tom Marshall  
Vienna, Virginia

**Co-evolution:** *The simultaneous evolution of adaptations in two or more populations that interact so closely that each is a strong selective force on the other.*

Conservationists are suspicious of aviculturists who claim they practice aviculture for conservation reasons. Animal rights groups insist that the importation of birds for the "pet trade" is blatant exploitation of wildlife, and that caged birds are an anathema to the humane among us. Bird breeders welcome the challenge of breeding difficult species, at least once, often because of the recognition and credibility this earns them, but they concentrate on breeding primarily high-priced pet birds or low-cost, mass-produced birds for the pet market.

Of course, there are exceptions to all these pronouncements. I do not, however, intend to argue any of these points in the body of this article, but rather to suggest that aviculture is a natural product, neither bad or good, right or wrong of the evolution of man and the evolution of certain species of birds, which by accident or by design have come in contact with the human species — the result being co-evolution!

One fifth of the entire mass of land animals on earth today is made up of humans and the animals that by human agency or historical accident have come under man's protection. We refer to our dogs and cats and farm animals as domesticated animals. The birds we raise in captivity we proudly refer to as "domestically bred." Biologically, the process of domestication is a success story without precedent in the history of evolution.

Here we must stop and re-think our assumption that domestication is simply the invention of man, an example of man's inevitable subjugation of nature in the march of technological progress. A series of new studies has dramatically recast the role of humans in domestication, overthrowing the simple picture of man as the conqueror. The evidence now suggests that far from an example of man's domination, *our relationship with animals is a natural occurrence — initiated by the animals themselves as a strategy for survival and an opportunity to reproduce itself.*

Over the aeons, those species which survive have done so as a result of "natural selection." Natural selection, according to Charles Darwin in *The Origin of Species*, is analogous to the type of selection exercised by breeders of cattle, horses or dogs (and, more recently, birds). In artificial selection, we humans choose specimens of plants and animals for breeding on the basis of characteristics that seem to us desirable. In natural selection, the environment takes the place of human choice. As individuals with certain hereditary characteristics survive and reproduce, and individuals with certain other characteristics are eliminated, the population will slowly change.

According to Darwin, inherited variations among individuals

which occur in every natural population are a matter of chance. In themselves, they have no goal or direction, but they often have positive or negative adaptive values; that is, they may be more or less useful to an organism as measured by its survival and reproduction. It is the operation of natural selection — the interaction of individual organisms with their environment — over a series of generations that gives impetus to evolution. A variation that gives an organism even a slight advantage makes that organism more likely to leave surviving offspring.

I believe that, in the future, we will have sustaining breeding populations of all cockatoos if we can get the foundation stock. This will require careful breeding to maintain good viable stocks. Stud books will be the basis for preventing inbreeding and to provide good breeding stocks. We are currently starting stud books for Umbrella and Moluccan Cockatoos. One member has already started one on the Red-vented Cockatoo. We support the Black Palm Cockatoo stud book that is managed by the government. These books are an effort, but now is the time to start them since we do have room for error at the current numbers. All birds should be listed in the stud books and all babies produced.

The Red-vented Cockatoo is a very sore point. In 1980, I could have gotten a dozen birds for \$1,000. Where are they now? How many people are breeding them? TRAFFIC records a total of 65 birds entered the U.S. in 1988, and they may have been returned to the Philippines due to the possibility of VVND. Where can we get new breeding stock? I understand they are becoming rare in areas where they were common and that the species is dying due to VVND and/or Beak and Feather Disease. I have heard both stories. This is a story that can be repeated with many birds.

I would like all interested parties to join the Cockatoo Society and those who have Moluccan and Umbrella Cockatoos to register them in the stud books. The same goes for all of the other specialized groups.

The animal rights movement, which likes to romanticize nature and anthropomorphize standards in dealing with animals (I wouldn't like to be in a cage, so I wouldn't put an animal in a cage) ironically promotes the concept that man has dominion over animals by denouncing man as the enslaver of animals and ignores the plausibility of co-evolution. As blasphemous as it must seem to them, the co-evolutionary view of domestication argues that many domesticates have probably benefitted from the association as much or more than people.

Biologists describe the way domesticated animals live as a new ecological niche. Our pet dogs trace their ancestry to wolves. Wolves that began to associate with man were freed of many of the constraints that had held their numbers in check, such as limited food supply, competition with other hunters (including man), perhaps even the need to expend energy keeping warm at night once they had man's fires to share. The rapid population growth that ensued was like the introduction of a new species on an island. In colonizing a new ecological frontier, a premium would have suddenly been placed on the ability to reproduce rapidly. Natural selection would see to it that that hap-

pened. Compatible with Darwinian thinking on evolution, those individuals who had a genetic predisposition to reach sexual maturity earlier would produce more offspring, who would intend to inherit that genetic trait themselves. Early sexual maturity could also have led to the retention of juvenile features into adulthood, thus the shorter, more puppy-like jaws and muzzles of dogs.

Wolves demonstrate many "preadaptive" traits that prepared them to get along with humans. They live in groups, share food and live in hierarchical social structures based on subordination to a pack leader. Aviculturists recognize the preadaptive traits of parrots as well. They live in flocks with a "pecking order" and strong bonding potential, easily transferable to humans. They have a penchant for cultivated crops (fruits, vegetables and seeds), which make them easy to maintain by humans. Their bright colors and their anthropomorphic qualities (an ability to hold things in their "hands" and an ability to mimic the human voice) creates an immediate and natural affinity with humans.

In close association with man, if members of a wild population, such as a wolf, or perhaps an Amazon parrot were tamer or less afraid of man, they could possibly gain special advantage by the food or protection they received, allowing them to survive, reach reproductive age and pass that trait of tameness on to their offspring. Wolves may have initiated the contact with man. That which has developed between the two species, however, has evolved over thousands of years. Parrots and other bird species that are becoming domesticated to various degrees, may have initiated contact too, but man has sped up the interrelationship through captivity.

However, the inexorable effect, proven by the development of the dog from the wolf, by farm animals, and in the process of being strongly suggested in several species of birds, is that of offshoots from the wild population that are or will be tamer and more dependent.

Genetically, the evolutionary process favoring tamer individuals reinforces the pressure for earlier sexual maturity and rapid reproduction to fill the new niche. It is common knowledge among aviculturists that domestically bred birds go to nest earlier than their wild counterparts, and produce and raise more young. The trade off for longer life and greater reproductive success is obviously being tamer and more dependent on man.

With all the concern demonstrated for endangered species, what we have learned about the advantages of captive breeding as opposed to attempting to protect birds in their natural habitat seem to be supported by tenets of co-evolution:

1. A pair can be managed to produce more young in a given period than would occur in the wild. This is of vital importance in the case of critically endangered species with very small populations.

2. Captive birds, if correctly managed, have the opportunity of passing on their genes in more combinations than would occur in nature. They can be mated with different birds to increase genetic diversity.

3. Captive birds have a potentially longer life span when correctly managed because they can be protected from predators (including humans), from food shortages, and from adverse climatic conditions. Birds in the wild show extremely high mortality, probably at least 30 percent in the first year, as documented by the Puerto Rican Amazon study.

4. Captive populations of endangered birds can be located in a country less vulnerable to the natural catastrophes which may occur in their natural habitat, e.g. the Amazon parrots of the Caribbean.

This article's perspective, inspired by the co-evolutionary view of biology, challenges the absolute position of animal rights-ists. Rather than an exploiter of nature, man — in the practice of

aviculture, agriculture and other forms of animal husbandry — is a product of nature. The animals that have come under the care of man are following out their co-evolutionary destiny — and flourishing as a consequence. If co-evolutionists are correct, some remarkable and beautiful forces of nature have been at work in producing the interdependence of man and animal, an interdependence that has eliminated much of the suffering and brutality of the wild, an interdependence to be encouraged and cherished.

### References

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## Affiliated Club Profile: The Cockatoo Society

*submitted by The Cockatoo Society*

The Cockatoo Society is a small group of people who feel that they must do something to prevent the extinction of the cockatoos of the world. Our motto is "knowledge breeds success." Through the exchange of newsletters, contacting fieldworkers, and various other ways, we attempt to learn about our birds and publish the information in our newsletter.

We feel that the passing of information about cockatoos is very important to ensure that each cockatoo goes into a home which will keep it safe and healthy. The passing of information is the major reason for the existence of the Cockatoo Society.

I believe the best way to preserve the species of cockatoo is the formation of large parks where habitat disturbance is at an absolute minimum. In the absence of undisturbed habitat, normal, sustained-yield collection of cockatoos should be allowed to continue. The key is sustained yield, where breeding populations are stable and only surplus population is removed. It is very unfortunate that only a few places fit the description of an undisturbed habitat. I believe a couple of parks exist in Australia but, over most of the cockatoo range in Australia, the cockatoo is considered a pest to be shot on sight. If they are not shot, they are poisoned, both white and black. Live capture and export is considered too cruel and poisoning is more humane. Is Papua New Guinea any better? The cockatoo is protected, as is all bird life. The forest where they live is not and is rapidly being converted to wood pulp and other products. Results of a two year moratorium on cutting is no slow down of deforestation.

Indonesia should protect the Black Palm and Moluccan Cockatoos and convert the forest to farms. In the Philippines, the Red-vent is going quickly; the major forest park has lost about 90 percent of the trees in it. At present, I am still trying to get information on the Solomon Islands.

The second method of preserving a species is to captive breed a sufficient number so the species will remain strong and healthy until it can be returned in redeveloped habitat. In the future, I believe the forest will be regrown. Yes, it is said that this never can be done. But I give you the example of Pennsylvania. A hundred years ago, the newspapers declared the state was now settled and there were no wild places left. They named deer, beaver, and turkeys as animals that no longer existed in the state of Pennsylvania. Deer and turkeys are part of a multi-million dollar business today. The forests were regrown and deer, beaver and turkeys were re-established and are now part of the hunting industry.