

# AFA in action...

# NEWS and VIEWS

DECEMBER 1989

## Mariana Crow Subcommittee

by Gary A. Michael, Curator of Birds/Small Animal Area  
Louisville Zoological Garden

I traveled to the islands of Guam and Rota, Mariana Islands, Micronesia, during the period of April 12 through 22, 1989, to conduct field investigations of the endangered Mariana Crow (*Corvus kubaryi*). The primary goal of my field trip was to develop a live-trap method for the crow. Coordinator for the project, I function in association with the Houston Zoological Garden, the United States Fish and Wildlife Service (USFWS), the Guam Department of Aquatic and Wildlife Resources (GDAWR), and the Commonwealth of the Northern Mariana Islands (CNMI) in a joint effort to one day develop a captive maintenance and propagation protocol for this bird. Major funding for this project has been provided by the AFA with additional monies provided by the Louisville Zoo. An American Association of Zoological Parks and Aquariums (AAZPA) project initiated by Dr. Robert Beck, GDAWR wildlife biologist, and Mr. Larry Shelton, former Curator of Birds at the Philadelphia Zoo, to save Guam's endangered forest avifauna from extinction by captive culture, led to my 1985 field study of the crow on Guam and my subsequent reinitiation in 1986 of a 1984 plan to captive culture the crow.

Of the forty species of so-called true crows in the family - *Corvidae*, the Mariana or Guam crow is one of the least studied and only the Hawaiian Crow (*Corvus hawaiiensis*) is rarer. It is endemic to Guam and Rota and the only corvid in Micronesia. It is similar in appearance to but smaller than the American crow (*Corvus brachyrhynchos*). In 1984, it was added to the U.S. Endangered Species List. The population of the crow on Guam was then estimated to be 50 to 100 birds. Today, the number is estimated to be 25 to 50 (R.E. Beck, personal communication). Since 1984, five endemic species and subspecies of birds have virtually become extinct in the wild on this western Pacific U.S. Territory. The birds have been extirpated from the tropical island by the brown tree snake (*Boiga irregularis*). The snake was introduced either deliberately or accidentally in the 1940s by the U.S. military. A predator of birds and eggs, its impact as an introduced predator on a fragile island ecosystem is not atypical. The ecological catastrophe on Guam has been described as the worst avian disaster in this half-century (Engbring and Pratt, 1985).

The species has fared far better on Rota than Guam. The small population on Guam is having no reproductive success. GDAWR staff has developed a successful modification of a method to snake-proof trees first used in 1985, but a fledgling has yet to survive more than several days after leaving the security of the protected tree. As a breeding population, the crows may be below a number necessary to withstand predation by natural predators such as the monitor lizard (*Varanus indicus*) or death as a result of other natural agents. On Rota, the population is estimated at 1300 (Engbring, 1987). This number may be high. The population appears to be reproductively viable. I saw two family groups

during my field trip and fledglings have been seen regularly in the recent past (R.E. Beck, personal communication). While the crow population on Rota may appear to be stable at present, habitat alteration or destruction as the result of human population expansion and rumored commercial development within the next five years in forested areas, the potential introduction of the presently uncontrollable brown tree snake from its neighbor Guam which lies approximately 80 kilometers to the south, and the likely extinction of the species on Guam makes for a more negative perspective for the future status of the species. Coupling this perspective with the reputation corvids have amongst aviculturists as generally difficult to propagate, I reinitiated the effort to develop a protocol for the captive management of the crow in 1986.

In 1987, I was granted an Endangered Species Permit by the USFWS and a Scientific Research Permit by the CNMI to capture flighted crows and retain them for a short period in order to measure and band birds. The Bird Banding Laboratory, USFWS, has granted us permission to use standard Service leg bands but



Gary Michael hand feeding Mariana Crow.

Photo courtesy of GDAWR (R.E. Beck)



the species will not likely be added to the North American bird banding system. (Prior to my request, no Mariana Crows had been banded.)

The time available to conduct the field work was, unfortunately, limited. To make best use of the field time, Dr. Robert Beck traveled to Rota prior to my arrival with the goals of locating crows and recording crow vocalizations. Soon after his project was completed, I arrived on Rota where we were joined by Mr. Derek Stinson, wildlife biologist, CNMI.

Our strategy to capture crows was to find crow territories and then use playback of tape recordings of their vocalizations and crow decoys to lure birds into mist nets. With this strategy, our first task was to determine whether adult pairs and family groups of crows on Rota maintain territories. Without a way to predict where crows would be located, it would be unlikely that we could use our capture method with any degree of success. After the third day of investigation, we made the preliminary conclusion that Rota crows do maintain territories. This was an important finding because it meant that on day four we could proceed to attempt to capture less wary fledglings in mist nets and begin looking for nest sites. We wanted to locate nests so that we could include nestling crows in the sample of birds from which we would collect specimens for our future captive study. Our dilemma was that according to the literature and my interviews of Rota citizens only two crow nests have been found on Rota. We did not locate a nest, nor did we attempt to capture crows because on the evening of the third day we learned that an injured adult crow had been found on the forest floor of Guam and because Typhoon Andy was heading straight toward the Mariana Island! The latter precluded further field activity and the former necessitated our return to Guam to initiate a rehabilitation effort.

Upon our return to Guam, we immediately traveled to GDAWR headquarters and examined the bird. The crow was blind in the right eye and had suffered a paralysis of the right side of the body. It weighed less than 200 g and was noticeably thin. GDAWR staff delegated the care of the bird to me. On the morning of the fourth day, April 19, I continued a program of force-feeding the bird initiated by GDAWR staff on April 18. The food items I offered the bird included insects, lizards, pinky mice and an electrolyte solution. By mid-morning, April 20, the bird was accepting food from my hand. Also, the bird was displaying a gradual rehabilitation; the crow was displaying a better attitude, increasing the use of the right side of its body and gaining weight. In approximately 100 km per hour winds and rain falling "horizontally," GDAWR staff and I constructed a cage approximately 2 m long by 1 m wide by 1 m high to house the specimen. The cage features a chicken coop-like ladder for a bird to climb to the elevated roosting site and food station. As the bird recovered from the paralysis, GDAWR staff began to parallel the recovery of injured birds brought by the citizenry to the wildlife headquarters with that of the crow. One hypothesis is that the crow was bitten by a brown tree snake and, not consumed, suffered only a temporary paralysis. As the bird generally continued to recover, it was clear that the right eye was permanently injured. I was granted my request from the USFWS and GDAWR to retain the specimen in captivity. The bird is now capable of flight and weighs approximately 240 g. The daily diet offered to the bird consists of the following items: soaked dog food, frozen or fresh mixed vegetables, soaked raisins, papaya fruit, mealworms, lizards, mice, nectar mix, "omnivore" mix (e.g. egg, wheat germ, ground cat food).

The crow will be deposited at the Houston Zoo in 1989. The bird will be managed in a maintenance program by Mr. Larry Shelton, Curator of Birds, and Bird Department staff.

It is our goal to contribute to the conservation of this endangered species by providing the USFWS with a protocol to propa-

gate the bird in captivity. It is our hope that captive propagation will never be needed in a management program for the species and that, instead, the crow will be successfully managed in the wild.

#### Acknowledgements

I wish to thank the following individuals for their association, cooperation and participation in this project: Mr. Robert Anderson, GDAWR; Dr. Robert Beck, Jr., GDAWR; Mr. Jack Clinton-Eitniear, AFA; Dr. D. Michael Fry, University of California at Davis; Dr. Douglas Keran, Brainerd Technical Institute, Brainerd, Minnesota; Dr. Alan Marmelstein, USFWS; Mr. Arnold Palacios, CNMI; Dr. Andrew Robinson, Jr., USFWS; and Mr. Larry Shelton, Houston Zoo.

#### References

- Engbring, J., 1987. Status of the forest birds of Rota. U.S. Fish and Wildlife Service Report, Honolulu, Hawaii.
- Engbring, J. and Pratt, H.D., 1985. Endangered birds in Micronesia: their status and future prospects. *Bird Conservation* 2:71-105.

## There Will Be Singing in Springtime

by Val Clear, Ph.D.  
Anderson, Indiana

When Rachel Carson published *The Silent Spring* in 1962, she raised a horrible vision that has grown increasingly real. To those who are sensitive to the destruction of our world environment by aerosol sprays, gasoline engines, plastic containers and land developers, the day when no bird's sweet song greets the rising sun is alarmingly close. Not much time remains to rescue the planet from man-made pollution.

One group of concerned persons has taken the threat seriously and works hard at preserving endangered and threatened species of birds. They are committed aviculturists who work quietly and devotedly to protect the species of birds about to become extinct. It takes enthusiasm for the task, long hours of hard work, much study, creative imagination and sometimes a lot of money to accomplish this purpose.

An example of this is Jerry Jennings who lives in California. He has spent most of his life working with birds and has received five U.S. first breeding awards for being the first person to breed five avian species. Jennings specializes in Ramphastids (toucans, aracarís, etc.), and has worked with over 23 species of toucans. As a result of his pioneering work in toucans, more is known about their breeding practices now than ever before. He is currently working with the Guyana Toucanet (*Selenidera culik*), a species relatively new to aviculture.

Another innovative aviculturist is Ramon Noegel of Florida. He has specialized in Amazons and has received numerous awards for first breedings of several difficult species. The "Noegel cage" has come to mean a special approach to parrot breeding. It consists of a heavy wire rectangular cage suspended amid tropical trees and bushes in such a way as to reconstruct the natural setting. Under Noegel's expertise, extremely rare parrots, such as the Cuban (*Amazona leucocephala*) and the Hispaniolan (*A. ventralis*), Amazons are now breeding freely and their stock is now multiplying.

Pioneering work was done 12 years ago by Ralph V. Smith of California, with the Grass Parakeets (*Neophemas*). He wrote a small book describing his methods that spread his approach world-wide. Under U.S. laws a permit is needed to ship en-

dangered species out of California to other states, and, thanks to Ralph, there are many in California.

Worldwide, birds of all kinds are in trouble, but psittacine species especially suffer from the threat of habitat destruction. Most of them are cavity nesters, using holes in the trees of the forest. When the trees are cut down, the nesting sites are gone and reproduction many times ends.

Tom Ireland of Florida took this threat seriously and devoted years to finding ways to breed conures. He has a very successful collection producing hundreds of babies each year and has pairs reproducing to many generations. In addition, Tom is breeding a wide range of psittacine species from Amazons to Hyacinthine Macaws.

An example of the determination of aviculturists to reverse the trend toward extinction is the Siskin Consortium. This is a group of committed individuals who raise the Red Siskin (*Carduelis cucullata*) which is now virtually extinct in its native Venezuela. There are now thousands of these birds bred to the 30th generation — many more than exist in the wild — and the Consortium is planning a program to re-establish them in their native habitat with the cooperation of North American aviculturists and Venezuelan environmentalists and government officials.

"Finchsave" is a program of the U.S. National Finch Society that aims at helping people raise rare birds. Members select a rare species, get up to five pairs, if possible, and try to raise up to 25 babies a year. Since these are rare varieties (commonly raised species are not accepted in Finchsave), any number raised is a victory. It is a new program, but one that is expected to save several species in future years.

The list of persons who have bred endangered and threatened species in captivity would be too long to enumerate. Many

persons have joined with other individuals and zoos to exchange information and breeding stock. These societies in North America specialize in macaws, toucans, lorries, Amazons, Pionus species, softbills, and finches. The American Federation of Aviculture is the umbrella organization that includes all persons and organizations dedicated to producing birds of rare species. Jerry Jennings and Tom Ireland, already mentioned, are past presidents of the AFA.

There is an aggressive conservation committee of the AFA that works on all fronts to strengthen endangered and threatened species. In 1989, the committee is giving money to scientists in the field studying the Yellow-shouldered Amazon (*A. barbadensis*) in Venezuela; to the creation of a Spanish-language educational film on Andean wildlife; to a scientific study of what Hurricane Gilbert did to the psittacine species of Yucatan; to a study of the reproductive characteristics of the Green-cheeked Amazon or Mexican Red-head (*A. viridigenalis*) and others.

Dallas Johnson has provided money for the government biologists of Peru to do a field census of the Yellow-faced Parrotlet in the Marañon Valley, and Gary Michael is consulting with the government of the Mariana Islands to develop a policy for protecting and restoring the Guam Crow.

The AFA monitors breeding successes of members. In 1988 there were 306 Green-cheeked Amazons (*A. viridigenalis*) raised, which gives assurance that this threatened species will never disappear, and if it is completely lost in the wild, there will be domestically bred stock to replace it.

Rachel Carson foresaw a spring when no bird would be left to sing. The American Federation of Aviculture is committed to preventing that dreadful day.

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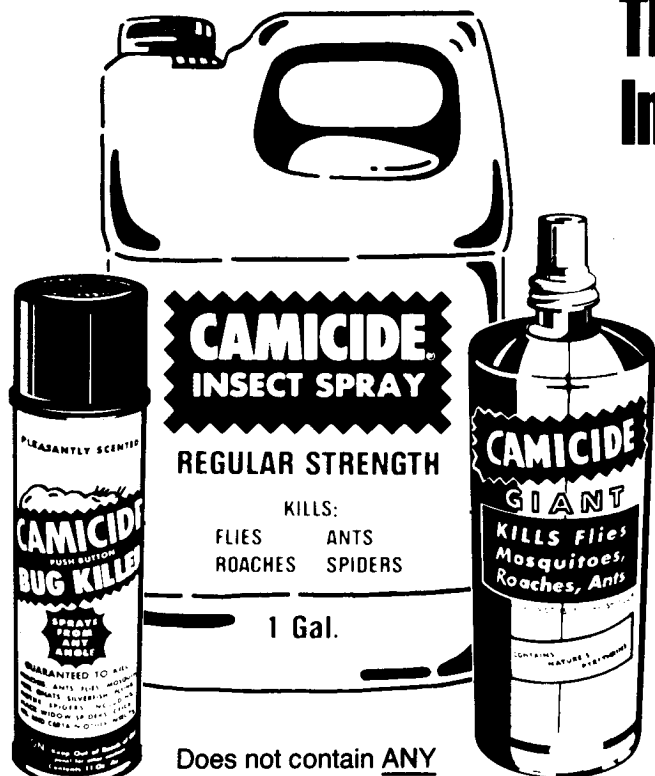
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See feature article in "Bird Talk," June 1989



## The Amazona Society

by Jack Clinton-Eitniear  
San Antonio, Texas

The Amazona Society was formed in 1984 by a group of aviculturists with an interest in parrots of the genus *Amazona*. The society was created and dedicated to the following goals:

1. To the building of self-sustaining captive bred populations of all the *Amazona* species possible.

2. To disseminate avicultural and scientific information on the genus *Amazona* to all the members, and other interested parties through the newsletter.

3. To take an annual census of the captive population of the genus *Amazona*.

4. To the re-introduction of those threatened *Amazona* species when there is a self-sustaining captive population, and when protected reserves in their native habitats have been secured.

5. To assist, where possible, the preservation of the genus *Amazona* in the wild.

Dues are \$12 per year and payable to James Murphy, treasurer (P.O. Box 73547, Puyallup, WA 98373-4016). The society holds its annual meeting in conjunction with the AFA convention. In addition to the census and meeting, the society produces a quarterly newsletter.

Recently the Amazona Society joined with AFA in determining the captive status of the Green-cheeked Amazon. The cooperative effort, still underway, has documented over 2,000 birds of which 300 are reproducing pairs. The Amazona Society is an affiliated member of the American Federation of Aviculture.

### Commercial Bird Shows Schedule

February 25, 1990

Costa Mesa, California

Bird Expo 7, Orange County's largest indoor bird gathering at the Orange County Fairgrounds, Costa Mesa, CA, 9 a.m. to 3 p.m. Information on becoming a dealer: Bird Expo, P.O. Box 7477, Laguna Niguel, CA 92677. For further information call (714) 831-1918 or (714) 495-2242.

March 18, 1990

Pomona, California

Bird Mart, the original, number one bird mart, will again be filling one of the largest buildings on the Los Angeles County Fairgrounds, Pomona, California. For information if interested in displaying your product, contact: James Williams Financial Services, Inc., P.O. Box 1112, La Canada, CA 91011. Call (818) 790-7876.

March 24, 25, 1990

Pomona, California

America's Family Pet Show, huge 2-day pet show occupying six of the largest buildings on the Los Angeles County Fairgrounds, Pomona, California. A building each for: manufacturers and allied groups, dogs, cats, birds, fish & reptiles, small animals. Show theme: Promoting Responsible Pet Ownership. For display information contact: American Pet Society, Inc., P.O. Box 1337, South Pasadena, CA 91031-1337. Call (818) 799-7220 or 799-7182.

April 21-22, 1990

Richmond, Virginia

Bird Clubs of Virginia announces its 6th Annual Convention & Bird Mart at the Holiday Inn Koger Center, Richmond, Virginia. For information contact Steve Baker (804) 744-5147 or Dick Ivy (804) 898-5090. P.O. Box 2005, Yorktown, VA 23692.

April 29, 1990

San Francisco, California

Bird Expo, San Francisco's largest indoor bird gathering at the world famous Cow Palace, San Francisco, California, 9 a.m. to 3 p.m. Information on becoming a dealer: Bird Expo, P.O. Box 7477, Laguna Niguel, CA 92677. For further information call (714) 831-1918 or (714) 495-2242.

## Birds Stolen From Florida Breeder

I am writing to ask the help of your members to try and recover the loss of a pair of Blue and Gold Macaws. They were stolen the weekend of September 16-17, 1989. They were taken in an Erect Easy Wire cage about six feet long/tall with a cage door almost as long as the cage. There might also be a large, red plastic barrel-type nestbox in the cage. They were taken at night from a backyard in Dover, Florida. The birds were in excellent health and feather. A reward for their recovery is offered. Please, if anyone has any information concerning these birds, contact Gail Shoyren at (813) 986-6194. I am residing in West Germany for two more years and Gail Shoyren was keeping these birds for me until my return. My phone number from the States is 011-48-6242-4459. Carol Travis, 5th Signal Command, Box 1019, APO NY, 09056.

Thank you for any help you can give me.

## Call for Papers, 1990 Avian Conference CITES

The Association of Avian Veterinarians (AAV) announced its Call for Papers for the 11th Annual Conference to be held in Phoenix, Arizona, USA, September 10-15, 1990. Proposals will be accepted for clinically oriented case reports, research projects, conservation programs, comprehensive reviews, or practical labs on avian medical or surgical topics. Material must be original and previously unpublished.

Conference plans are well underway for the 1990 Annual Conference which will include three and one-half days of scientific papers, a Basic Avian Medicine Symposium, an Animal Health Technicians' Program and Practical Labs for veterinarians and technicians. Vice President Dr. Robert A. Irmiger, Boulder, Colorado, USA is Conference Chairman and Dr. Ray Marsh of Phoenix is Local Arrangements Chairman. "Members will receive several mailings regarding the 1990 Annual Conference," said Sylvia J. Kornelsen, Manager of Conferences. "We invite and encourage prospective members to contact our office for information."

Request Call for Papers "Proposal Application" and general information from the AAV Conference Office, 1625 So. Birch St., Suite 106, Denver, Colorado, USA 80222, phone (303) 756-8380, FAX (303) 759-8861. Deadline for paper applications is February 15, 1990.

## Notice to All PIDA Members

Recently, someone identifying himself as "Jack Ford" called at least one PIDA (Pet Industry Distributors Association) member manufacturer requesting proprietary information on product sales. The caller alleged that he was working for PIDA on a PIDA sponsored survey.

All members should be aware that PIDA is *not* currently sponsoring any member surveys. Any legitimate request for proprietary information from PIDA would be in writing and would guarantee the confidentiality of the information requested.

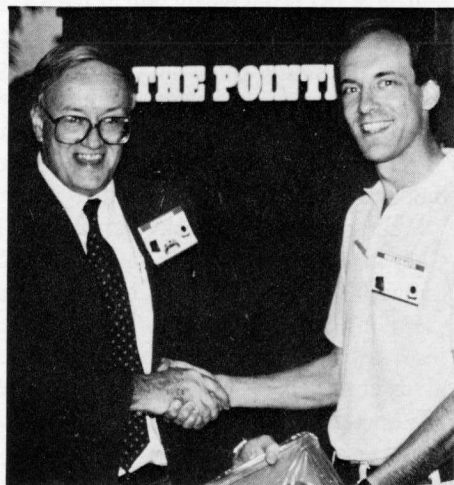
Anyone fraudulently representing himself as a PIDA employee or requesting proprietary information over the telephone should be reported immediately to PIDA headquarters.

## Highlights from the AFA Phoenix Convention August 9-13, 1989

AFA past president Tom Marshall (R) presented a bronze award to Gary Clifton (L) for his work on the monthly club newsletter "AFA in Brief."



These five veterinarians did a fine job of putting on the Sunday, August 13, '89 Vet's Seminar at the AFA Phoenix convention. L to R: D.V.M.s Joel Murphy, Keven Flammer, Susan Clubb, Robert Clipsham, Scott McDonald.



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# Murphy's Law

by Ed Lawrence

Life is sometimes so hopelessly bizarre that we need to laugh at it in order to get through it. Like the other day when I went in to give my blood donation to the Red Cross, something that I have been doing for decades now. I must have given enough blood by now to recolor the Red Sea for a Ted Turner revision of a C.B. DeMille classic.

Well, since the AIDS epidemic got under way some years ago, they have been screening donors even more thoroughly than they used to, which is obviously a good thing, but it does get to be a bit much at times, I'm here to tell you.

The interviewer I had last time looked as though she had been trained at the racial purity unit of the SS. She probed with cynical skepticism in the most sweeping of compound questions: "Have you ever bugged a Haitian druggie using growth hormones while you were on safari in the sub-Sahara?"

I've never even been to Africa so I got out of that one.

"Have you ever matriculated, dated a thespian, or thought bad thoughts?" she swiftly countered, trying to trap me.

Well I can thank my lucky stars that the brunette in the Drama Club turned me down for a date back in '54 or they would have thrown me out into the street, I have no doubt about it.

Having narrowly passed the test, they put me on a gurney, insert a drain plug in my arm and leave me in a room looking up at travel posters on the ceiling which, ironically, are telling you all about the places that if you go to you won't be able to donate blood when you get back. Anyway, I'm trying to relax as one of my essential ingredients is being drained away, when I spy a poster that is called "Murphy's Law" and which goes on to recount in humorous detail the things in life that go wrong, and I am alternately amused and agreeing with the wisdom couched in laughter that is displayed.

After you donate your blood they give you a cookie. Some people get a nice feeling from donating; but that is something you have to give yourself, nobody else will give it to you.

In addition to the cookie and the nice feeling, I carried away from the experience the belief that all those things I saw up there on "Murphy's Law" have application to our activities with birds, and I would like to start with a few contributions of my own, in the hope that the rest of you will join in the spirit of the thing and add your own insights to this continuing saga:

In a mixed display, the bird that dies is the one that is on the endangered species list.

The buyer who says he will pay you next week, won't.

A bird in hand will defecate.

There are two kinds of birds. Dead birds, and those that haven't died yet.

The two in the bush are of the same sex, and you'll never find a mate.

The one that flies away is the one that you could have sold.

If hens are plentiful, it is the cock bird that will die. The converse is also true.

When the vet says, "Sudden death syndrome of undetermined etiology," he means "Beats me!"

If two opposing forces of unequal resistance collide, the weaker of the two will be the bird's skull.

If you advertise that you have specific species for sale, people will call about what you don't have and be miffed that you don't.

If two birds escape, it is the cheap one that will return.

A raccoon or opossum will reject the commonplace in favor of the irreplaceable.

The power will only fail during the critical phase of incubation.

Some birds will die for no reason. The others will die for reasons you can't figure out.



Photo by Jack Clinton-Eitniear

Eight early bird board members enjoyed a fine morning at the San Antonio Zoo, November 3rd. Mary Healy, far right, gives details about the occupants of a large enclosure to (L to R): Davis Koffron, Diane and Steve McNabb.

## AFA Board Meets in San Antonio, Texas

submitted by Jack Clinton-Eitniear  
San Antonio, Texas

The AFA Board of Directors conducted their fall quarterly meeting from November 3rd through 5th, 1989 at the Econo-lodge Convention Center in San Antonio, Texas. Several rather important motions were made and approved including:

- AFA will no longer use live birds as raffle items during either its regional or annual conventions.
- AFA endorses the direction of the current Cooperative Working Group on Bird Trade.
- AFA reaffirmed its policy against the hybridizing of species. It was additionally decided to strengthen this position by no longer allowing hybrid birds to be offered for sale in its official publication, the *AFA Watchbird*.
- A Captive Management Committee was created to address the need to educate the avicultural community in regards to correct record keeping and breeding practices.

As an added bonus, a number of the board members who arrived early were given a tour of the outstanding bird collection at the San Antonio Zoo by Mary Healy, the zoo's curator of birds.

# Crossword Puzzle

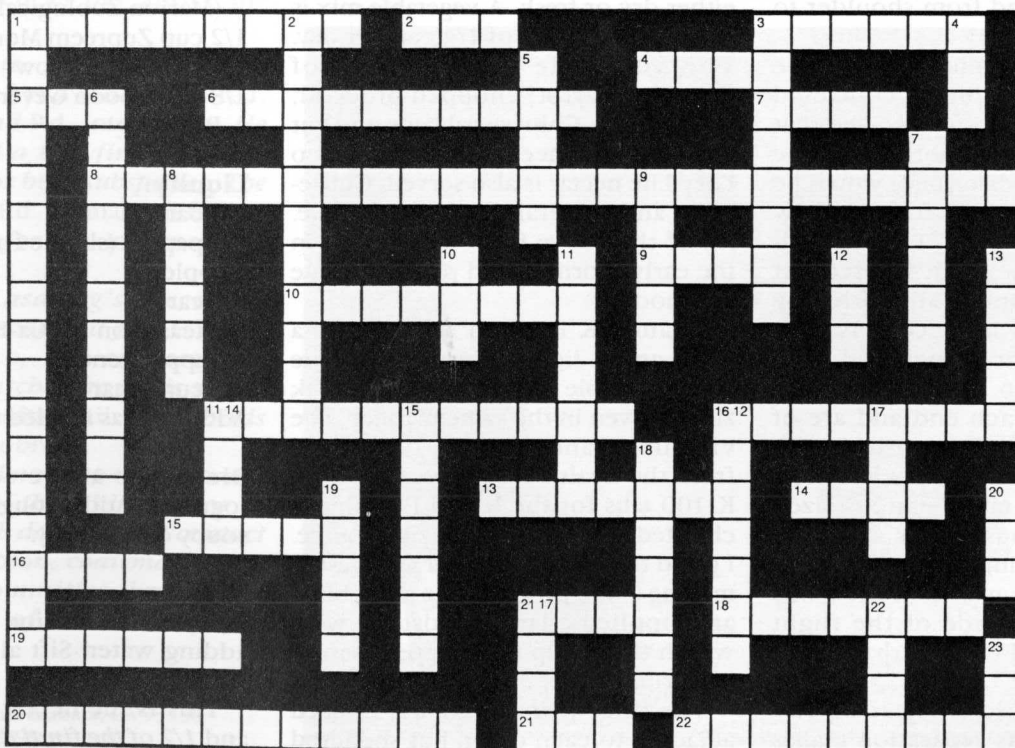
by Leon Milne  
Fontana, California

## ACROSS:

1. Striped \_\_\_\_\_, *Amblyornis subalaris*.
2. Colorful Puff \_\_\_\_\_, *Erinocnemis mirabilis*; South America.
3. Bronzy \_\_\_\_\_, *Glaucis aenea*; South America.
4. Red \_\_\_\_\_, *Miluus miluus*; Europe, Asia, Africa.
5. Spectacled \_\_\_\_\_, *Pulsatrix perspicillata*; South America.
6. White Necked Conure, *Pyrrhura* \_\_\_\_\_, South America.
7. Arctic \_\_\_\_\_, *Gavia arctica*; Antarctica.
8. Golden Shouldered Parrot, \_\_\_\_\_; Australia.
9. Albert's \_\_\_\_\_ Bird, *Menura alberti*.
10. Tucuman Amazon, *Amazona* \_\_\_\_\_; South America.
11. Spix's Macaw, \_\_\_\_\_ *spixii*; South America.
12. Musk Lorikeet, *Glossopsitta* \_\_\_\_\_; Australia.
13. Blue Bird of Paradise, *Paradisaca* \_\_\_\_\_; New Guinea.
14. \_\_\_\_\_ Toucan, *Ramphastos toco*; South America.
15. \_\_\_\_\_ Amazon, *Amazona farinosa*; South and Central America.
16. Buru Racket-tailed Parrot, *Prioniturus* \_\_\_\_\_; Indonesia.
17. Another name for a male bird. \_\_\_\_\_
18. Red Eared Firetail Finch, *Emblema* \_\_\_\_\_; Australia.
19. \_\_\_\_\_ Coquette, *Lophornis ornata*; South America.
20. King Saxony Bird of Paradise, \_\_\_\_\_ *aberti*; New Guinea.
21. Great \_\_\_\_\_, *Pinguinus impennis*; North Atlantic.
22. Carolina \_\_\_\_\_, *Parus carolinensis*; North America.

## DOWN:

1. \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_, *Phaethornis gounellei*; South America.
2. Red Spotted Lorikeet, *Charmosyna* \_\_\_\_\_; New Guinea.
3. \_\_\_\_\_ Hornbill, *Rhinoplax vigil*; Indochina Southeast Asia.
4. Azure \_\_\_\_\_, *Parus Cyanus*; North America.
5. Greater Curassow, *Crax* \_\_\_\_\_; South America.
6. \_\_\_\_\_ \_\_\_\_\_ Vulture, *Torgos tracheliotus*; East Africa.
7. \_\_\_\_\_ Falcon, *Falco longipennis*.
8. Green Hanging Parrot, *Loriculus* \_\_\_\_\_, Celebes; Indonesia.
9. Long Whiskered \_\_\_\_\_, *Xenoglaux loweryi*; Peruvian Andes, South America.
10. \_\_\_\_\_, *Dromaius novaehollandiae*; Australia.
11. \_\_\_\_\_ Finch, *Emblema picta*; Australia.
12. \_\_\_\_\_ Throated Flycatcher, *Myiarchuscin erascens*; North America.
13. St. \_\_\_\_\_ Amazon, *Amazona versicolor*; Caribbean.
14. \_\_\_\_\_ Parrot, *Poicephalus robustus*; Africa.
15. Crimson Finch, *Neochima* \_\_\_\_\_; Australia.
16. \_\_\_\_\_ Throated Barbet, *Megalaima rubicapilla*; India, Sri Lanka.
17. \_\_\_\_\_ Toucan, *Ramphastos inca*; South America.
18. Northern \_\_\_\_\_, *Colaptes auratus*; North America.
19. Red Breasted \_\_\_\_\_ Parrot, *Micropsitta bruijnii*; Bismark Archipelago and the Solomon Islands.
20. \_\_\_\_\_ Headed Tanager, *Tanagara gyrola*; South America.
21. Gray-headed Lovebird, *Agapornis* \_\_\_\_\_; African.
22. Umbrella Cockatoo, *Cacatua* \_\_\_\_\_; Indonesia.
23. Carmine \_\_\_\_\_ Eater, *Merops nubicus*.



See center insert section for answers to crossword puzzle.