

gical literature (1987). Additional information is needed to fill in the major "gaps" that exist in the literature on its life history and ecology. The current population is quite small. Due to this, consideration as a candidate in the Red Data Book (RDB) as a threatened species has been discussed. The purpose of this study is to gather additional information on the species' population, habitat preference, behavior, territoriality, feeding and nesting. Such data is necessary if a reserve is to be established effectively providing the needed resources to maintain a viable population of this species.

Cooperative breeding and habitat utilization by the Toucan Barbet, *Sennornis ramphastinus*

Principle Investigators: Carla Restrepo & Marta Lucy Mondragon

The study will concentrate upon the social organization of Toucan Barbets paying special attention to their cooperative breeding system and reproductive behavior. Specific objectives include: 1. Determining the role of helpers during the incubation, nestling, and fledgling period as well as their role in defending the nests against predators; 2. Determining the role of helpers in maintaining territories outside the reproduction period; 3. Determining territory-quality and changes in size throughout the year.

Campaign for the preservation of the Seven-colored Tanager, *Tangara fastuosa*

Principle Investigator:

Maria Tereza Jorge Padua

The species is listed in the Red Data Book as being endangered mainly due to its desirability as a cage bird. This study will investigate means of controlling the illegal trade in the species by means of an educational campaign involving posters, pamphlets and other media coverage.

Assessing the status of Madagascar's endemic land birds

Principle Investigator:

Michael S. Putnam

The objectives of this study are: 1. to measure the density of endemic forest birds in representative habitats in protected areas; 2. to begin assessing whether there are sufficiently large populations of endemic birds in protected areas to assure their long term survival; to begin characterizing the different geographic bird communities in their major habitats; 4. to provide ornithological training to a Malagasy student, and; 5. to compare different census methods in each habitat. This will facilitate follow-up monitoring by Malagasy investigators and facilitate the censusing of other protected areas.

Determination of the status of the Glaucous Macaw and Hyacinth Macaw in Argentina and Paraguay

Principle Investigator: Dr. Manuel Nores

The aim of this project is to determine the status of both species of macaws, in suitable habitat, throughout Argentina, Paraguay and along the Paraguay River of Brazil. In order to locate areas of former occurrence of the Glaucous Macaw, holes in river gullies will be searched for feathers or other items (e.g. coconut hulls) indicating that the macaws

were present. Information derived from the literature, museums, bird dealers, private zoos, and from local inhabitants will determine the specific areas targeted for the investigation. In addition, habitats in Paraguay similar to the ones where the species inhabits in neighboring areas of Brazil will be visited.

The genetics of the Puerto Rican Parrot, *Amazona vittata*

Principle Investigator: M. Kelly Brock

The primary objective of the proposed study is to evaluate whether or not there could be a genetic basis for the reproductive difficulties and the slow population recovery currently experienced by the endangered Puerto Rican Parrot. Second, a genetic management plan will be proposed to the U.S. Fish and Wildlife Service and El Departamento de Recursos Naturales de Puerto Rico to aid in the recovery of the species.

Specifically, the study will look at and compare the amount of genetic variation in three species of Amazon parrots. It is predicted that the Puerto Rican Parrots will exhibit greatly reduced genetic diversity and that there will be a high level of relatedness among individuals in the population, which could be manifested in inbreeding depression.

Support for the Centro para la Conservacion de los Psitacidos Mexicanos

Principle Investigator: John Ehrenberg, M.D. Sc. D., Merida, Mexico

Conservation of Madagascar Birds

Principle Investigator: Michael Putnam

First Workshop on the Management and Conservation of Macaws in Mesoamerica

Principle Investigator: Sherry Thorn, ICBP/Honduras ●

Nine Years of AFA-sponsored Research

Summary of Research Proposals Funded by AFA 1982 - 1990

1982 . . .

1. Estimation of the population parameters of the Green-cheeked Amazon (*Amazona viridigenalis*) in northeastern Mexico — J. Clinton-Eitniear, McAllen TX.

Results presented at 1983 AFA convention.

Clinton-Eitniear, J., Status of the Green-cheeked Amazon in northern Mexico. *Watchbird*, Dec/Jan 1986, pp. 22-24.

2. Seasonal evaluation of excretory sex steroid hormones in juvenile psittacines; non-invasive applications to a functional appraisal of sexual identity of mature birds — A. Bercovitz, San Diego Zoo, San Diego, CA.
- Bercovitz, A.B.; Frey, F. Jr.; and Bain, J.; Endocrine fecology of immature birds. *Watchbird*, Apr/May 1984, pp. 38-44.

3. Detection of Chlamydia psittaci infection in exotic birds — J. M. Gaskin, University of Florida, Gainesville, FL.

Gaskin, J., Avian Reoviruses: Are

they for real? *Watchbird*, Dec/Jan, 1988, p. 24.

4. Development and efficacy of a live budgerigar fledgling disease virus vaccine for use in breeder budgerigars (*Melopsittacus undulatus*) — P.D. Lukert and R.B. Davis, University of Georgia, Athens, GA.

Luckert, P.D., and Davis, R.B., Psittacine papovavirus, *AFA Watchbird*, Aug/Sept 1984, p. 14.

5. Solid food requirements and water tolerance of cockatiel chicks from hatching to five weeks of age. C.R. Grau and T.E. Roudybush, University of California, Davis, CA.

Results presented at 1983 AFA Convention as well as Western Poultry Disease Conference.

Roudybush, T.E., and Grau, C.R., Solid food requirements for hand-rearing cockatiels, *AFA Watchbird*, June/July 1984, pp. 40-45.

1983 . . .

1. Breeding biology of the Bahamas Parrot (*Amazona leucocephala bahamensis*). R. Gnam, City Uni-

versity of New York, New York, NY.

Gnam, R., Breeding Biology of the Bahama Parrot, *Watchbird*, Aug/Sept 1986, pp. 58-61.

2. Exogenous factors affecting the natural population of *Amazona viridigenalis* and a determination of its natural diet. J. Clinton-Eitniew, McAllen, TX.

Clinton-Eitniew, J., Greencheek Amazon Update, *Watchbird*, Aug/Sept 1988, pp. 28-29.

3. Lysine requirement of cockatiel chicks. C.R. Grau and T.E. Roudybush, University of California, Davis, CA.

Results presented at 1984 AFA veterinary seminar.

Grau, C.R. and Roudybush, T.E., Lysine requirement of cockatiel chicks, *Watchbird*, Dec/Jan 1986, pp. 12-14.

4. Follow-up study on psittacine papovavirus funded in 1982. P.D. Lukert and R.B. Davis.

Wainright, P.O.; Luckert, P.D. and Davis, R.B., Update on papovavirus infection in fledgling psittacines, *Watchbird* Feb/Mar 1987, pp. 34-37.

1984...

1. Protein and energy utilization of Amazon parrots. C.R. Grau and T.E. Roudybush, University of California, Davis, CA.
2. Breeding Biology of the Monk Parrot. Dr. Steven Emlen, Cornell University, Ithaca, NY.
3. Development and validation of egg waste estrogen analysis in rare and endangered psittacine species – applications in neonates for sex identification and non-invasive assessment. A. Bercovitz, San Diego Zoo, San Diego, CA.
4. Nutritional requirements of budgerigars through their lifecycles. D. Polin, Michigan State University, East Lansing, MI.
5. Cryogenic preservation of budgerigar semen. T. Hargrove, Florida Atlantic University, Boca Raton, FL.

Cryogenic preservation of budgerigar semen. T. Hargrove, *Watchbird*, CITES issue, 1989.

1985...

1. Vitamin A stores and onset of hypovitaminosis A in cockatiels and parrots. C.R. Grau and T.E. Roudybush, University of California, Davis, CA.

2. Artificial incubation temperature requirement of cockatiel eggs. U.R. Abbott and B.A. Cutler, University of California, Davis, CA.

3. Environmental control of reproduction in cockatiels. J.R. Millam, University of California, Davis, CA.

Results presented at Western Poultry Disease Conference.

4. Handling and disturbance stress in captive psittacines. K.T. Patton and W.C. Crawford, Raptor Rehabilitation and Propagation Project, Eureka, MO.

1986...

1. Use of doxycycline and chlorotetracycline medicated avicake diets for treating chlamydiosis (psittacosis) in Orange-winged Amazon Parrots. Dr. Keven Flammer, North Carolina State University, Raleigh, NC.

2. The influence of selected adjuvants on the humoral immune response of umbrella cockatoos (*Cacatua alba*). J.M. Gaskin, University of Florida, Gainesville, FL.

3. Incidence and host specificity of toxoplasmosis in canaries. Dr. K. Flammer, North Carolina State University, Raleigh, NC.

Published in *Watchbird*, Aug/Sept. 89.

4. Calcium requirement of egg production in cockatiels. C.R. Grau and T.E. Roudybush, University of California, Davis, CA.

5. Feeding biology of the Bahama parrot (*Amazona leucocephala bahamensis*) during the breeding season. R. Gnam, American Museum of Natural History, New York, NY.

1987...

1. Congo-red binding in *Escherichia coli* isolated from the cloaca of psittacine birds. Dr. Keven Flammer, North Carolina State University, Raleigh, NC.

2. The efficacy of various disinfect-

ants against certain psittacine viruses. J.M. Gaskin, University of Florida, Gainesville, FL.

3. Treatment of psittacosis in cockatiels with chlorotetracycline medicated seed diet. Dr. Keven Flammer, North Carolina State University, Raleigh, NC.

1988...

1. The influence of selected adjuvants on the humoral immune response of umbrella cockatoos (*Cacatua alba*). J.M. Gaskin, University of Florida, Gainesville, FL. Continuance of project funded in 1986.

2. Phase III – Psittacine Beak and Feather Disease Investigations. B.W. Ritchie, University of Georgia, Athens, GA.

1989...

1. Potential use of Enrofloxacin (Baytril) for treating psittacosis in psittacine birds. Dr. Kevin Flammer, North Carolina State University, Raleigh, NC.

2. Gonadal response to gonadotropin releasing hormone. Dr. J.J. Milam, University of California, Davis, CA.

3. Development of a nonradioactive genomic probe for diagnosis and study of psittacine beak and feather disease. Dr. Branson Ritchie, University of Georgia, Athens, GA.

4. Development of an immunoperoxidase test to diagnose psittacine beak and feather disease. Dr. Kenneth S. Latimer, University of Georgia, Athens, GA.

1990...

1. Potential use of Doxycycline-medicated corn and soy bean feed to treat Chlamydiosis in psittacine birds. Dr. Kevin Flammer, North Carolina State University.

2. Use of DNA probes for the detection of subclinical carriers of the Pbfd virus in breeding aviaries. Dr. Branson Ritchie, University of Georgia.

3. Effect of dietary iron on the accumulation of iron in the liver of European Starlings. Susan Crissey, Ph.D., Brookfield Zoo.

4. Stimulation of breeding in Orange-winged Amazons. J.R. Millam, University of California - Davis Campus. ●

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