



**Pigeons & Doves  
Conservation Assessment & Management Plan**

**CONSERVATION ASSESSMENT  
AND MANAGEMENT PLAN  
FOR PIGEONS AND DOVES**

**Report from a Workshop  
held 10-13 March 1993  
San Diego, CA**

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**Compiled by the Workshop Participants**

**A Collaborative Effort of the**

**ICBP Pigeon and Dove Specialist Group**

**IUCN/SSC Captive Breeding Specialist Group**



  
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14 September 1994



# CONSERVATION ASSESSMENT AND MANAGEMENT PLAN FOR PIGEONS AND DOVES

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**CONSERVATION ASSESSMENT AND MANAGEMENT PLAN  
FOR PIGEONS AND DOVES  
EXECUTIVE SUMMARY**

Pigeon and dove taxa were reviewed taxon-by-taxon to assign a category of threat and to recommend intensive conservation action. The recommendations contained in the Pigeon and Dove Conservation Assessment and Management Plan are based only on conservation criteria; adjustments for political and other constraints will be the responsibility of regional plans.

For this exercise, 352 distinct taxa (subspecies or species if no subspecies are contained therein) of pigeons and doves were considered. 94 of the 352 taxa (27%) were assigned to one of three categories of threat, based on the Mace-Lande criteria:

Critical	15 taxa
Endangered	28 taxa
Vulnerable	51 taxa

222 taxa were assigned to the Safe category, according to Mace-Lande criteria. An additional 30 taxa were not assigned to a category of threat because of insufficient information. An additional six taxa were listed as Extinct?

37 of the 352 taxa (10%) were recommended for Population and Habitat Viability Assessment workshops.

Research Management was recommended for 214 taxa (61%) in the following categories:

Survey	109 taxa
Monitoring	108 taxa
Life history research	16 taxa
Limiting factors research	49 taxa
Limiting factors management	34 taxa
Habitat management	53 taxa
Taxonomic research	10 taxa
Translocation	1 taxon

39 of the 352 pigeon and dove taxa (11%) were recommended for one of three time-frames for development of captive programs (based in part on Mace-Lande criteria):

Increase ongoing program	11 taxa
Initiate within 0-3 years	22 taxa
Initiate in the future (>3 years)	6 taxa

An additional 35 taxa were not currently recommended for captive programs, but may be reconsidered following a formal Population and Habitat Viability Assessment or when further data become available.



**CONSERVATION ASSESSMENT**

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**AND MANAGEMENT PLAN**

**FOR PIGEONS AND DOVES**

**Report from a Workshop  
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**SECTION 1**

**SUMMARY**



## **PIGEON AND DOVE CONSERVATION ASSESSMENT AND MANAGEMENT PLAN**

### **Introduction.**

Reduction and fragmentation of wildlife populations and habitat is occurring at a rapid and accelerating rate. For an increasing number of taxa, the results are small and isolated populations at the risk of extinction. A rapidly expanding human population, now estimated at 5.25 billion, is expected to increase to 8 billion by the year 2025. This expansion and concomitant utilization of resources has momentum that will not be quelled, and which will lead to a decreased capacity for all other species on the planet.

As wildlife populations diminish in their natural habitat, wildlife managers realize that management strategies must be adopted that will reduce the risk of extinction. These strategies will be global in nature and will include habitat preservation, intensified information gathering, and in some cases, scientifically managed captive populations that can interact genetically and demographically with wild populations.

The successful preservation of wild species and ecosystems necessitates development and implementation of active management programs by people and governments living within the range area of the species in question. The recommendations contained within this document are based on conservation need only; adjustments for political and other constraints are the responsibility of regional governmental agencies charged with the preservation of flora and fauna within their respective countries.

### **Conservation Assessment and Management Plans (CAMPs).**

Within the Species Survival Commission (SSC) of IUCN-The World Conservation Union, the primary goal of the Captive Breeding Specialist Group (CBSG) is to contribute to the development of holistic and viable conservation strategies and management action plans. Toward this goal, CBSG is collaborating with agencies and other Specialist Groups worldwide in the development of Conservation Assessment and Management Plans (CAMPs), both on a global and a regional basis, with the goal of facilitating an integrated approach to species management for conservation.

CAMPs provide strategic guidance for the application of intensive management techniques that are increasingly required for survival and recovery of threatened taxa. CAMPs are also one means of testing the applicability of the Mace-Lande criteria for threat as well as the scope of its applicability. Additionally, CAMPs are an attempt to produce ongoing summaries of current data for groups of taxa, providing a mechanism for recording and tracking of species status.

In addition to management in the natural habitat, conservation programs leading to viable populations of threatened species may sometimes need a captive component. In general, captive populations and programs can serve several roles in holistic conservation: 1) as genetic and demographic reservoirs that can be used to reinforce wild populations wither by

revitalizing populations that are languishing in natural habitats or by re-establishing by translocation populations that have become depleted or extinct; 2) by providing scientific resources for information and technology that can be used to protect and manage wild populations; and 3) as living ambassadors that can educate the public as well as generate funds for *in situ* conservation.

It is proposed that, when captive populations can assist species conservation, captive and wild populations should, and can be, intensively and interactively managed with interchanges of animals occurring as needed and as feasible. Captive populations should be a support, not a substitute for wild populations. There may be problems with interchange between captive and wild populations with regard to disease, logistics, and financial limitations. In the face of the immense extinction crisis facing many insular taxa, these issues must be addressed and resolved within the next several years.

#### **The CAMP Process.**

The CAMP process assembles expertise on wild and captive management for the taxonomic group under review in an intensive and interactive workshop format. The purpose of the Pigeon and Dove Conservation Assessment and Management Plan (CAMP) workshop was to assist in the development of a conservation strategy for Columbiformes, and to continue to test the applicability of the Mace-Lande criteria. On 10-13 March, 1993, 14 individuals met in San Diego, California to review, refine, and develop further conservation strategies for pigeons and doves. This group was self-selected from nearly 25 individuals invited to attend by the BirdLife International Pigeon and Dove Specialist Group, and represented field biologists, wildlife experts, conservation biologists, academic scientists, and captive managers. Participants and invitees are listed in Section 4, Appendix I.

Participants worked together in two small groups, divided into Old World and New World taxa, to: 1) determine best estimates of the status of all pigeons and doves; 2) assign each taxon to a Mace-Lande category of threat; and 3) identify areas of action and information needed for conservation and management purposes.

The assessments and recommendations of each of the working groups for each taxon were circulated to the entire group prior to final consensus by all participants, as represented in this document. Summary recommendations concerning research management, assignment of all taxa to threatened status, and captive breeding were supported by the workshop participants.

### **CAMP Workshop Goals.**

The goals of the Pigeon and Dove CAMP workshop were:

- 1) To review the population status and demographic trends for pigeons and doves, to test the applicability of the Mace-Lande criteria for threat, and to discuss management options for pigeon and dove taxa.
- 2) To provide recommendations for *in situ* and *ex situ* management, research and information-gathering for all pigeon and dove taxa, including: recommendations for PHVA workshops; more intensive management in the wild; taxonomic research, survey, monitoring, investigation of limiting factors, taxonomy, or other specific research.
- 3) Produce a discussion draft Conservation Assessment and Management Plan for Pigeons and Doves, presenting the recommendations from the workshop, for distribution to and review by workshop participants and all parties interested in pigeon and dove conservation.

### **Assignment to Mace-Lande Categories of Threat**

All pigeon and dove taxa were evaluated on a taxon-by-taxon basis in terms of their current and projected status in the wild to assign priorities for conservation action or information-gathering activities. The workshop participants applied the criteria proposed for the redefinition of the IUCN Red Data Categories proposed by Mace and Lande in their 1991 paper (Section 4, Appendix II). The Mace-Lande scheme assesses threat in terms of a likelihood of extinction within a specified period of time (Table 1). The system defines three categories for threatened taxa:

**Critical**      50% probability of extinction within five years or two generations, whichever is longer.

**Endangered**   20% probability of extinction within 20 years or 10 generations, whichever is longer.

**Vulnerable**    10% probability of extinction within 100 years.

Definitions of these criteria are based on population viability theory. To assist in making recommendations, participants in the workshop were encouraged to be as quantitative or numerate as possible for two reasons: 1) Conservation Assessment and Management Plans ultimately must establish numerical objectives for viable population sizes and distributions; 2) numbers provide for more objectivity, less ambiguity, more comparability, better communication, and hence cooperation. During the workshop, there were many attempts to estimate if the total population of each taxon was greater or less than the numerical thresholds for the three Mace-Lande categories of threat. In many cases, current population estimates for Columbiformes taxa were not available or were available for taxa within a limited part of their distribution. In all cases, conservative numerical estimates were used. **Where**

**population numbers are estimated, these estimates represent first-attempt, order-of-magnitude guesstimates that are hypotheses for falsification. As such, the workshop participants emphasize that these guesstimates should not be used as an authoritative estimate for any other purpose than was intended by this process.**

Table 1. MACE-LANDE CATEGORIES AND CRITERIA FOR THREAT

POPULATION TRAIT	CRITICAL	ENDANGERED	VULNERABLE
Probability of extinction	50% within 5 years or 2 generations, whichever is longer	20% within 20 years or 10 generations, whichever is longer	10% within 100 years
	<b>OR</b>	<b>OR</b>	<b>OR</b>
	Any 2 of the following criteria:	Any 2 of following criteria or any 1 CRITICAL criterion	Any 2 of following criteria or any 1 ENDANGERED criterion
Effective population $N_e$ corresponding to Total population $N$	$N_e < 50$  $N < 250$	$N_e < 500$  $N < 2,500$	$N_e < 2,000$  $N < 10,000$
Subpopulations	$\leq 2$ with $N_e > 25$ , $N > 125$ with immigration < 1/generation	$\leq 5$ with $N_e > 100$ , $N > 500$ or $\leq 2$ with $N_e > 250$ , $N > 1,250$ with immigration < 1/gen.	$\leq 5$ with $N_e > 500$ , $N > 2,500$ or $\leq 2$ with $N_e > 1,000$ , $N > 5,000$ with immigration < 1/gen.
Population Decline	> 20%/yr. for last 2 yrs. or > 50% in last generation	> 5%/yr. for last 5 years or > 10%/gen. for last 2 years	> 1%/yr. for last 10 years
Catastrophe: rate and effect	> 50% decline per 5-10 yrs. or 2-4 generations; subpops. highly correlated	> 20% decline/5-10 yrs, 2-4 gen > 50% decline/10-20 yrs, 5-10 gen with subpops. highly correlated	> 10% decline/5-10 yrs. > 20% decline/10-20 yrs. or > 50% decline/50 yrs. with subpops. correlated
<b>OR</b>			
Habitat Change	resulting in above pop. effects	resulting in above pop. effects	resulting in above pop. effects
<b>OR</b>			
Commercial exploitation or Interaction/introduced taxa	resulting in above pop. effects	resulting in above pop. effects	resulting in above pop. effects

In assessing threat according to Mace-Lande criteria, workshop participants also used information on the status and interaction of habitat and other characteristics. Information about population trends, fragmentation, range, and environmental stochasticity, real and potential, were also considered.

Numerical information alone was not sufficient for assignment to one of the Mace-Lande categories of threat. For example, based solely on numbers, a taxon might be assigned to the Vulnerable or Safe category. Knowledge of the current and predicted threats or fragmentation of remaining natural habitat, however, may lead to assignment to a higher category of threat. In several cases, there was not enough information available for assignment to one of the three categories of threat; these taxa are listed as unknown or questionable. Assignment to Mace-Lande categories of threat for the 337 taxa examined during this CAMP exercise are presented in Table 2. Specific taxa within each category are presented in Section 2.

Table 2. Threatened Pigeon and Dove Taxa - Mace-Lande Categories of Threat.

MACE-LANDE CATEGORY	NUMBER OF TAXA	PERCENT OF TOTAL
Critical	15	4
Endangered	28	8
Vulnerable	51	14
Safe	222	63
Unknown/ questionable	30	9
Extinct?	6	2
TOTAL	352	100

One of the goals of the CAMP workshop was to test the applicability of the Mace-Lande criteria for threat, which were designed in an attempt to redefine the current IUCN categories of threat. A comparison of Mace-Lande and IUCN classification results is presented in Table 3. Thirty-nine of the pigeon and dove taxa assigned to a Mace-Lande category of threat are listed as threatened under IUCN classification; 62 taxa assigned to Mace-Lande categories of threat are not listed in the *1990 IUCN Red List of Threatened Animals*.

Table 3. Threatened pigeons and doves of the world - comparison of Mace-Lande and current IUCN categories of threat.

MACE-LANDE	END	VUL	RARE	INDET	K	NOT	TOTAL
Critical	3	3	3	2	0	4	15
Endangered	2	2	6	2	2	14	28
Vulnerable	0	2	4	2	0	43	51
<b>TOTAL</b>	<b>5</b>	<b>7</b>	<b>13</b>	<b>6</b>	<b>2</b>	<b>61</b>	<b>94</b>

### Regional Distribution of Threatened Taxa.

Regional distribution of threatened taxa is presented in Table 4. As shown, 70% of threatened Columbiform taxa are found in the Australasian region. Detailed spreadsheets and individual accounts for all taxa are presented in Table 10 in Section 2.

Table 4. Regional distribution of threatened pigeon and dove taxa.

MACE-LANDE	Africa	Eurasia	C+S Amer	N.America	Australas	SE Asia	TOTAL
Critical	3	0	5	0	7	0	15
Endangered	2	1	8	0	17	0	28
Vulnerable	5	0	4	0	41	1	51
<b>TOTAL</b>	<b>10</b>	<b>1</b>	<b>17</b>	<b>0</b>	<b>65</b>	<b>1</b>	<b>94</b>

### Threats to pigeons and doves.

Workshop participants outlined the following threats for pigeons and doves:

1. **Habitat destruction** and fragmentation are probably the primary threats to most declining taxa. It should be pointed out, however, that conversion of primary to secondary habitats may be beneficial to some species such as the Mourning Dove (*Zenaida macroura*) and the Common-ground Dove (*Columbina passerina*) which invade disturbed areas.
2. **Critical habitat may sometimes be privately owned**, so that monitoring and/or protection of populations in those areas may be difficult (e.g. Puerto Rican Plain Pigeon (*Columba inornata wetmorei*) and in some cases impossible.
3. Inadvertent or advertent **introduction of predatory animals**, (e.g. rats, cats, and the brown tree snake on oceanic islands) have contributed to the decline or demise of

some species.

4. **Subsistence hunting** in some areas, notably when firearms are available to the populace.
5. **Sport hunting**, if populations are not managed, may lead to the demise of species. This may be the result, for example, of hunting during the breeding season or over-hunting (e.g. White-crowned Pigeon, *Columba leucocephala*).
6. **Pet-trade** in some regions, notably for the economically valuable species (e.g., Crown Pigeons and Pheasant Pigeons), could be a potential threat. However, responsible aviculturists may be an asset to conservation programs. For example, Socorro Island Doves would not be in existence were it not for aviculturists.
7. **Parasites** (e.g. the *Philornis* larvae in Puerto Rican Plain Pigeon squabs) and **diseases**, particularly those **transmitted by introduced species** may threaten some populations. For example, feral pigeons are often carriers of ornithosis. Island populations of Columbiformes may not be resistant to pathogenic agents carried by mainland species, as insular forms may have lost whatever immune systems they may have had as the result of a long period of isolation.
8. **Pollution**, such as pesticides in the environment, may lead to the decline of species either directly (due to poisoning) or indirectly (e.g., egg shell thinning, embryonic death, or sterility of breeders).
9. **Catastrophic events**, for example, hurricanes, tsunamis, fires, earthquakes, volcanic eruptions, flash floods, may directly or indirectly affect populations.
10. **Ecotourism** may be beneficial to species as it may encourage preservation of habitat, but if uncontrolled, may lead to the demise of species due to excessive human disturbance.
11. **Squab poaching and human harassment**. In some areas squabs are poached for human consumption or to feed hogs (e.g. White-crowned Pigeon, *Columba leucocephala*, in the Dominican Republic). The harassment caused by humans in colonial nesters such as the White-crowned Pigeons make the birds abandon the nesting areas.
12. **Competition with other natives or exotics**, particularly when habitat is limited (e.g. Puerto Rican Plain Pigeon and Red-necked Pigeon (*Columba squamosa*)).

### **Island Forms: Conservation Implications and Threats**

Much of the diversity of the Columbiformes derives from their extensive radiation on islands. Of the 337 pigeon and dove taxa, 92 are found on islands, and 60 of these are restricted to islands of 5,000 sq km or less. Some of the most diverse groups are virtually restricted to islands. For example, the genus *Ptilinopus* is comprised of 51 species; only five of these are found on continental areas (including Australia). Six *Ptilinopus* species and four additional subspecies are restricted to island areas of 100 sq km or less.

The problems faced by small island populations are well-known (C.M. King, 1984, *Immigrant Killers: Introduced Predators and the Conservation of Birds in New Zealand*. Oxford University Press, Auckland; J.P. Moors, 1985, *Conservation of Island Birds*, ICBP Techn. Publ. No. 3., ICBP, Cambridge; P.M. Vitousek, 1988, *Diversity and Biological Invasions of Oceanic Islands*. In: Wilson, E.O. and Peter, F.M., eds., *Biodiversity*. National Academy Press, Washington D.C.; Temple 1977; Soule 1986). The particular factors affecting island pigeon and doves populations include the following:

1. Introduced predators (e.g., brown tree snake on *Gallicolumba* and *Ptilinopus* species on Guam, mongooses on *Gallicolumba* species in Fiji; cats on *Zenaida graysoni* on Socorro; the swamp harrier on *Ducula aurorae* on the Society Islands; rats on *Columba mayeri*; and possibly numerous other species).
2. Habitat loss and fragmentation in small geographic areas (e.g., Grenada Dove).
3. Lack of remote areas providing refugia from over-hunting.
4. Susceptibility to natural disasters, particularly tropical storms in the Pacific and Caribbean (recent storms have adversely affected pigeon and dove populations in Samoa and Jamaica).
5. Lack of genetic diversity (a topic needing more research, altho some work has been done on *Zenaida graysoni* and *Columba inornata*).

Because island populations are typically small, they must be monitored regularly to assess their status. Island environments also impose particular problems on wildlife managers. For example, the acquisition of large wilderness areas to protect endangered island animals is usually impossible because of other pressing demands on limited land. Thus conservation programs must be designed to accommodate wildlife populations within a multiple-use landscape. Fortunately, few pigeons and doves are dependent on wilderness areas. Most species are able to maintain healthy populations in a mosaic of primary and secondary forest habitats, provided that they are afforded protection from introduced predators and over hunting.

The small size and vulnerability of many island populations mean that captive breeding programs will often be a required part of conservation programs. The program for the Pink

pigeon, *Columba mayeri*, was one of the first such programs and served as a model for other programs. Programs currently under way include work on the Plain pigeon in Puerto Rico and the Socorro dove, a species that is extinct in the wild. These issues are discussed at more length in the essay on captive breeding later in the document.

### **Recommendations for Intensive Management and Research Actions.**

For all taxa, recommendations were generated for the kinds of intensive action necessary, both in terms of management, that were felt to be necessary for conservation. These recommendations, summarized in Table 5, were: Population and Habitat Viability Assessment (PHVA) workshops; wild management and research; and captive programs. PHVA workshops provide a means of assembling available detailed biological information on the respective taxa, evaluating the threats to their habitat, development of management scenarios with immediate and 100-year time-scales, and the formulation of specific adaptive management plans with the aid of simulation models. In many cases, workshop participants determined that the current level of information for a taxa was not adequate for conduction of a PHVA; in those cases, recommendations are listed as "PHVA Pending."

Workshop participants attempted to develop an integrated approach to management and research actions needed for the conservation of pigeon and dove taxa. In all cases, an attempt was made to make management and research recommendations based on the various levels of threat impinging on the taxa. For the purposes of the CAMP process, threats were defined as "immediate or predicted events that are or may cause significant population declines."

With minimal understanding of underlying causes for decline in some taxa, it was sometimes difficult to clearly define specific management actions needed for the conservation. Therefore, "research management" must become a component of conservation and recovery activities. Research management can be defined as a management program which includes a strong feedback between management activities and an evaluation of the efficacy of the management, as well as response of the bird taxa to that activity. Seven basic categories of research management activities were identified: survey (e.g., search and find); monitoring; translocation; taxonomic research or clarification; management of limiting factors; limiting factors research; and life history research. The frequent need for survey information to evaluate population status, especially for those taxa listed as Critical, emphasizes the need to quickly implement intensive methodologies for determining the existence of at least 13 taxa. Although life history research is recommended for just 16 species, it may be needed for almost all species. It has been estimated that less than 10% of the columbids have been seriously studied. Research management recommendations are summarized in Table 5.

Table 5. Pigeon and dove research management recommendations.

MACE-LANDE	PHVA	SURVEY	MONITR	LIFE HISTORY RESRCH	LIMITING FACTORS RESRCH	LIMITING FACTORS MGMT	HABITAT MGMT	TAXON RESRCH	TRNSLOC
Critical	8	9	5	2	8	8	6	0	1
Endangered	15	12	11	6	16	13	19	3	0
Vulnerable	11	36	21	5	16	10	16	2	0
Safe	3	33	70	3	9	3	12	5	0
Unknown	0	10	1	0	0	0	0	0	0
TOTAL	37	109	108	16	49	34	53	10	1

### Captive Program Recommendations.

For a few of the Columbiformes taxa, it was determined that a captive component would be necessary to contribute to the maintenance of long-term viable populations. It is proposed that, when captive populations can assist species conservation, captive and wild populations should be intensively and interactively managed with interchanges of animals occurring as needed and as feasible. There may be problems with interchange between captive and wild populations with regard to disease, logistics, and financial limitations.

It is essential to note that the establishment of self-sustaining captive populations is not the only management option available for Columbiformes. Incorporating "captive propagation technology" or "field application of captive propagation techniques" (e.g., double-clutching, translocation, transitional aviaries, cross-fostering and supplemental feeding) and field management techniques (e.g., into long-term conservation programs) is also valuable, and for some cases, more feasible than establishing new captive programs with the more endangered species.

The pigeon was the first domesticated animal. The keeping of doves goes back thousands of years. As a result the vast majority of knowledge in the keeping and breeding of doves was developed and remains in the private sector. Today, as more and more species are threatened with population declines, cooperative recovery programs, including both zoos and the private sector, provide the only avenue for survival. This cooperation must include support for field research, habitat conservation, as well as public education.

Because of these issues the BirdLife International Columbid group would like to encourage greater cooperation between private aviculturists and zoos, and between both groups and field biologists. The perception is that there is a great deal of information sharing which is needed that will ultimately benefit the species under captive husbandry. The organizational abilities built into the zoological community in terms of record keeping, international communication and interface with the field community are assets to be shared with the avicultural community.

In turn, the long history of husbandry and breeding techniques currently residing within the private community would add greatly to the archives maintained within the zoo community. It is incumbent on both of these communities to publish techniques for the overall good of the captive populations.

In addition to sharing knowledge, BirdLife International/CBSG sees the necessity to combine breeding spaces of both the avicultural and the zoo community in order to enhance the chances of species survival and, thus, the maintenance of genetic diversity.

During the CAMP workshop, all pigeon and dove taxa were evaluated relative to their current need for captive propagation. Recommendations were based upon a number of variables, including: immediate need for conservation (population size, Mace-Lande status, population trend, type of captive propagation program), need for or suitability as a surrogate species, current captive populations, and determination of difficulty as mentioned above. Based on all of the above considerations, in addition to threats, trends, and Mace-Lande assessment, recommendations for captive programs were made. These recommendations, by category of threat, are presented in Table 6. Recommendations for levels of programs are presented in the spreadsheets in Section 2. Information concerning the current populations of Columbiformes in captivity (according to the International Species Information System) are presented in Section 3. There were several workshop participants with expertise in captive breeding of Columbiformes; these individuals were able to assess the degree of difficulty of propagation for each of the taxa considered (see Tables 7-10 in Section 2 for spreadsheets on all taxa).

Table 6. Captive program recommendations for pigeons and doves by Mace-Lande threat category.

MACE-LANDE	Increase ongoing program	Initiate immediately 0-3 yrs	Initiate future > 3 yrs	Not currently recommended pending data or PHVA	Not currently recommended
Critical	3	9	0	1	2
Endangered	3	11	3	5	6
Vulnerable	5	2	3	13	28
Safe	0	0	0	6	216
Unknown	0	0	0	9	27
TOTAL	11	22	6	34	279

**CONSERVATION ASSESSMENT**

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**AND MANAGEMENT PLAN**

**FOR PIGEONS AND DOVES**

**Report from a Workshop  
held 10-13 March 1993  
San Diego, CA**

**SECTION 2**

**SPREADSHEETS AND TAXON REPORTS**



## **CONSERVATION ASSESSMENT AND MANAGEMENT PLAN (CAMP) SPREADSHEET CATEGORIES**

The Conservation Assessment and Management Plan (CAMP) spreadsheet is a working document that provides information that can be used to assess the degree of threat and recommend conservation action.

The first part of the spreadsheet summarizes information on the status of the wild and captive populations of each taxon. It contains taxonomic, distributional, and demographic information useful in determining which taxa are under greatest threat of extinction. This information can be used to identify priorities for intensive management action for taxa.

### **TAXON**

**SCIENTIFIC NAME:** Scientific names of extant taxa: genus, species, subspecies.

### **WILD POPULATION**

**RANGE:** Geographical area where a species and its subspecies occur.

**EST #:** Estimated numbers of individuals in the wild. If specific numbers are unavailable, estimate the general range of the population size.

### **DATA QUALITY**

- 1 Recent census or population monitoring
- 2 Recent general fieldwork on the taxon
- 3 Anecdotal field information
- 4 Indirect evidence (e.g. trade volumes, habitat quality, range)
- 1/4 Indicates different data quality for different parts of range

**SUB-POP:** Number of populations within the taxonomic unit. Ideally, the number of populations is described in terms of boundary conditions as delineated by Mace-Lande and indicates the degree of fragmentation. (F = fragmented)

**TRND:** Indicates whether the natural trend of the species/subspecies/population is currently (over the past 3 generations) increasing (I), decreasing (D), or stable (S). Note that trends should NOT reflect supplementation of wild populations. A + or - may be indicated to indicate a rapid or slow rate of change, respectively.

**AREA:** A quantification of a species' geographic distribution.

- AAA: > 5,000 sq km; geographic island
- AA: < 5,000 sq km; geographic island
- AA-1: < 1,000 sq km; geographic island
- AA-2: < 100 sq km; geographic island

AA-3: < 10 sq km; geographic island  
B: 5,000 - 9,999 sq km  
C: 10,000 - 49,999 sq km  
D: 50,000 - 99,999 sq km  
E: > 100,000 sq km  
F: 500,000 - 999,999 sq km  
G: > 1,000,000 sq km

**M/L STS:** Status according to Mace/Lande criteria (see attached explanation).

C = Critical  
E = Endangered  
V = Vulnerable  
S = Safe  
U = Unknown  
EXT = Extinct

**THREATS:** Immediate or predicted events that are or may cause significant population declines.

A = Aircraft  
C = Climate changes  
D = Disease  
F = Fishing  
G = Genetic problems  
H = Hunting for food or other purposes  
Hyb = Hybridization  
I = Human interference or disturbance  
Ic = Interspecific competition  
Ice = Interspecific competition from exotics  
L = Loss of habitat  
La = Loss of habitat because of exotic animals  
Lf = Loss of habitat because of fragmentation  
Lp = Loss of habitat because of exotic plants  
M = Marine perturbations, including ENSO and other shifts  
P = Predation  
Pe = Predation by exotics  
Ps = Pesticides  
PI = Powerlines  
Po = Poisoning  
Pu = Pollution  
  
S = Catastrophic events  
f: fire  
h: hurricane  
t: tsunami

T = Trade for the life animal market

**PHVA:** Is a Population and Habitat Viability Assessment Workshop recommended? Yes or No? NOTE\*\*A detailed model of a species' biology is frequently not needed to make sound management decisions.

Yes or No/Pending: pending further data from surveys or other research

### **Research Management:**

It should be noted that there is (or should be) a clear relationship between threats and subsequent outlined research/management actions. The "Research/Management" column provides an integrated view of actions to be taken, based on the listed threats. Research management can be defined as a management program which includes a strong feedback between management activities and an evaluation of the efficacy of the management, as well as response of the bird species to that activity. The categories within the column are as follows:

T	=	Taxonomic and morphological genetic studies
Tl	=	Translocations
S	=	Survey - search and find
M	=	Monitoring - to determine population information
Hm	=	Habitat management - management actions primarily intended to protect and/or enhance the species' habitat (e.g., forest management)
Lm	=	Limiting factor management - "research management" activities on known or suspected limiting factors. Management projects have a research component that provide scientifically defensible results.
Lr	=	Limiting factor research - research projects aimed at determining limiting factors. Results from this work may provide management recommendations and future research needs
Lh	=	Life history studies

### **CAPTIVE PROGRAMS**

**REC:** Recommendation for development and time frame of captive program

<b>Oi</b>	=	Ongoing captive program should be intensified or increased
<b>I-1</b>	=	Initiate a captive program immediately, within 0-3 years
<b>I-2</b>	=	Initiate a captive program in the future, within 3 or more years
<b>N</b>	=	Not currently recommended
<b>Np</b>	=	Not currently recommended but may be reconsidered pending further data

**PROG TYPE:** Recommendation for the type of captive program defined by its genetic and demographic objectives and hence the target population required to achieve these objectives.

<b>E</b>	=	Captive population should be developed and managed that is sufficient to preserve 90% of the genetic diversity of a population for 100 years.
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Program should be developed within 3 years. This is an emergency program based on the present availability of genetically diverse founders.

**Nuc** = Captive population should be developed and managed that is a nucleus of 50-100 individuals organized with the aim to represent as much of the wild gene pool as possible. This program may require periodic importation of individuals from the wild population to maintain this high level of genetic diversity in a limited captive population. View this type of program as protection against potential extirpation of wild populations.

**S** = Captive population should be developed to be used as a surrogate for other populations that may be more rare or more difficult to maintain.

**DIFF:** This column represents the level of difficulty in maintaining the species in captive conditions.

**1** = Techniques are in place for capture, maintenance, and propagation of similar taxa in captivity, which ostensibly could be applied to the taxon. Least difficult.

**2** = Techniques are only partially in place for capture, maintenance, and propagation of similar taxa in captivity, and many captive techniques still need refinement. Moderate difficulty.

**3** = Techniques are not in place for capture, maintenance, and propagation of similar taxa in captivity, and captive techniques still need to be developed. Very difficult.

**NUM:** Number of individuals in captivity (according to ISIS and other information, when available).

Table 7. Critical pigeon and dove taxa.

TAXON		WILD POPULATION										CAPTIVE PROGRAM			
SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/WKSP	RSCH MGMT	REC	PROG TYPE	DIFF	NUM
Columba	palumbis madarensis	Madeira	0-200	3		S/D	AA-2	C	H	N	S	N			
	palumbis azorica	Azores	>200			S/D	AA-2	C	H	N	S	N			
Columba	caribaea	Jamaica	>100	2,3	2	D+	AAA	C	H,Lf,Pu, Po,Ps	YES	S,Lr,Hm	I-1	E	2	7+?
Columba	mayeri	Mauritius	35	1	1	I	AA-3	C	P	N	Lm	Oi	E	2	160
Zenaida	graysoni	Socorro Island	0	?	0	?	AA	C	H,La	N	Hm,Lm	Oi	E	2	300
Clavis	godefrida	SE Brazil, E Paraguay	<1,000	3	>1	D+	B	C?	Lf	YES	S,Lm,Lr, Lh	I-1	E	1	>18
Leptotila	wellsi	Grenada Island	>10-75	0	1	D+	AA	C	Lf, Pe, Sh	YES	M,Hm, Lr,Lh	I-1	E	1	0
Starnoenas	cynocephala	Cuba, Isla de Juventud	<500	?	1	D	AAA	C?	Lf, H	YES	S,Lh, Lr,M,Lm	I-1	E	1	0
Gallucolumba	platenae	Mindoro I	<500	?	1	D	AA-1	C	H,L	N	Lm,Lr,S	I-1	Nuc	1	0
Gallucolumba	keayi	Negros I	<500	?	1	D	AA-1	C	H,L	N	Hm,Lr,S	I-1	Nuc	1	0
Gallucolumba	rubescens	Marquesas Is	225	?	2	S?	AA-2	C	Lf,Pe, Sh	YES	S	Np	?	?	0
Ptilinopus	huttoni	Rapa I	± 250	2	1	D	AA-2	C	Lf,Sh, H?	YES	S,M,Lr, Lm	I-1	E	1	0



TAXON		WILD POPULATION										CAPTIVE PROGRAM			
SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/WKSP	RSCH MGMT	REC	PROG TYPE	DIFF	NUM
Ducula	oceanica teraokai	Chuuk I	50	2	1	D?	AA-2	C	H,Lf,Sh	YES	M,Lr,Lm	I-1	E	1	0
Ducula	galeata	Nukuhiva I	<50	3	1	D	AA-2	C	Lf,H	YES	S,M,Lm,Lr,Tl,Hm	I-1	Nuc	?	0
Hemiphaga	novaseelandiae chathamensis	Chatham I	50	3	1	S?	AA-2	C	?	N	Hm,M	I-1	E	2	0

## TAXON REPORTS FOR CRITICAL TAXA.

**SPECIES:** *Columba palumbus madarensis / azorica* Wood pigeon

**STATUS:**

Mace-Lande: Critical (both)

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Madiera (*madarensis*); Azores (*azorica*)

**Wild population:** *madarensis* (0 - 200); *azorica* < 200

**Field studies:** Unaware of specific recent efforts

**Threats:** Hunting

**Recommendations:** Research management: Surveys

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Columba caribaea* Ring-tailed pigeon

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Vulnerable

**Taxonomic status:** Species

**Distribution:** Jamaica. Probably two subpopulations moving about the range. Area AAA.

**Wild population:** > 100

**Field studies:** 1989 study by Varty (1991) recorded a total of 147 birds in three different locations in the Blue mountains, John Crow Mountains, and Cockpit Country, although this may be a reflection of movements of birds in search of food, not an increase in numbers. The species is known to move between areas of fruiting trees. Davis et al. (1985) studied diet.

**Threats:** Hunting, habitat fragmentation, pollution (poisoning and pesticides from coffee plantations).

**Comments:** Declining rapidly. Contact Gosse Bird club in Jamaica for further details.

Aviaries have been built at the Kingston Zoo for a propagation program.

**Recommendations:** Research management: Survey, limiting factors research, limiting management, habitat management.

PHVA: Yes

**Captive population:** 3 (not breeding) at Hope Zoo in Kingston, Jamaica, 4 in a private collection, others probably in private collections. One individual (?) is said to have reported success in captive breeding. No attempt has been made to institute a propagation program (Catherine Levy, Jamaica).

**Captive program:** Develop program within next 3 years, at the 90/100 level of management.

**SPECIES:** *Columba mayeri* Pink pigeon

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Endangered

**Taxonomic status:** Species

**Distribution:** Mauritius

**Wild population:** 35

**Field studies:** ongoing (Jersey Wildlife Preservation Trust funded)

**Threats:** Predation by introduced rats seems to be a major limiting factor

**Comments:** The reproduction rate of the wild population increased greatly from an average of one to two chicks produced per year to 15 in 1992 after the introduction of a rat trapping program in the nesting area of the birds. A restocking program has been developed for this species.

**Recommendations:**

Research management: Limiting factors management

PHVA: No

**Captive population:** 160

**Captive Program:** Ongoing program should be increased. Not breeding well at most institutions; species needs more attention.

**SPECIES:** *Zenaida graysoni* Socorro dove

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Endangered

**Taxonomic status:** Species

**Distribution:** Socorro Island

**Wild population:** Extinct in wild

**Field studies:** At least 14 surveys of the island have been conducted. Some electrophoretic work has been done (Baptista).

**Threats:** Hunting, habitat loss due to introduced exotics.

**Comments:** Extinct in the wild. Cologne Zoo has active breeding program, as does the University of Bielefeld. Island Endemics Foundation is about to begin a breeding program. Scattered in private sector. Mexican Wildlife Service about to begin a cat and sheep eradication program on the island.

**Recommendations:**

Research management: Habitat management, Limiting factor management

PHVA: No

Other: Removal of sheep and cats.

**Captive population:** 300

**Captive program recommendation:** Ongoing captive program should be intensified and managed at the 90/100 level.

**SPECIES:** *Claravis godefrida* Purple-winged ground dove

**STATUS:**

Mace-Lande: Critical ?

CITES: Not listed

IUCN: Vulnerable

**Taxonomic status:** Species

**Distribution:** Southeastern Brazil and Eastern Paraguay

**Wild population:** < 1,000

**Field studies:** Ted Parker is conducting opportunistic observations.

**Threats:** Habitat loss because of fragmentation.

**Comments:** Species is thought to be rapidly declining. Reported to be highly mobile around bamboo. Species is a bamboo specialist. Only recent records in Sao Paulo province are a pair sighted in 1987 and a single bird sighted in Ubatuba in 1991. Recent records from Iguasu Falls in Argentina (1977). Some records in Rio de Janeiro province in late 1980's.

**Recommendations:**

Research management: Survey, life history studies, limiting factors research, limiting factors management.

PHVA: Yes

**Captive population:** At least nine pairs at Criadouro Tropicus in Pirassununga, Brazil. Contact person: Victor Fasano, Al. Guilhelm 454/801 Blsco II, Leblon 22440, Rio de Janeiro - RJ, Brazil. Fax/phone 021 - 2746590.

**Captive program recommendation:** Should be established within the next 3 years at the 90/100 level

**SPECIES:** *Leptoptila wellsi* Grenada dove

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Endangered

Other: U.S. endangered species list (charter member)

**Taxonomic status:** Species

**Distribution:** Grenada Island (S.W. peninsula with 80% in Mt. Hartman area)

**Wild population:** ( $\leq 75$ ) Census (1992)

**Field studies:** David Blockstein has studied life history and conservation [D.E. Blockstein and J.W. Hardy (1989) The Grenada Dove (*Leptotila wellsi*) is a distinct species. Auk 106 (2):339-340; D.E. Blockstein (1991) Population declines of the endangered endemic birds on Grenada, West Indies. Bird Conservation International 1:83-91; D.E. Blockstein (1988) Two endangered birds of Grenada, West Indies: Grenada Dove and Grenada Hook-billed Kite. Caribbean Journal of Science 24:127-136]. Bonnie Rusk performed censuses in 1991 and 1992.

**Threats:** Habitat destruction and fragmentation, predation by introduced mongooses, hurricanes. [Canadian government was going to purchase land to build a resort including some reserve area, has at least temporarily turned down plan.] Legally protected from hunting. Educational campaign begun in 1991. Blockstein suggests birds rarity is due to specialized habitat requirements and clearing the lowland woods for agriculture, charcoal, and development.

**Comments:** Population is declining rapidly.

**Recommendations:**

Research management: Monitoring, habitat management, limiting factor research, life history research.

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Should be developed within three years at the 90/100 level. David Blockstein recommends that, preferably, a major effort be undertaken to save the Grenada Dove in an integrated conservation plan. Could possibly be set up by Rare Animal Relief Effort (RARE Center for Tropical Conservation) if still involved in Grenada. Captive breeding could be a component to provide a safety net and source of birds that could be continually shuttled back and forth with a wild population.

**SPECIES:** *Starnoenas cyanocephala* Blue-headed quail-dove

**STATUS:**

Mace-Lande: Critical?

CITES: Not listed

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** Cuba, Isla de Juventud (formerly called Isle of Pines)

**Wild population:** < 500

**Field studies:** From 1968 to 1993, the Blue-headed quail-dove has been reported in 9 localities of Cuba (Rodriguez and Sanchez, 1993), but apparently in low numbers. At 3 localities of Cienaga de Zapata, the Blue-headed was absent in one of these (Soplillar), in very low numbers in another (0.05 ind./ha in Molina) and uncommon in the third (0.40 ind./ha in Los Sabalos); the rate of capture of the species was 0.30 ind./100 hrs. of mist netting activities, and only one nest of the species was found (Rodriguez and Sanchez, op cit). According to the authors, Los Sabalos is the least altered of the three localities mentioned. Thus, although the Blue-headed could use early secondary forest, it may be a species characteristic of late stages of succession, type of forest which are scarce in Cuba. Rodriguez and Sanchez (1993) did not find the species in Isla de Juventud, thus the species apparently has been extirpated from this locality.

**Threats:** Habitat loss due to fragmentation, hunting

**Comments:** In 1987, 13 birds were banded in Sopilillar area (Rodriguez and Sanchez); 5 birds also observed by Sulley and Sulley in 1991. Reports of their extinction on Isla de Juventud may not be correct. Species not common at turn of the century; declining but not at a rapid rate. Habitat is being deforested in Cuba. Trapping is probably more of a problem than hunting with firearms; hunting is for subsistence.

**Recommendations:**

Research management: Survey, monitoring, life history studies, limiting factors research, limiting factor management.

PHVA: Yes, immediately

**Captive population:** None

**Captive program:** Program should be developed within 3 years, managed at the 90/100 level.

**SPECIES:** *Gallicolumba platenae* Mindoro Bleeding-heart pigeon

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Indeterminate

**Taxonomic status:** Species

**Distribution:** Mindoro Island (Philippines)

**Wild population:** <500; probably close to extinction.

**Field studies:** Recent field work by Cambridge University Expedition (contact: Guy Dutson). Two birds seen in 1992 (OBE Bulletin, June 1993). More field research planned by Bochum Univ. (contact: Professor E. Curio).

**Threats:** Habitat loss, hunting

**Comments:** Mindoro will apparently not be covered by the IPAS conservation program.

**Recommendations:**

Research management: Survey, limiting factors research, limiting factors management

PHVA: No

**Captive population:** 0

**Captive program recommendation:** Program should be developed within the next three years, managed at the 90/100 level.

**SPECIES:** *Gallicolumba keayi* Negros Bleeding-heart pigeon

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Indeterminate

**Taxonomic status:** Species

**Distribution:** Negros Island (Philippines)

**Wild population:** <500; close to extinction.

**Field studies:** Cambridge University Expedition (contact: Guy Dutson); research planned by Bochum University (contact: Professor E. Curio).

**Threats:** Habitat loss (less than 5 % forest cover remains on Negros), trapping

**Comments:** One bird was seen by an BirdLife International expedition in 1991. The two major forest blocks are expected to be covered by the next IPAS conservation program, but in addition to habitat protection, active conservation management may be needed to recover this species.

**Recommendations:**

Research management: Habitat management, limiting factor research, survey

PHVA: No

**Captive population:** None

**Captive program recommendation:** Program should be established within the next three years, managed at the 90/100 level.

**SPECIES:** *Gallicolumba rubescens* Marquesas ground dove

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** Marquesas Islands (Fatuhuku and Hatutu)

**Wild population:** ±225; 2 subpopulations

**Field studies:** Surveys have been conducted by Dr. Philip Bruner (Brigham Young University-Hawaii, Laie, HI 96762) in the 1980's and by Dr. R. Seitre and J. Seitre in 1989/1990 on this species and other Marquesan doves (Causes de disparition des oiseaux terrestres de Polynesie Francaise. SPREP Occasional Paper No. 8). Contact: Dr. Ronald Seitre, France; Fax: 33-47-563-636.

**Threats:** Habitat loss due to fragmentation, predation by exotics, hurricanes.

**Comments:** Population is presumed to be stable.

**Recommendations:**

Research management: Survey

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Pending PHVA.

**SPECIES:** *Ptilinopus huttoni* Rapa fruit dove

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Endangered

**Taxonomic status:** Species

**Distribution:** Rapa Island

**Wild population:** < 250

**Field studies:** Both Seitre & Seitre and Thibault have visited the island in recent years and should be contacted for further information.

**Threats:** Hurricanes, habitat fragmentation, possibly hunting.

**Comments:** In 1974, 200-300 birds were estimated by King and by Holyoak and Thibault.

**Recommendations:**

Research management: Survey, monitoring, limiting factors research, limiting factors management

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Program should be developed within the next 3 years, managed at the 90/100 level.

**SPECIES:** *Ptilinopus arcanus* Negros fruit dove

**STATUS:**

Mace-Lande: Extinct

CITES:

IUCN:

**Taxonomic status:** Species

**Distribution:** Negros Island (Philippines)

**Wild population:**

**Field studies:** Cambridge University Expedition (contact: Guy Dutson)

**Threats:** Habitat loss

**Comments:** Only known from the type specimen - a single female. Was never recorded again.

**Recommendations:**

Research management: Survey

PHVA:

**Captive population:** None

**Captive program recommendation:** To be decided if and when the survival of the species can be confirmed.

**SPECIES:** *Ducula oceanica teraokai* Micronesian Imperial pigeon

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Chuuk Island (formerly called Truk)

**Wild population:**  $\pm 50$ ; 1 subpopulation

**Field studies:** Unaware of specific recent efforts. Engbring surveyed in 1983.

**Threats:** Hunting, habitat fragmentation, hurricanes

**Comments:** Thought to be declining. According to Engbring, the population declined sharply during World War II and has not recovered; the species has always been rare.

**Recommendations:**

Research management: Monitoring, limiting factors research, limiting factors management.

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Program should be developed within the next three years, managed at the 90/100 level

**SPECIES:** *Ducula galatea* Marquesas Imperial pigeon

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Vulnerable

**Taxonomic status:** Species

**Distribution:** Nukuhiva Island

**Wild population:** <50 (Contact Cyndi Kuehler, San Diego Zoo for further information.)  
75-105 ('72); est. 200 - 400 ('75)

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat fragmentation, hunting

**Comments:** Steadman and Olson (1985) proposed that this species should be translocated to Henderson Island (Pitcairn Islands) where some archaeological evidence of its existence has been found.

**Recommendations:**

Research management: Survey, monitoring, limiting factors research, limiting factors management, habitat management, translocation

PHVA: Yes

Other: possible translocation

**Captive population:** None

**Captive program recommendation:** Program should be developed within the next three years, managed at the 90/100 level

**SPECIES:** *Hemiphaga novaseelandiae chathamensis* Chatham Island Pigeon (Parea)

**STATUS:**

Mace-Lande: Critical

CITES: Not listed

IUCN: Endangered

**Taxonomic status:** Sub-species of NZ Wood Pigeon

**Distribution:** Chatham Islands including South East Island

**Wild population:** 100-150 birds

**Field studies:** Excerpted from recovery plan: A Chatham Island bird survey which covered the whole of the main Chatham Island during the summers of 1988 and 1989 identified at least 22 parea. This survey did not include the Cascades area (landowners declined permission) reported to be the best habitat for parea and having the largest numbers. Possibly 3 parea live on Pitt Island and one on Rangatira. In total, a very optimistic estimate of the total population in 1989 was between 40 and 45 birds. In 1989 a comprehensive predator and wild animal control programme commenced in the Tuku and Awatotara river catchments. In 1990 intense monitoring and research began. As a consequence of parea movements and habitat use; successful breeding during the 1991 - 93 breeding seasons; and improved habitat as a result of the predator control programme the current population estimate is much higher. The current population is thought to be between 100 - 159 birds. The 1991 - 93 breeding seasons produced at least 40 chicks (33 have been banded - 29 from known nests and at least 7 unbanded fledged chicks).

**Threats:** Habitat destruction, predation and competition by introduced mammals (possums, cats, rats). In earlier times heavily hunted by Europeans and Maori.

**Comments:** Population now increasing - high priority conservation species Recovery Plan now in place by New Zealand Department of Conservation.

**Recommendations:** Refer to Recovery Plan.

**Captive population:** None, no current plans for captive population although work on the New Zealand Wood Pigeon is being carried out as an analogue to possible future captive populations.

**Captive program recommendation:** None

Table 8. Endangered pigeon and dove taxa.

TAXON		WILD POPULATION										CAPTIVE PROGRAM			
SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/ WKSP	RSCH MGMT	REC	PROG TYPE	DIFF	NUM
Columba	trocaz	Madeira	500-2000	2		D	AA-2	E	H	N	Lm	N			
Columba	thomensis	Sao Tome Island	<2,000	2		D	AA-1	E	H,L	N	Hm,Lm	N			
Columba	pollenii	Comoro Is	<2,000		F	D	AA	E	H,L	N	S	Np			
Columba	vitensis castaneiceps	Samoa	2,000 - 4,000		2	D+	AA	E	H,Lf,Sh	YES	S,M,Hm, Lm	N	?	?	?
Columba	fasciata monilis	N Baja California	<1,000	1	1	D+	D	E	Lf,Hs	YES	S,M	I-1	E	1	0
Columba	oenops	N Peru	<500 ?	3	1	D	A	E	Lf	YES	S,M,Lh, Lr	I-2	Nuc	?	0
Columba	inornata	Cuba, Hispaniola, Jamaica, Puerto Rico	<1,000 C <2,000 H <100 J <200 PR	1,2,3	4	D+	AAA	E(C&H) C(J&PR)	G,H,I,Lf ,Pu,Sh	YES for region	T,S,Lm, Lr,Hm, M	Oi	E	2	115
Colombina	cyanopsis	C Brazil	<1000-4,000	3	>3	D?	B?	E?	Lf	Pending	S,M	I-1	E	1	0
Leptoptila	ochraceiventris	SW Ecuador	<1,000	?	>3	D+	B	E	Lf	YES	S,Lh,Lr, Lm,Hm	I-1	E	1	0
Leptoptila	conoveri	C Colombia	<1,000	3	>3	D	B	E	Lf	YES	S,Lr, Lm,Hm	I-1	E	1	0
Geotrygon	caniceps caniceps	Cuba	>1,000	1	>5	D	AAA	E	Lf,H,I, Hf	YES	Lh,Lr, Lm,Hm, S	I-1	E	1	0
Geotrygon	caniceps leucometopius	Hispaniola	<500	1	7	D+	AAA	E	Lf,H,I, Hf	YES	Lh,Lr, Lm,Hm, S	I-1	E	1	0
Gallicolomba	menagei	Tawitawi Is	<2,000	?	?	D	AA-1	E	H,L	N	Hm,Lr,S	Np	?	?	0
Gallicolomba	erythroptera	Society, Tuamotu Is	<5,000	3	>2	D	AA-2	E	H,Lf	YES	S,M,Lm, Hm,Lr	I-2	Nuc	1	0



TAXON		WILD POPULATION										CAPTIVE PROGRAM			
SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/ WKSP	RSCH MGMT	REC	PROG TYPE	DIFF	NUM
Goura	<i>cristata cristata</i>	NW New Guinea, offshore Islands	<5,000	3	F?	D	C	E	L,H,T	YES	S,Hm	Oi	E	2	1 (217 unk subsp)
Goura	<i>victoria victoria</i>	Japen,Biak Is	<1,000	3	2	D	B	E	T,L,H	YES	S,Lh,M, T,Hm	Oi	E	2	0 (235 unk subsp)
Didunculus	<i>strigirostris</i>	Western Samoa	<2,000	3	2	D-	AA	E	Lf,H,Sh	YES	S,M,Hm Lr,Lm Lh	I-1	E	2/3	0
Phapitreron	<i>amethystina maculipectus</i>	Negros I	<2,000	?	F	D	AA	E	L,H	N	S,Hm	Np	?	?	0?
Treron	<i>australis griveaudi</i>	Moheli I (Comoro Is)	<1,000	4	?	D	AA-1	E	L,H?	N	S,Hm	Np	?	?	?
Treron	<i>pembaensis</i>	Pemba Is	<500	2	1	D	AA-2	E/C	L,H	N	Lr	I-1	Nuc	1	0
Treron	<i>sphenura oblitus</i>	Hainan I	<2,000	4	?	D	AA	E?	L,H	N	S,Hm,T	Np	?	?	?
Ptilinopus	<i>dohertyi</i>	Sumba I	<5,000	?	F	D	AAA	E	L,H	N	Hm,Lr	N	?	?	?
Ptilinopus	<i>marchei</i>	Luzon	<2,500	3	F	D	B	E	L,H,T	N	Hm,Lr	I-1	Nuc	2	<10
Ptilinopus	<i>perousii perousii</i>	Samoan Is	AS <50 WS<1,000	1	5	D-	AA	E	L,Sh	YES	M,Lr, Lm,Hm	I-1	Nuc	?	0
Ptilinopus	<i>rarotongensis rarotongensis</i>	Rarotonga I	<1,000	3	1	D?	AA-2	E	Lf,Sh,H?	YES	S,M,Lr, Lm	Np	Nuc	?	0
Ducula	<i>mindorensis</i>	Mindoro I	<2,000	?	F?	D	AAA	E	L,H	N	Lr,Hm	I-1	Nuc	2	0
Ducula	<i>carola nigrorum</i>	Negros I	<500	3	F	D	AAA	E/C	L,H	N	S,Hm	Np	?	?	0
Ducula	<i>aurorae</i>	Society Is	100-1,000	?	2	D	AA	E	H,Lf,Sh, Pe	YES	S,M,Lm, Lr	I-2	Nuc	1	0

## TAXON REPORTS FOR ENDANGERED TAXA.

**SPECIES:** *Columba trocaz* Trocaz pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Madeira

**Wild population:** 500 - 2000

**Field studies:**

**Threats:** Hunting

**Comments:** for further details see Africa Bird Red Data Book

**Recommendations:**

Research management: Limiting factors management (i.e., control hunting)

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Columba thomensis* Maroon wood pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Vulnerable

**Taxonomic status:** Species

**Distribution:** Sao Tome

**Wild population:** <2,000

**Field studies:** Several recent BirdLife International expeditions to the islands

**Threats:** Hunting, and to a lesser degree habitat loss

**Comments:** further information on the birds of Sao Tome available from various recent BirdLife International publications such as *Bird Conservation International*.

**Recommendations:**

Research management: Habitat management, limiting factors management

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Columba pollenii* Comoro olive pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Comoro Islands

**Wild population:** <2,000

**Field studies:** Several recent visits to the islands by members of the Jersey Wildlife Preservation Trust, BirdLife International and the Brussels Natural History Museum - information on this species may be available from them

**Threats:** Hunting and habitat destruction - very little forest remains on the Comoros

**Recommendations:**

Research management: Survey

PHVA: No

**Captive population:** None

**Captive program recommendation:** Pending survey

**SPECIES:** *Columba vitiensis castaneiceps* White-throated pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Samoa

**Wild population:** 2,000 - 4,000; 2 subpopulations

**Field studies:** Some survey work is ongoing by the New Zealand DOC. Documenting severe declines following hurricane in December 1991. No ecological life history studies at present.

**Threats:** Hunting?, habitat fragmentation?, hurricanes

**Comments:** Definitely uncommon in Western Samoa and possibly even less common in American Samoa.

**Recommendations:**

Research management: Survey, monitoring, habitat management, limiting factor management

PHVA: Yes

**Captive population:** unknown

**Captive program recommendation:** No

**SPECIES:** *Columba pallidiceps* Yellow-legged pigeon

**STATUS:**

Mace-Lande: Vulnerable/Endangered

CITES: Not listed

IUCN: Indeterminate

**Taxonomic status:** Species

**Distribution:** Solomon Islands / Bismarck Archipelago

**Wild population:** 2,000 - 20,000

**Field studies:** BirdLife International survey in the Solomons in 1991

**Threats:** Habitat loss due to logging especially in Solomon part of range, possibly predation

**Comments:** BirdLife International expedition found a seemingly healthy population on one island

**Recommendations:**

Research management: Limiting factors research

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Columba fasciata monilis* Band-tailed pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Indeterminate

**Taxonomic status:** Subspecies

**Distribution:** N Baja CA

**Wild population:** <1,000

**Field studies:**

**Threats:** Habitat loss due to fragmentation

**Recommendations:**

Research management: Survey, monitoring

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Program should be established within the next three years, managed at the 90/100 level.

**SPECIES:** *Columba oenops* Peruvian pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** North central Peru.

**Wild population:** <500

**Field studies:** Ted Parker reported that this species was fairly common throughout its range but this referred to smaller part of range in Maranon.

**Threats:** Habitat loss due to fragmentation

**Comments:** Species is thought to be declining. The range area of the species is now difficult to work in because of insurgence.

**Recommendations:**

Research management: Survey, monitor, life history studies, limiting factors research

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** To be developed within 3-5 years; Nucleus program. Difficulty unknown.

**SPECIES:** *Columba inornata* Plain pigeon

**STATUS:**

Mace-Lande: Endangered (Hispaniola, Cuba); Critical (Puerto Rico, Jamaica)

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species with 3 subspecies *C.i. inornata* (Cuba, Hispaniola), *C.i. exul* (Jamaica), and *C.i. wetmorei* (Puerto Rico).

**Distribution:** Cuba, Hispaniola, Jamaica, Puerto Rico

**Wild population:** Puerto Rico < 200; Jamaica < 100; Hispaniola < 2,000; Cuba < 1,000

**Field studies:** Taxonomic studies are being conducted by Miyamoto et al. (ms. to be submitted to *Auk*). Field studies beginning soon to determine why population has been declining for the last two years (Department of Natural Resources of Puerto Rico, DNR). The DNR will begin an assessment of the habitat being used by the Plain Pigeon in Puerto Rico, to determine critical habitat for the species. Other areas of the island (other than Cidra-Cayey) will be examined to determine the presence of the Plain Pigeon in these other localities as some birds seem to have dispersed after Hurricane Hudo. During the next two years Plain Pigeons reared in captivity at the Humacao University College, will continue to be released in Cidra and monitored with radiotransmitters. Of the 8 birds released in April 1993, 5 survived. Two of the males paired with wild birds.

**Threats:** Hunting (all islands); genetic problems (Puerto Rico); human interference (all islands); habitat fragmentation (all islands); pollution (Jamaica and Puerto Rico); hurricanes (all islands).

**Comments:** Populations are rapidly declining due mainly to habitat destruction and hunting. Apart from Puerto Rico, only one nest has been recorded in the Dominican Republic; none in the other islands. Ask Daisy Rodriguez to comment on Cuban population (Institute of Ecology & Systematics of the Academy of Natural Science of Cuba). Some matching funds have been provided by The Nature Conservancy and the Atlantic States Legal Foundation, through the Plain Pigeon Foundation to acquire critical habitat for the species. Land acquisition is pending on the new study by the DNR, to determine the actual critical habitat for the species. A new aviary has been constructed at the Humacao Campus of the University of Puerto Rico under a cooperative agreement between the University, the DNR and the U.S. Fish and Wildlife Service. The goals are to produce 50-60 birds/year to strengthen the Cidra population and reintroduce the species into protected state forest of Puerto Rico.

**Recommendations:**

Research management: Survey, monitor, limiting factor research, limiting factor management, habitat management, taxonomic studies

PHVA: Completed (1987-88); need PHVA and recovery plan for region.

**Captive population:** 115 (Puerto Rico)

**Captive program recommendation:** Ongoing program should be intensified and the birds moved to more than one location to prevent catastrophically-caused decline.

**SPECIES:** *Columbina cyanopsis* Blue-eyed ground dove

**STATUS:**

Mace-Lande: Endangered?

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Central Brazil

**Wild population:** < 1,000

**Field studies:** Unaware of current specific efforts

**Threats:** Threats are presumed to be habitat fragmentation, but need to be elucidated.

**Comments:** Very little is known about the species regarding population size. Population is presumed to be declining. Historically rare.

**Recommendations:**

Research management: Survey, monitoring

PHVA: Pending

**Captive population:** None

**Captive program recommendation:** Should be developed within 3 years at the 90/100 level of management.

**SPECIES:** *Leptoptila ochraceiventris* Ochre-bellied dove

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Insufficiently known

**Taxonomic status:** Species

**Distribution:** Southwestern Ecuador

**Wild population:** < 1,000

**Field studies:** Unaware of specific efforts.

**Threats:** Habitat loss because of deforestation.

**Comments:** Population is declining rapidly. Forests throughout its range are threatened with destruction. There are three protected areas in the range but protection not heavily enforced.

**Recommendations:**

Research management: Survey, life history studies, limiting factors research, limiting factors management, habitat management

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Should be undertaken within the next three years at the 90/100 level of management.

**SPECIES:** *Leptoptila conoveri* Tolima dove

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Indeterminate

**Taxonomic status:** Species

**Distribution:** Central Colombia

**Wild population:** < 1,000; more than 3 subpopulations

**Field studies:** Unaware of recent specific efforts.

**Threats:** Habitat fragmentation

**Comments:** Only approximately half-dozen sightings in last 15 years. Population is thought to be declining. There is a program to protect a palm within the region; it is hoped that this species will gain protection through preservation of this area.

**Recommendations:**

Research management: Survey, limiting factor research, limiting factor management, life history research, habitat management

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Should be developed within the next 3 years at the 90/100 level of management.

**SPECIES:** *Geotrygon caniceps caniceps* / *leucometopius* Gray-headed quail-dove

**STATUS:**

Mace-Lande: Endangered (both subspecies)

CITES: Not listed

IUCN: Endangered

**Taxonomic status:** Subspecies (two)

**Distribution:** Cuba (caniceps); Hispaniola (leucometopius)

**Wild population:** > 1,000 (caniceps); < 500 (leucometopius)

**Field studies:** Being studied in Cuba by Daisy Rodriguez and Barbara Sanchez. Rodriguez and Sanchez (1993) conducted a study of the birds in Laguna de Zapata. The density of the species varied at different localities of the lagoon from 0.31-0.70 ind./ha. The rate of capture in mist nets was of 1.2 ind./100 hrs. of netting effort. The species was most common in the most humid parts of the lagoon and even in particularly flooded areas as in Los Sabalos. According to the authors the birds have longer tarsi than the other three species of quail doves of Cuba, which may adapt the species to wet and swampy areas of Cuba. Eight nests of the gray-headed Quail Dove were found at the Zapata Lagoon. The clutch size of the species was found to be only one egg.

**Threats:** Habitat fragmentation, hunting (Hispaniola), human interference and hurricanes.

**Comments:** Cubans are interested in captive breeding program but lack funding for establishment. Rodriguez and Sanchez (1993) reported that the species has been sited in nine localities in Cuba from 1968-1992. Five of these localities are in the eastern part of the island. The bird is relatively common in different localities of Zapata Lagoon (Rodriguez and Sanchez, op cit), but apparently rare in other localities of the island (Garrido and Kirkonnell, 1993). Rodriguez and Sanchez suggest that the species be considered vulnerable. This species seems to be the most specialized of the quail doves in Cuba.

**Recommendations:**

Research management: life history research, limiting factors research, limiting factors management, survey, habitat management (both). Taxonomy research is also needed to determine sub-species variation.

PHVA: Yes (both)

**Captive population:** One bird in Hispaniola (1985)

**Captive program recommendation:** Program should be developed within three years for both subspecies at the 90/100 level.

**SPECIES:** *Gallicolumba menagei* Tawi-tawi Bleeding-heart pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Indeterminate

**Taxonomic status:** Species

**Distribution:** Tawi-Tawi Island (Philippines)

**Wild population:** < 2,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat loss, hunting

**Comments:** Access to island is difficult due to security problems.

**Recommendations:**

Research management: Survey, habitat management, limited factors research

PHVA: No

**Captive population:** None

**Captive program recommendation:** Pending survey

**SPECIES:** *Gallicolumba erythroptera* Polynesian ground dove

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Endangered

**Taxonomic status:** Species

**Distribution:** Society Islands, Tuamotu; at least two subpopulations

**Wild population:** < 5,000

**Field studies:** Unaware of recent specific efforts. Information on status is from Pratt et al.'s Field Guide to Birds of Hawaii and the Tropical Pacific. Cyndi Kuehler of San Diego Zoo can be contacted about this species.

**Threats:** Hunting, habitat loss (fragmentation)

**Comments:** Extinct on Tahiti and Moorea; reported from atolls in the Tuamotu Archipelago.

**Recommendations:**

Research management: Survey, monitoring, limiting factors research, limiting factors management, habitat management

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Not recommended presently but may be reconsidered pending further data.

**SPECIES:** *Goura cristata cristata* Blue crowned pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Appendix II

IUCN: Rare

**Taxonomic status:** Subspecies (the other recognized subspecies, *G. c. minor*, is found on the islands of Misool, Salawati, Batana, and Waigeo according to Rand and Gillard, 1968, Handbook of New Guinea Birds; and Goodwin, 1983, Pigeons and Doves of the World)

**Distribution:** Irian Jaya and off-shore islands

**Wild population:** < 5,000

**Field studies:** Survey planned by the IUCN Trade Specialist Group as part of the CITES significant trade program.

**Threats:** Hunting and collecting and habitat loss

**Comments:** The presence of *G. cristata* on Seram has been recently established (see Kitchner, A., A.A. MacDonald and P. Howard, 1993, First record of the blue crowned pigeon on Seram. Bull. BOC 113:42-43) but the subspecies was not provided (or known?).

**Recommendations:**

Research management: Habitat management, survey

PHVA: Yes

**Captive population:** Breeding is currently unable to maintain or increase the captive population. Captive efforts should be intensified with birds currently in collections.

**Captive program recommendation:** Increase ongoing program, managed at the 90/100 level.

**SPECIES:** *Goura victoria victoria* Victoria crowned pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Appendix II

IUCN: Rare

**Taxonomic status:** Subspecies (Research validity of sub-species)

**Distribution:** Japen and Biak Island

**Wild population:** < 1,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Hunting and collecting. Illegal trade may be a serious threat.

Habitat loss particularly on Biak.

**Recommendations:**

Research management: Survey, life history studies, monitoring, taxonomy, habitat management

PHVA: Yes

**Captive population:** Probably more than 200 but unclear due to taxonomic problems. More recent importations are likely *G. v. victoria* while older importations may be *G. v. beccarii*.

**Captive program recommendation:** Increase ongoing program, managed at the 90/100 level.

**SPECIES:** *Didunculus strigirostris* Tooth-billed pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Vulnerable

**Taxonomic status:** Species

**Distribution:** Western Samoa

**Wild population:** < 2,000

**Field studies:** Recent surveys have been carried out by Engbring and Trail (1993), as well as Lovegrove and Hay (1992). Ecological observations by Ulf Beichle (1991). Status and acoustical demarcation of pigeons of Western Samoa. *Notornis* 38:81-86) and David Blockstein. David Blockstein should be consulted about this species (c/o Committee for the NIE, 730 11th St., NW, Washington D.C. 20001-4521).

**Threats:** Habitat fragmentation, hunting, hurricanes

**Comments:** Population is declining rapidly. Translocations to American Samoa (Ta'u) have been proposed by Lovegrove and Hay. Species is thought to be a specialist on the capsular fruits of *Dysoxylum*, several species of tree in the mahogany family. Commercial logging and habitat destruction by recent hurricanes have severely reduced lowland forests. Blockstein reports that *Didunculus* is found mostly in the middle elevation rain forest. This is where *Dysoxylum* is found. He did not find them in the higher elevation cloud forest nor in the exotic lowland forest. Although they occurred in native forest that had been selectively logged for large trees, they are restricted to native forest. Food sources may be the key.

**Recommendations:**

Research management: Survey, monitoring, habitat management, life history, limiting factors research, limiting factors management.

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Given that this pigeon is the only surviving member of their genus (Steadman found recent fossils of a larger *Didunculus* in southern Tonga) captive breeding is warranted. Program should be developed within the next 3 years, managed at the 90/100 level.

**SPECIES:** *Phapitreron amethystina maculipectus* Greater brown fruit dove  
**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Negros Island

**Wild population:** <2,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat loss, hunting

**Recommendations:**

Research management: Survey, habitat management

PHVA: No

**Captive population:** None?

**Captive program recommendation:** No

**SPECIES:** *Treron australis griveaudi* Madagascar green pigeon  
**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Moheli only in the Comoros Islands

**Wild population:** < 1,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat destruction

**Comments:** Museum voor Middenafrika, Tervueren, Belgium (Dr. Louette) should have more information.

**Recommendations:**

Research management: Survey, habitat management

PHVA: No

**Captive population:** None

**Captive program recommendation:** Pending survey

**SPECIES:** *Treron pemaensis* Pemba Island green pigeon

**STATUS:**

Mace-Lande: Endangered/Critical

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Pemba Island

**Wild population:** < 500

**Field studies:** Ole Seehausen (Lavesstr. 18, 30159 Hannover, Germany) undertook a detailed ecological survey of the island in 1992 - data presently being written up.

**Threats:** Small population and habitat destruction, hunting

**Comments:**

**Recommendations:**

Research management: Limiting factor research.

PHVA: No

**Captive population:** None

**Captive program recommendation:** Program should be developed within 3 years, managed at the nucleus level.

**SPECIES:** *Treron sphenura oblitus* Wedge-tailed green pigeon

**STATUS:**

Mace-Lande: Endangered?

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies (sub-specific validity should be researched)

**Distribution:** Hainan

**Wild population:** Probably < 2,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat destruction and hunting.

**Recommendations:**

Research management: Survey, taxonomy, and habitat management.

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Ptilinopus doherlyi* Red-naped fruit dove

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** Sumba Island (Indonesia)

**Wild population:** < 5,000

**Field studies:** Manchester Metropolitan University (Dr. Martin Jones)

**Threats:** Habitat loss - little forest remains on Sumba, which is highly fragmented

**Comments:** An BirdLife International conservation program has been started on Sumba (contact Paul Jepson, BirdLife International Indonesia Office, Bogor). According to Bas van Balen (Birdlife International, Indonesia Programme) this species is widespread and rather common in forested sites (M. Jones). Presently secure or, as deforestation is proceeding rapidly in Sumba, perhaps vulnerable.

**Recommendations:**

Research management: Limiting factor research, habitat management

PHVA: No

Other: Support BirdLife International project

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Ptilinopus marchei* Marche's fruit dove

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Luzon

**Wild population:** < 2,500

**Field studies:** General field research in the Sierra Madre by a BirdLife/DOF expedition in 1991 encountered this species (contact: Arne Jensen).

**Threats:** Habitat destruction

**Comments:** Cooperative effort possible with University of Los Banos

**Recommendations:**

Research management: Habitat management, limiting factors research

PHVA: No

**Captive population:** < 10

**Captive program recommendation:** Program should be developed within the next three years, managed at the nucleus level.

**SPECIES:** *Ptilinopus perousii perousii* Many-colored fruit dove

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Samoa

**Wild population:** < 1,050; 5 subpopulations

American Samoa - < 50

Western Samoa - < 1,000

**Field studies:** Ongoing monitoring and ecological observations in American Samoa by P. Trail (in 1993); some monitoring in Western Samoa.

**Threats:** Habitat loss (food source is being lost to agriculture), hurricanes.

**Comments:** Population is declining rapidly. This is a Ficus specialist. Blockstein reported finding small flocks (6-20 birds) in huge fruiting ficus (banyan) trees - almost none elsewhere. This is definitely a species to watch. As a specialist it is quite vulnerable.

**Recommendations:**

Research management: Monitoring, limiting factors research, limiting factors management, habitat management.

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Not at present but may be reconsidered pending further data.

**SPECIES:** *Ptilinopus rarotongensis rarotongensis* Cook Island fruit dove

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Rarotonga

**Wild population:** < 1,000

**Field studies:** Unaware of specific recent efforts.

**Threats:** Habitat fragmentation, hurricanes, and possibly hunting.

**Comments:** Population is presumed to be declining.

**Recommendations:**

Research management: Survey, monitoring, limiting factors research, limiting factors management.

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Pending PHVA.

**SPECIES:** *Ducula mindorensis* Mindoro imperial pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Appendix I

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** Mindoro Island

**Wild population:** < 2,000

**Field studies:** Survey work on the island by Cambridge University Expedition. More work planned by Bochum University.

**Threats:** Habitat loss, hunting

**Recommendations:**

Research management: Limiting factors research, habitat management

PHVA: No

**Captive population:** None

**Captive program recommendation:** Program should be developed within the next three years, managed at the nucleus level.

**SPECIES:** *Ducula carola nigrorum* Gray-necked fruit pigeon

**STATUS:**

Mace-Lande: Endangered/Critical

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Negros Island

**Wild population:** < 500

**Field studies:** Research on fruit eating birds planned by Bochum University.

**Threats:** Habitat loss, hunting

**Comments:** Has not been seen in recent surveys (1991). Nesting record for an unspecified race of *D. carola* places the nest on the side of a perpendicular cliff about 12 feet high. If true for *Ducula c. nigrorum*, it suggests some vulnerability to rats and other predators.

**Recommendations:**

Research management: Survey, habitat management

PHVA: No

**Captive population:** None

**Captive program recommendation:** Pending survey

**SPECIES:** *Ducula aurorae* Polynesian Imperial pigeon

**STATUS:**

Mace-Lande: Endangered

CITES: Not listed

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** Society Islands, Tuamotus

**Wild population:** 100 - 1,000

**Field studies:** Unaware of current specific efforts

**Threats:** Hunting, habitat fragmentation, hurricane, predation by introduced predators.

**Comments:** Population is thought to be declining. Presumed to be extinct on Tahiti; not found in 1984 survey. Survives on Makatea (in the Tuamotu Islands), where the population is estimated to be between 100 - 1,000. Introduced swamp harrier may have been responsible for the species' demise on the Society Islands. Cyndi Kuehler should be consulted on this species.

**Recommendations:**

Research management: Survey, monitoring, limiting factors research, limiting factors management

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Program should be developed within 3-5 years, managed at the nucleus level.

Table 9. Vulnerable pigeon and dove taxa.

TAXON		WILD POPULATION										CAPTIVE PROGRAM			
SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/WKSP	RSCH MGMT	REC	PROG TYPE	DIFF	NUM
Columba	oliviae	N. Somalia	<5,000	3		S?	C	V	Ic? L?	N	Lr	N			
Columba	bollii	Canary Is,	<2,000	2		S?	AA-1	V	N	N	M	N			<5
Columba	junoniae	Palma, Gomera(Canary Is)	<1,500	2		S?	AA-1	V	N	N	M	N			
Columba	albinucha	E Zaire, W Uganda	10,000 - 100,000	3	?	D?	E	V?	L?	N	S	N			
Columba	janthina	Japan, Riukiu Is	?	4	F	D?	B	V?	H,L	N	M, Lm	N			
Columba	vitensis vitiensis	Fiji Is	>10,000		>5	S	AAA	V	H,Lf,S	N	S,M,Lm	N	?	?	?
Columba	pallidiceps	Solomon Is, Bismark Arch	2,000 - 20,000	3	3+	D	C	V/E	L,P?	N	Lr	N			
Columba	leucocephala	W Indies, S Florida	>200,000	2	>5	D	AAA	V	H,Hs,L, Sh	Y	Lm,Lr, Hm,S	N	?	1	65
Columba	goodsoni	W Colombia, W Ecuador	<10,000		?	?	?	V	Lf,H	N	S,M	N	?	?	?
Streptopelia	hypopyrrha	E Nigeria, Cameroon	<5,000	2	1	D	B	V	Lf	YES	S,M	I-2	E	1	0
Turacoena	modesta	Timor, Wetar Is	<20,000	?	2?	D	C	V/S	?	N	S	N	?	?	<10
Pterophassa	scripta scripta	C Queensland	?	3	2	D	C	V	H,L	N	M	Np	?	?	70
Pterophassa	smithii	N & NW Australia	?	?	2	S?	C	V	H,L	N	M	Np	?	?	17
Zenaida	macroura clarionensis	Clarion I	>1,000	3	1	S?	AA	V	La,Lp	YES	S,M	Np	?	?	0
Claravis	mondetoura	S Mexico to Bolivia	>1,000	2/3	>5	D	G	V	Lf	YES	S,Lh,Lr, Lm	I-2	E	1	0
Geotrygon	goldmani	Panama	>10,000	?	>2?	S?	B	V	Lf	PEND SURV	S,Lh,Lr LM	Np	?	?	0



TAXON		WILD POPULATION										CAPTIVE PROGRAM			
SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/ WKSP	RSCH MGMT	REC	PROG TYPE	DIFF	NUM
Coloenas	nicobarica pelewensis	Palau Is	<1,000	?	1	S?	AA-1	V	Lf,H	N	S,M,Hm Lm,Lr	Np	?	?	?
Gallicolumba	luzonica	Luzon I, Polilo Is	5,000- 25,000	3	F	D	C	V	H,L,T	N	Hm,Lr	Oi	Nuc	1	>1,000
Gallicolumba	criniger	Mindanao, Leyte,Samar, Basilan Is	5,000- 25,000	3	F	D	C	V	H,L,T	N	Hm,Lr	Oi	Nuc	1	>750
Gallicolumba	rufigula helviventris	Aru Is	<5,000	?	?	D	AA	V	T	N	S	Np	?	?	<20
Gallicolumba	tristigmata tristigmata	N Sulawesi	<5,000	3	F?	D	B	V	L	N	S	N	?	?	<25
Gallicolumba	xanthonura	Mariana,Yap Is	<3,000	?	5	D	AA-1	V	H,Lf,Pe	YES	M,Hm, Lm,Lr, Lh,S	1-2	Nuc	1	0
Gallicolumba	canifrons	Palau Is	<2,000	?	3?	D	AA-1	V	Lf,Pe,Sh	N	S,M,Hm	N	?	?	?
Otidiphaps	nobilis aruensis	Aru Is	<5,000	?	4	D	AAA	V	L,T	N	S	Oi	Nuc	1	<30
Goura	scheepmakeri sclaterii	S New Guinea	>5,000	3	1?	D	D	V	H,L	N	S,Hm	N	?	?	8 (66 unk subsp)
Goura	scheepmakeri scheepmakeri	SE New Guinea	>5,000	3	1	D	D	V	H,T	N	S,Hm,T	Oi	E	2	0 (66 unk subsp)
Goura	victoria beccarii	N and SE New Guinea	>5,000	3	1?	D	D	V	H,L,T	N	S,Hm,T	N	?	?	Hybrid? 6 (235 unk subsp)
Treron	pompadora everetti	Sulu Arch	<5,000	?	F?	D	C	V?	L,H	N	S	N	?	?	?
Treron	teysmanni	Sumba I	>10,000	-	?	S	AAA	V	L	N	Hm	N	?	?	<10
Treron	capelli	Malaysia, Indonesia	±10,000	?	F?	D	F	V	L,H	N	S,Lr	N	?	?	<10
Treron	formosae	Riudiu Is, Philippine Is	<20,000	4	>4	D	D	V/S	L,H	N	S	N	?	?	?

TAXON		WILD POPULATION										CAPTIVE PROGRAM			
SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/ WKSP	RSCH MGMT	REC	PROG TYPE	DIFF	NUM
Ptilinopus	merrilli faustinoi	Mt.Tabuan (N Luzon I)	<12,000	2	?	D	C	V	H,L	N	Hm,Lr	N	?	?	<10
Ptilinopus	merrilli merrilli	E & S Luzon, Polillo Is	<2000- <10,000	3	F	D	C	V	H,L	N	Hm,Lr,S	Np	?	?	?
Ptilinopus	porphyraceus fasciatus	Samoa Is	>5,000	1	5	D+	AA	V	L,H,Sh	N	S,M	N	?	?	?
Ptilinopus	porphyraceus graeffei	Uvea Is	<2,000	4	1	S?	AA-2	V	L,Sh	N	S	N	?	?	?
Ptilinopus	roseicapilla	Mariana Is	<10,000	2	4	S?	AA-1	V	Pe,Sh,H	YES	M,Lr,Lm	I-1	E	1	0
Ptilinopus	chalcurus	Makatea	<1,000	3	1	S?	AA-2	V	Sh,Lf?	YES	S,M,Lr	Np	?	?	?
Ptilinopus	coralensis	Tuamotu Is	<1,000- 5,000	3	>20	S?	AA-2	V	Sh,Pe	YES	S,M,Lr	Np	?	?	?
Ptilinopus	rivoli miquelii	Japen,Meos Num Is	<5,000	4	1	D?	AAA	V/S	L	N	S	Np	?	?	?
Ptilinopus	solomonensis speciosus	Numfor, Biak Is	<10,000	?	>2	D	AAA	V	L,H	N	S,Hm	N	?	?	?
Ptilinopus	eugeniae	Ugi Is, Guadacanal	<10,000	4	2	D	AAA	V/S	L	N	S,Hm	N	?	?	0
Ptilinopus	granulifrons	Obi Major I	<10,000	3	1	D	AAA	V	L	N	Lh,M	N	?	?	0
Drepanoptila	holosericea	New Caledonia	>5,000	3	>5	D	AAA	V	H,Lf	YES	S,M,Lh	Oi	E	1	20
Electroenas	sganzini sganzi	Comoro Is	<2,000	3	F	D	AA	V/E	L,H	N	S,Hm	Np	?	?	0
Ducula	aenea nuchalis	Luzon	<1,000- <10,000	4	F?	D	C	V	L,H	N	S,Hm	Np	?	?	?
Ducula	concinna	Talaut, Tukangbesi, Kai and Tanimbar Is	<20,000	3	?	D	B/C	V?	L,H	N	S	Np	?	?	?
Ducula	pacifica microcera	Samoa Is	>2,000	1	5	D	AAA	V	H,Lf,Sh	YES	S,M,Lr,Lm	N	?	?	?
Ducula	oceanica townsendi	Ponape I	800	?	1	S?	AA-1	V	H,Lf,Sh	YES	M,Lm,Lr	I-1	E	1	0
Ducula	myristicivora	Papua	<10,000	4	?	D	C	V?	H,L	N	S	N	?	?	?

TAXON		WILD POPULATION										CAPTIVE PROGRAM			
SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/ WKSP	RSCH MGMT	REC	PROG TYPE	DIFF	NUM
Ducula	bakeri	New Hebrides	<10,000	3	?	D	AAA	V?	H	N	S,M	N	?	?	?
Gymnophaps	mada	Buru,Ceram Is	?	4	2	D	C	V/S	H,L	N	Hm,S	N	?	?	?

## TAXON REPORTS FOR SOME VULNERABLE TAXA.

**SPECIES:** *Columba oliviae* Somali pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** Northern Somalia

**Wild population:** < 5,000

**Field studies:** Unaware of specific recent efforts

**Threats:** None known, but may suffer from habitat change due to overgrazing and erosion. Competition with *Columba guinea* was also suggested.

**Comments:** see *Threatened Birds of Africa* for further details [**Note to workshop participants: please fill in some of these details**]

**Recommendations:**

Research management: Limiting factors research

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Columba bolli* and *Columba junoniae* Bolle's pigeon and Laurel pigeon

**STATUS:**

Mace-Lande: Vulnerable (both)

CITES: Not listed

IUCN: Rare (both)

**Taxonomic status:** Species

**Distribution:** Canary Islands

**Wild population:** < 2,000 (*C. bolli*) and 1,500 (*C. junoniae*)

**Field studies:** K. W. Emmerson of ICONA in Tenerife has studied both species in detail.

**Threats:** Habitat destruction and hunting formerly, but these threats are no longer a serious cause for concern

**Recommendations:**

Research management: Monitoring

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**Comments:** Detailed Species Action Plans for these two species are in preparation. Contact the European Action Plan Coordinator Dr. Borja Heredia at BirdLife International, Cambridge.

**SPECIES:** *Columba vitiensis vitiensis* White-throated pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Fiji Islands

**Wild population:** > 10,000

**Field studies:** Unaware of specific efforts

**Threats:** Hunting, habitat loss, hurricanes.

**Comments:** There are three introduced species of pigeon on Fiji; Zebra dove, Rock dove, and spotted dove; unlikely they are having effect on Fiji subspecies; all three are urban dwellers, *C. vitiensis* is a forest bird.

**Recommendations:**

Research management: Survey, monitor, limiting factors management (hunting).

PHVA: No

**Captive population:** 6

**Captive program recommendation:** No

**SPECIES:** *Columba leucocephala* White-crowned pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** West Indies, South Florida

**Wild population:** >200,000; >5 subpopulations

**Field studies:** Ongoing field studies in Southern Florida by Audubon Society. Godinez is studying them in Cuba. Simon Guerrero studying in Dominican Republic.

**Threats:** Hunting, loss of habitat, hurricanes,

**Comments:** Populations are probably declining, except in Puerto Rico and Southern Florida. In Cuba, hunting is being allowed again which is contributing to the species' decline. There may be up to 1,000 birds hunted per day. Nevertheless, the species is considered common and widespread in Cuba. In Puerto Rico, the species was restricted to mangroves but it is now moving inland; it is increasing because hunting not allowed. On Mona Island the species is now abundant. In Dominican Republic and Haiti, populations are declining because of hunting. In South Florida it is increasing. Audubon Society working with it. In Bahamas the bird may also be decreasing because of hunting pressure. The species is a colonial nester which makes it particularly vulnerable.

**Recommendations:**

Research management: Limiting factors management (hunting)

PHVA: Yes

Other: Since the animals may breed in different seasons in different islands, need to examine the time of the year when most of the population is not breeding and may not be impacted by hunting.

**Captive population:** 15 (ISIS); 1 (Dominican Republic); fairly common in private collections (approximately 50 birds).

**Captive program recommendation:** No

**SPECIES:** *Columba goodsoni* Dusky pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Western Colombia, western Ecuador

**Wild population:** <10,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat loss due to fragmentation, hunting.

**Recommendations:**

Research management: Survey, monitoring

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Zenaida macroura clarionensis* Clarion mourning dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Clarion Island (Colima, Mexico)

**Wild population:** >1,000

**Field studies:** Conservation program underway to protect the Revillegigedo Archipelago.

**Threats:** Potential predation by introduced pigs, loss of habitat because of pigs.

**Comments:** Endemic raven as well as introduced pigs could potentially contribute to the decline of this subspecies; needs to be monitored.

**Recommendations:**

Research management: Survey, Monitor

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Not recommended currently but may be reconsidered pending further data.

**SPECIES:** *Claravis mondetoura* Maroon-chested ground dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Southern Mexico to Bolivia

**Wild population:** > 1,000

**Field studies:** In Veracruz there is an informal faunal survey being conducted. Town Peterson is also working with them in Oaxaca.

**Threats:** Habitat fragmentation

**Comments:** Population is declining because of deforestation. Prefer thick bamboo undergrowth. Thought to be extinct in Costa Rica (Julio Sanchez, pers. comm.), but during recent bamboo blooms in 1991 and 1992 in the Talamanca mountains, Sanchez saw 7 individuals.

**Recommendations:**

Research management: Survey, life history, limiting factors research, limiting factors management

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Should be developed within three years at the 90/100 level of management.

**SPECIES:** *Geotrygon goldmani* Russet-crowned quail-dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Eastern Panama

**Wild population:** < 10,000

**Field studies:** Unaware of specific recent efforts.

**Threats:** Habitat loss because of fragmentation.

**Comments:** There is a great deal of deforestation throughout the species' range.

**Recommendations:**

Research management: Survey, life history, limiting factor research, limiting factor management.

PHVA: Pending survey

**Captive population:** None

**Captive program recommendation:** Not recommended presently but may be reconsidered pending further data.

**SPECIES:** *Caloenas nicobarica pelewensis* "Palau" Nicobar pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Appendix I

IUCN: Rare

Other: candidate for listing via USFWS

**Taxonomic status:** Subspecies

**Distribution:** Palau Island; area AA-1

**Wild population:** < 1,000

**Field studies:** 1991 survey by John Engbring (estimated 722 birds)

**Threats:** Hunting, habitat loss

**Comments:** Population is presumed to be stable.

**Recommendations:**

Research management: Monitoring, survey, habitat management, limiting factor management, limiting factor research

PHVA: No

**Captive population:** None

**Captive program recommendation:** Not recommended at present but may be reconsidered pending further information.

**SPECIES:** *Gallicolumba luzonica* and *Gallicolumba criniger*

Luzon Bleeding-heart pigeon and Bartlett's Bleeding-heart pigeon

**STATUS:**

Mace-Lande: Vulnerable (both)

CITES: Appendix I (*G. luzonica*)

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Luzon and Polillo (*G. luzonica*) and Mindanao (*G. criniger*)

**Wild population:** 5,000 - 25,000 (for both)

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat loss, hunting, bird trade

**Comments:** Both species may be in serious decline .

**Recommendations:**

Research management: Habitat management, limiting factor research

PHVA: No

**Captive population:** > 1000 (*G. luzonica*) and > 750 (*G. criniger*)

**Captive program recommendation:** Ongoing program should be intensified (both)

**SPECIES:** *Gallicolumba rufigula helviventris* Aru golden heart pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Aru Islands (Indonesia)

**Wild population:** < 5,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Trapping for the bird trade (this is the subspecies most commonly in trade)

**Comments:** A very distinctive subspecies

**Recommendations:**

Research management: Survey

PHVA: No

**Captive population:** <20

**Captive program recommendation:** Pending survey

**SPECIES:** *Gallicolumba tristigmata tristigmata*

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** N Sulawesi

**Wild population:** Total population < 5,000

**Field studies:**

**Threats:** Loss of habitat

**Comments:**

**Recommendations:**

Research management: Survey

PHVA: No

**Captive population:** None

**Captive program recommendation:** None

**SPECIES:** *Gallicolumba xanthonura* White-throated ground dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Marianas, Yap Island

**Wild population:** Total population < 3,000

Total population reported by Engbring et al. (1982) was 3,118

Saipan - 254

Tinian - 413

Northern Marianas - 34

Rota - 2,417

Yap - 195 [surveyed by Engbring in 1983 (?)]

**Field studies:** Derek Stinson now working with the species on Saipan/Rota.

**Threats:** Hunting, predation by brown tree snake,

**Comments:** Marianas population presumed to be declining. Engbring (pers. comm. to P. Trail) suggested that it may be extirpated on Guam because of the brown tree snake. Population on Yap small, but Engbring believes that it is stable and not deserving of U.S. endangered species status at this time.

**Recommendations:**

Research management: Survey, monitoring, life history research, limiting factors research, limiting factors management, habitat management

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Program should be developed within five years to be managed at the nucleus level.

**SPECIES:** *Gallicolumba canifrons* Palau ground dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Palau Islands

**Wild population:** < 2,000

**Field studies:** Recent studies by Engbring.

**Threats:** Habitat fragmentation, predation by exotics, hurricanes.

**Comments:** Although it is rare, Engbring suggests that the population is probably stable. No imminent development of threats and no current hunting pressures.

**Recommendations:**

Research management: Habitat management, survey, monitoring

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Otidiphaps nobilis aruensis* Pheasant pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Aru Island

**Wild population:** < 5,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat loss, perhaps collecting

**Recommendations:**

Research management: Survey

PHVA: No

**Captive population:** less than 30.

**Captive program recommendation:** Ongoing program should be intensified, managed at the nucleus level.

**SPECIES:** *Goura scheepmakeri sclateri* Maroon-breasted crowned pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Appendix II

IUCN: Rare

**Taxonomic status:** Subspecies

**Distribution:** Southern Irian Jaya and Papua New Guinea between the Mimika and Fly Rivers.

**Wild population:** >5,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Hunting, habitat destruction

**Comments:** Beehler et al., in Birds of New Guinea (1986) suggest that the range of *G. scheepmakeri* extends to Etna Bay in the west, which would presumably broaden the traditionally reported range of *G. s. sclateri*. *G. scheepmakeri* is found along the Bairu River [see Collar, N.J. and P. Andrew (1988), Birds to Watch], which lies north of the known western/northern extent of the range on *G. s. scheepmakeri*, and in between the commonly stated ranges of the two subspecies. Perusal of topographical map indicates that suitable habitat should in fact be found continuously between these two ranges.

**Recommendations:**

Research management: Survey, habitat management

PHVA: No

**Captive population:** Much of the European population, both historically and currently, has been identified as this subspecies, and many of the others in Europe have not been identified at all.

Taxonomy (of captive birds) should be investigated.

**Captive program recommendation:** No

**SPECIES:** *Goura scheepmakeri scheepmakeri* Scheepmaker's crowned pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Appendix II

IUCN: Rare

**Taxonomic status:** Subspecies

**Distribution:** South eastern Papua New Guinea from Hall Sound to Orangerie Bay

**Wild population:** > 5,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Hunting

**Comments:** Beehler et al., in Birds of New Guinea (1986) suggest that the range of *G. scheepmakeri* extends to Etna Bay in the west, which would presumably broaden the traditionally reproted range of *G. s. sclateri*. *G. scheepmakeri* is found along the Bairu River [see Collar, N.J. and P. Andrew (1988), Birds to Watch], which lies north of the known western/northern extent of the range on *G. s. scheepmakeri*, and in between the commonly stated ranges of the two subspecies. Perusal of topographical map indicates that suitable habitat should in fact be found continuously between these two ranges.

**Recommendations:**

Research management: Survey, habitat management, taxonomy

PHVA: No

**Captive population:** International Studbook data indicate no individuals of this subspecies, but 66 of unknown subspecies, are currently maintained in captivity.

**Captive program recommendation:** Increase ongoing program, manage at the 90/100 level

**SPECIES:** *Goura victoria beccarii* Victoria crowned pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Appendix II

IUCN: Rare

**Taxonomic status:** Subspecies

**Distribution:** Northern Irian Jaya and Papua New Guinea between the head of Geelvink Bay and Astrolabe Bay. According to Rand and Gillard, 1968, Handbook of New Guinea Birds; and Goodwin, 1983, Pigeons and Doves of the World, a population of *G.v. beccarii* is also found in the Collindwood Bay region of south-eastern Papua New Guinea.

**Wild population:** > 5,000

**Field studies:** Survey planned by TRAFFIC.

**Threats:** Hunting, habitat loss and illegal collection for the pet trade

**Recommendations:**

Research management: Survey, habitat management, taxonomic studies

PHVA: No

**Captive population:** Probably all hybrids?

**Captive program recommendation:** No

**SPECIES:** *Treron teysmanni* Sumba Island green pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

Other: Considered Threatened by BirdLife International

**Taxonomic status:** Species

**Distribution:** Sumba Island

**Wild population:** > 10,000

**Field studies:** See comments

**Threats:** Habitat loss

**Comments:** Manchester Metropolitan University has carried out recent census work. Dr Martin Jones for further details. Ongoing BirdLife International program on Sumba is in need of funding.

**Recommendations:**

Research management: Habitat management

PHVA: No

**Captive population:** < 10

**Captive program recommendation:** No

**SPECIES:** *Treron capellei* Large green pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Vulnerable

**Taxonomic status:** Species

**Distribution:** Malay peninsula, Sumatra, Java and Borneo

**Wild population:**  $\pm$  10,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Loss of habitat and hunting

**Recommendations:**

Research management: Survey and limiting factor research

PHVA: No

**Captive population:** < 10

**Captive program recommendation:** No

**SPECIES:** *Ptilinopus merrilli faustinoi* Merrill's fruit dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Mount Tabuan (N. Luzon)

**Wild population:** < 12,000

**Field studies:** BirdLife/DOF (contact: Arne Jensen)

**Threats:** Hunting, habitat loss

**Recommendations:**

Research management: Habitat management, limiting factors research

PHVA: No

**Captive population:** < 10

**Captive program recommendation:** No

**SPECIES:** *Ptilinopus merrilli merrilli* Merrill's fruit dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** East & southern Luzon, Polillo Island

**Wild population:** < 2,000 - < 10,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Hunting, habitat loss

**Recommendations:**

Research management: Habitat management, limiting factors research, survey

PHVA: No

**Captive population:** None

**Captive program recommendation:** Pending survey

**SPECIES:** *Ptilinopus porphyraceus fasciatus* Purple-capped fruit dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Samoan Islands

**Wild population:** > 5,000; 5 subpopulations

**Field studies:** Monitoring and ecological observations by P. Trail in American Samoa (in 1993); monitoring by Lovegrove and Hay in Western Samoa. Blockstein reports this to be by far the most abundant pigeon in his surveys.

**Threats:** Habitat loss, hunting, hurricanes.

**Comments:** Population is declining, but Blockstein finds it hard to believe that it is in trouble. Once one of the most common forest birds. Population has declined by approximately 90% since 1986 because of two hurricanes. It is more of an ecological generalist than *Ptilinopus perousii* and should recover given an interval without hurricanes.

**Recommendations:**

Research management: Survey, monitoring

PHVA: No

**Captive population:** None

**Captive program recommendation:** Not recommended at present.

**SPECIES:** *Ptilinopus roseicapilla* Mariana fruit dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** Mariana Islands

**Wild population:** < 10,000

**Field studies:** Marianas Archipelago Rescue and Survey (USFWS and Philadelphia Zoo).

**Threats:** Predation by the brown tree snake, hurricanes, hunting.

**Comments:** Potentially threatened by expansion of range of the brown tree snake (have been eliminated by the brown tree snake on Guam).

**Recommendations:**

Research management: Monitor, limiting factor research, limiting factor management

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Program will be started in 1993 coordinated by the Philadelphia Zoo in conjunction with the USFWS. Proposed collection of 15 pairs will take place at that time.

**SPECIES:** *Ptilinopus chalcurus* Makatea fruit dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Makatea Island (western Tuamotos)

**Wild population:** < 1,000

**Field studies:** Unaware of recent specific efforts

**Threats:** Hurricanes, possibly habitat fragmentation

**Comments:** Population is presumed to be stable.

**Recommendations:**

Research management: Survey, limiting factors research, monitoring

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Pending PHVA

**SPECIES:** *Ptilinopus coralensis* Atoll fruit dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Tuamoto Islands

**Wild population:** < 1,000 - 5000

**Field studies:** Unaware of recent specific efforts

**Threats:** Hurricanes, climate change, possibly habitat fragmentation

**Comments:** Population is presumed to be stable.

**Recommendations:**

Research management: Survey, limiting factors research, monitoring

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** Pending PHVA

**SPECIES:** *Ptilinopus solomonensis speciosus* Yellow-bibbed fruit dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Geelvink Bay islands of Numfor, Biak Island and Traitors Island

**Wild population:** < 10,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat loss, hunting

**Recommendations:**

Research management: Survey, habitat management

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Ptilinopus granulifrons* Carunculated fruit dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Indeterminate

**Taxonomic status:** Species

**Distribution:** Island of Obi Major

**Wild population:** < 10,000

**Field studies:** Dr. Frank Lambert (c/o IUCN Trade Specialist Group, Cambridge) undertook a detailed status survey of the parrots of Obi in 1992 and may have data on this species.

**Threats:** Habitat loss

**Comments:** There is a protected area in process of being established however there is still extensive deforestation.

**Recommendations:**

Research management: Life history studies, monitoring

PHVA: No

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Drepanoptila holosericea* Cloven-feathered dove

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** New Caledonia

**Wild population:** > 5,000; subpopulations

**Field studies:** Unaware of specific recent efforts.

**Threats:** Hunting, habitat fragmentation

**Comments:** Still hunted and needs adequate reserves. Large areas are still open to exploitation (BirdLife International Study Report No. 7, 1986). One brief report was published in *Aviculture Magazine* in the early 1980's.

**Recommendations:**

Research management: Survey, monitoring, life history studies

PHVA: Yes

**Captive population:** Approximately 20 birds (Dr. Quinque, France)

**Captive program recommendation:** Ongoing program should be increased, managed at the 90/100 level.

**SPECIES:** *Alectroenas sganzini sganzini* Comoro blue pigeon

**STATUS:**

Mace-Lande: Vulnerable/Endangered

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Comoro Island

**Wild population:** < 2,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat loss, hunting

**Comments:** "still tame, confiding and common in spite of persecution. As it is being shot in ever increasing numbers it is to be feared that it will, in view of the inevitable increase of shotgun-carrying sportsmen, soon join it Mauritius relative in extinction." (Goodwin).

**Recommendations:**

Research management: Survey, habitat management

PHVA: No

**Captive population:** None

**Captive program recommendation:** Pending survey

**SPECIES:** *Ducula aenea nuchalis* Green imperial pigeon

**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Northern Luzon

**Wild population:** < 1,000 - 10,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Habitat loss, hunting

**Comments:** One of the most distinctive races of *D. aenea*, it has a purplish maroon patch on the nape. May be vulnerable to hunting due to habitual flight lines and roosting areas which remain unchanged in spite of persecution by hunters (sport hunters?).

**Recommendations:**

Research management: Survey, habitat management

PHVA: No

**Captive population:** None

**Captive program recommendation:** Pending survey

**SPECIES:** *Ducula pacifica microcera* Pacific pigeon  
**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Samoan Islands

**Wild population:** > 2,000

**Field studies:** Monitoring and ecological studies by P. Trail on American Samoa; irregular monitoring by New Zealand biologists on Western Samoa.

**Threats:** Hunting, habitat fragmentation, hurricanes.

**Comments:** Decline in American Samoa of more than 20% within the last six years. The most important factor causing this was two hurricanes during this period. Clearing of lowland and coastal habitats may make normal recovery from hurricanes more difficult. This is the main hunted pigeon in Samoa. Hunting ban in American Samoa is currently in place, but enforcement is lacking.

**Recommendations:**

Research management: Survey, monitoring, limiting factors research, limiting factors management.

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Ducula oceanica townsendi* Micronesian Imperial pigeon  
**STATUS:**

Mace-Lande: Vulnerable

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Ponape

**Wild population:** 800

**Field studies:** Unaware of specific recent efforts. Engbring surveyed in 1983.

**Threats:** Hunting, habitat fragmentation, hurricanes

**Comments:** Population is thought to be stable.

**Recommendations:**

Research management: Monitoring, limiting factors research, limiting factors management

PHVA: Yes

**Captive population:** None

**Captive program recommendation:** No

Table 10. Pigeon and dove taxa of Uncertain status.

CODE	TAXON		RANGE	WILD POPULATION									CAPTIVE PROGRAM		
	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRTS	PVA	RSCH	REC	DIFF	NUM
25	Columba	punicea	NE India to N Malaysia, Vietnam	1,000 - 100,000	3	?	D?	F	U	H,L	N	S	N		
26	Columba	argentina	Islands W of Sumatra & N of Borneo	?	4	?	D	C	U	H,L	N	S	N		
34	Columba	jouyi	Okinawa I Ex?	EX?	4				EX?				N		
40	Columba	p. marginalis	NE Brazil	?	4	?	?	?	?	?	?	?	N	?	?
48	Columba	f. letonai	Honduras, El Salvador	?		?	?	?	?	?	?	?	Np	?	?
49	Columba	f. parva	N Nicaragua	?		?	?	?	?	?	?	?	Np	?	?
52	Columba	f. roraimae	Mts Duida, Romaima (Venezuela)	?		?	?	?	?	?	?	?	Np	?	?
57		f. madrensis	Tres Marias Is	??	3	3	?	AA	?	?	?	M	N		
85	Streptopelia	p. coppingeri	Glorioso Is	?					?				N		
86	Streptopelia	p. comorensis	Anjouan I (Comoro)	<1,000					?				N		
87	Streptopelia	p. aldabrana	Aldabra I	<1,000					?	Lf			N		
88	Streptopelia	p. assumptionis	Assumption I	Extinct					EX				N		
89	Streptopelia	p. saturata	Amirante I	<1,000					?				N		
120	Reinwardtoena	browni	New Britain, Duke of York I	<10,000	4	3+	D?	C	U	L,H	N	S	N		<10
121	Reinwardtoena	crassirostris	Solomon Is	± 5,000		5+	D?	C	U	L,H	N	S	N		<10
133	Henicophaps	foersteri	New Britain	<5,000	4	1	D?	C	U	L? H?	N	S	N		UNK
152	Petrophassa	ferruginea	NW Australia	?		?	?	?	?	?	?	?	Np		30
157	Petrophassa	rufipennis	N Territory	?		?	?	?	?	?	?	?	Np	?	?
165	Geopelia	s. tranquilla	C Australia	?					?				N		
166	Geopelia	s. clelandi	mid Western Australia	?					?				N		



CODE	TAXON		RANGE	WILD POPULATION								CAPTIVE PROGRAM			
	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRTS	PVA	RSCH	REC	DIFF	NUM
205	Zenaida	meloda	SW Ecuador to N Chile	?		?	?	?	?	?	?	?	Np	?	?
247	Metriopelia	morenoi	NW Argentina	ASK CLEME NT					?				N		
251	Metriopelia	aymara	S Peru to Chile, W Argentina	>ASK CLEME NT					?				N		
325	Geotrygon	frenata		?	ASK CLE MEN TS				?				N		
331	Geotrygon	violacea		ASK CLEME NTS					?				N		
363	Gallicolumba	sanctaecrucis	Santa Cruz Is	CLEME NT					?				N		
364	Gallicolumba	salamonis	San Cristobal, Ramos Is	CLEME NT					?				N		
368	Gallicolumba	hoedtii	Wetar, Timor Is												
370	Microgoura	meeki	Choiseul I e?	0-100	4	1	D?	AA	EX?	P	N	S	N		0
385	Phapitreron	a. frontalis	Cebu I						EX				N		
408	Treron	seimundi	Malaysia to Vietnam	<10,000	4	2+	D	D	U	L,H	N	S	N		
465	Ptilinopus	mercierii	Nukuhiva, Hivaoa Is	Extinct					EX				N		
466	Ptilinopus	insularis	Henderson I (Pitcairn Is)	<5,000		1	S?		?				N		
482	Ptilinopus	arcanus	NC Negros I	0-500	2	F?		AAA	EX?	L	N	S	Np		
492	Ducula	poliocephala	Philippine Is	<20,000					?				N		
515	Ducula	o. ratakensis	Arno, Wotje Is (Marshall Is)	?			?	AA-2	U	?	N	S	Np		
530	Ducula	pickeringii	N Bornean islands, Sulu Arch, Talaut Is	<10,000	4	F	D	C	U	H?,L?	N	S	Np		

## TAXON REPORTS FOR UNKNOWN AND EXTINCT? TAXA

**SPECIES:** *Columba punicea* Pale-capped pigeon

**STATUS:**

Mace-Lande: Unknown

CITES: Not listed

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** Mainland SE Asia

**Wild population:** 1,000 - 100,000

**Field studies:** Unaware of any specific recent efforts

**Threats:** Hunting, loss of habitat

**Comments:** very rarely seen; a few recent observations by Jon Eames in Vietnam; small numbers have turned up at Saigon bird market

**Recommendations:**

Research management: Survey

PHVA: Pending survey

**Captive population:** None

**Captive program recommendation:** No

**SPECIES:** *Gallicollumba hoedti* Wetar Ground-dove

**STATUS:**

Mace-Lande:

IUCN:

**Taxonomic status:** Species

**Distribution:** Wetar, Timor Island

**Wild population:**

**Field studies:**

**Threats:**

**Comments:** According to Bas van Balen (Birdlife International Indonesia Program) this species was seen only once during a nine-week survey on west Timor by R. Noske, and must be rare or under-recorded. Little recent information is available from Wetar. This species should be considered of uncertain or vulnerable status.

**Recommendations:**

Research management:

PHVA:

**Captive population:**

**Captive program recommendation:**

**SPECIES:** *Ptilinopus insularis* Henderson Island fruit dove

**STATUS:**

Mace-Lande: Unknown

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Henderson Island

**Wild population:**

**Field studies:**

**Threats:**

**Comments:** Check with Peter Jones at Edinburgh re: 1992 Pitcairn Expedition.

**Recommendations:**

Research management:

PHVA:

**Captive population:** None

**Captive program recommendation:**

**SPECIES:** *Ducula oceanica ratakensis* Micronesian Imperial pigeon

**STATUS:**

Mace-Lande: Unknown

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Subspecies

**Distribution:** Arno and Wotje Islands (Marshall Islands)

**Wild population:** Unknown

**Field studies:** Unaware of any specific recent efforts

**Threats:** Unknown

**Comments:** Pratt (1987) suggested that this species might be considered endangered. Engbring (pers. comm. to P. Trail) said that the islands on which the species is found have not been surveyed.

**Recommendations:**

Research management: Survey

PHVA: No

**Captive population:** None

**Captive program recommendation:** Pending survey

**SPECIES:** *Ptilinopus arcanus*      Ripley's fruit dove

**STATUS:**

Mace-Lande: Extinct/Critical

CITES: Not listed

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** North central Negros Island

**Wild population:** 0 - 500

**Field studies:** Unaware of specific recent efforts

**Threats:** Negros Island has only 5% forest remaining

**Comments:** Known from the type specimen (a single female).

**Recommendations:**

Research management: Survey

PHVA: No

**Captive population:** None

**Captive program recommendation:** Pending survey

**SPECIES:** *Ducula pickeringii*      Grey imperial pigeon

**STATUS:**

Mace-Lande: Unknown

CITES: Not listed

IUCN: Rare

**Taxonomic status:** Species

**Distribution:** Small islands off the NE coast of Borneo, Sulu Archipelago, Talaut Islands.

**Wild population:** <10,000. Status on islands unknown (Collar, N.J. and Andrew, P.)

**Field studies:** Unaware of specific recent efforts

**Threats:** Possibly hunting and habitat loss

**Comments:** Inhabits only small wooded islands. No information on nesting or threats to nests or birds. According to Bas van Balen (Birdlife International, Indonesia Programme) the habitat of this pigeon on small islands is under much pressure and the species should at least be considered vulnerable.

**Recommendations:**

Research management: Survey

PHVA: No

**Captive population:** None

**Captive program recommendation:** Pending survey

Table 11. Pigeon and dove taxa classified as Safe according to Mace-Lande criteria.

CODE	TAXON		RANGE	WILD POPULATION								CAPTIVE PROGRAM			
	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRSTS	PVA	RSCH	REC	DIFF	NUM
206	Columbina	passerina		>3,000,000	>20	5		G	S	N	N	N	N		>6
403	Treron	calva	Subsaharan Africa	>250,000	3	1	S	G	S	N?	N	N	N		
	Macropygia	ruficeps	Indochina, Indonesia	>100,000	4	4+	D?	F	S	L	N	N	N		<20
1	Columba	livia	W Europe, N Africa, Asia	>1,000,000	3	1	S?	G?	S?	Hyb	N	T	N		
2	Columba	rupestris	C Asia & N China	>100,000	4	-	S?	F	S?	Hyb	N	T	N		
3	Columba	leuconotoa	W & C China	500,000	3	?	S	F	S?	N	N	N	N		
4	Columba	guinea	E & S Africa	>1,000,000	3	2	S	F	S	N	N	N	N		>50
5	Columba	albitorques	C & E Ethiopia	>100,000	3	1	S	C	S	N	N	N	N		
6	Columba	oenas		>100,000	3	?	D	G	S	H,L	N	N	N		>50
7	Columba	eversmani	Turkestan to NW India	>100,000	3		S	G	S?	H?	N	N	N		
9	Columba	palumbus	Europe	>100,000	3		S	G	S	N	N	N	N		>8
14	Columba	unicincta	Liberia to Zaire, Uganda	>100,000	4		D	F	S	L	N	N	N		
16	Columba	sjostedi	SE Nigeria, Cameroon	10,000-50,000	3		D?	C	S?	L	N	S	N		
17	Columba	arquatrix	Ethiopia & Angola to E Sth Africa	>100,000	3		S/D	E	S	N	N	N	N		<50



CODE	TAXON		RANGE	WILD POPULATION									CAPTIVE PROGRAM		
	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRST	PVA	RSCH	REC	DIFF	NUM
20	Columba	hodgsonii	Himalayas, Burma, W China	>100,000	4	?	S/I	F	S	?	N	N	N		
22	Columba	pulchricollis	Tibet, N Burma, N Thailand	10,000 - 100,000	4	?	D	E	S?	H,L	N	N	N		
23	Columba	elphinstonii	SW India	>10,000	3	?	D	E	S?	H,L	N	M	N		
24	Columba	torringtoni	Sri Lanka	±10,000	4	?	D?	D	S?	L	N	M	N		
27	Columba	palumboides	Andaman, Nicobar Is	>1,000	4	4+	S+	AAA	S/V	H?	N	M	N		
29	Columba	vitiensis	Philippines, Lesser Sunda, New Hebrides	>100,000	4	10+	S?	F	S	H,L	N	N	N		
30		v. halmaheira	Moluccas, New Guinea, Solomon, Sula Is	>100,000	3	10+	S?	F	S	L	N	N	N		
33	Columba	leucomeia	E Australia	?		?	I	C	S	?	N	T	N		98
37	Columba	squamosa	Gtr, Lesser & Dutch Antilles	>100,000	2	>5	S	AAA	S	H,Lf	N	M	N	1	<50
38	Columba	speciosa	S Mexico to Brazil & Paraguay	>100,000	3	>5	S	G	S	Lf	N	N	N		
41		p. picazuro	E Brazil to NE Argentina	>100,000	3	>5	S	G	S	Lf	N	N	N		
42	Columba	corensis	N Colombia, N Venezuela, Dutch Antilles	>10,000- <100,000	3	>5	S	AAA	S	H,Lf	N	N	N		<50
43	Columba	maculosa	Peru to Argentina	>10,000- <100,000	3	>5	S	G	S	Lf	N	N	N		0
45		f. fasciata	W Nth America	>50,000- <100,000	2	>5	D	G	S	H	N	M	N		>100

CODE	TAXON		RANGE	WILD POPULATION								CAPTIVE PROGRAM			
	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRST	PVA	RSCH	REC	DIFF	NUM
47		f. vioscae	S Baja California	>10,000	1	1	S	C	S	Lf	N	M	N		
50		f. crissalis	Costa Rica, W. Panama	>10,000	3	>5	S	D	S	H,Lf	N	N	N		?
51		f. albilinea	N&W Colombia to E Bolivia	>100,000	3	>5	S	G	S	N	N	N	N		?
53	Columba	araucana	C&S Chile	>5,000	3	1	S	B	S	Lf,Pe	N	M	N		?
55	Columba	cayennensis	Mexico to Argentina	>100,000	3	>5	S?	G	S	Lf	N	N	N		
56	Columba	flavirostris	Texas to Costa Rica	>100,000		>5	S	G	S	Lf	N	N	N		4
60	Columba	plumbea	Columbia to Brazil	>100,000	3	>5	S	G	S	Lf	N	N	N	--	--
61	Columba	subvinaea		>100,000	3	>5	S	G	S	Lf	N	N	N	--	--
62	Columba	nigrirostris	SE Mexico to E Panama	>10,000		>5	S	G	S	Lf	N	N	N	--	0
64	Columba	delegorguei	SE Sudan to Sou. Africa	20,000 - 100,000	3	4+	S	D	S	N?	N	N	N		
65	Columba	iriditorques	Sierra Leone to Angola, E Zaire	>50,000	4	4+	D?	F	S	L?	N	N	N		
66	Columba	malherbii	Sao Tome, Principe, Annobon Is	<10,000	3		D?	AA-1	S?	L?	N	M	N		
68	Streptopelia	turtur	Europe, N Africa	>1,000,000	2	1	I	G	S	N	N	N	N		>500
69	Streptopelia	lugens	E Africa, SW Arabia		4	6	S/I	C	S	N	N	N	N		
70	Streptopelia	l. lugens	Ethiopia, Somalia	5,-10,000	2	2	S	E	S	Lf	YES	S,M	N		
71	Streptopelia	l. funebra	Uganda to Tanzania, Malawi	>10,000	2	<10	S	E	S	Lf	N	S,M	N		
73	Streptopelia	orientalis	India, China, Japan	>1,000,000	3	1	S	G	S	N	N	S	N		

CODE	TAXON		RANGE	WILD POPULATION								CAPTIVE PROGRAM			
	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRSTS	PVA	RSCH	REC	DIFF	NUM
99	Macropygia	amboinensis	Indonesia, New Guinea	>500,000	3		S	F	S	L	N	N	N		
100	Macropygia	phasianella	Philippines	>10,000	3		S	C	S	H	N	N	N		
117	Macropygia	nigrirostris	New Guinea & NE Isl	>100,000	3	1	S?	E	S	N	N	N	N		<20
118	Macropygia	mackinlayi	New Guinea	>25,000	3	?	D?	C	S	L	N	N	N		
	Macropygia	ruficeps	Indochina, Indonesia	>100,000	4	4+	D?	F	S	L	N	N	N		<20
119	Reinwardtoena	reinwardtsi		>50,000	3	3+	S?	E	S	L	N	N	N		<20
122	Turacoena	manadensis	Sulawesi, Peleng, Sula Is	>25,000		1?	D?	E	S	L	N	N	N		<10
124	Turtur	chalcospilos	Somalia to Angola & Capr Province	>750k	3	1	S	G	S	N	N	N	N		<50
125	Turtur	abyssinicus	Senegal to N Ethiopia	>700k	3	1	S	F	S	N	N	N	N		<30
126	Turtur	afer	Senegal to Ethiopia & Transvaal	>500k	3	1	S	G	S	N	N	N	N		4
127	Turtur	tympanistria	Sierra Leone to Tanzania, E Cape Province	>750K	3	2	SI	G	S	N	N	N	N		<50
129	Oena	capensis	Senegal, Arabia, Cape Province, Madagascar	>100,000	3	2	S	G	S	N	N	N	N		$\geq 2,000$
130	Chalcophaps	indica		>500,000	3	10+	S D-	G	S	L	N	T	N		$\geq 500$
131	Chalcophaps	stephani		>100,000	3	1	S	E	S	N?	N	N	N		<10
132	Henicophaps	albifrons	New Guinea, Waigeu Misol, Japen Is	>5,000	3	1	S?	E	S	L? H?	N	N	N		UNK

CODE	TAXON		RANGE	WILD POPULATION								CAPTIVE PROGRAM			
	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRST	PVA	RSCH	REC	DIFF	NUM
74	Streptopelia	bitorquata	Philippines, Indonesia	>100,000	3	3	S	F	S	T	N	N	N		
75	Streptopelia	decaocto	Europe, China	10,000,000	2	1	I	G	S	N	N	N	N		>500
76	Streptopelia	roseogrisea	Ethiopia to Chad	>150,000	3	2	S	D	S	N	N	N	N		>1000
77	Streptopelia	reichenowi	S Somalia, NE Kenya	5,000±	4	1	S	B	S	H	N	N	N		
78	Streptopelia	decipiens	E & S Africa	>150,000	3	5+	S	E	S	N	N	N	N		
79	Streptopelia	semitorquata	Ethiopia to Sth Africa	>200,000	3	1	S/I	F	S	N	N	N	N		>200
80	Streptopelia	capicola	E & S Africa	>200,000	3	1	S/I	E	S	N	N	N	N		<50
81	Streptopelia	vinacea	Senegal to Sudan & N Zaire	>100,000	3	2	S/I	E	S	N	N	N	N		>500
82	Streptopelia	tranquebarica	India, Indochina, Philippines	>1,000,000	3	2+	S	G	S	N	N	N	N		>200
84	Streptopelia	p. picturata	Madagascar	>100,000	2	>10	D	AAA	S	Lf	N	N	N		
92	Streptopelia	chinensis	China, India, Indonesia	>1,000,000	2	>10	S	G	S	N	N	N	N		>250
93	Streptopelia	senegalensis	N&E&S Africa, ME	>1,000,000	3	6+	I	F	S	N	N	N	N		>500
94	Streptopelia	s. phoenicophila	Morocco, Algeria, Tunisia	>1,000,000	2	>10	S	G	S	N	N	N	N		
95	Streptopelia	s. aegyptica	Nile Valley, Egypt	>100,000	2	>5	S	G	S	N	N	N	N		
96		s. senegalensis	Senegal	>1,000,000	2	>10	S	G	S	N	N	N	N		
97	Aplopelia	larvata	Subsah. Africa	5,000±	4	6+	D	D	S	H	N	N	N		
98	Macropygia	unchall	China, Indochina, Indonesia	>500,000	4		S	F	S	H	N	N	N		<200

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	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRTS	PVA	RSCH	REC	DIFF	NUM
134	Phaps	chalcoptera		?	3	≥4	S	E	S	N?	N	N	Np		>200
138	Phaps	elegans		?		≥2	D-	C	S	H,L,P	N	T,S	Np		>50
141	Phaps	histrionica		?		≥2	S?	D	S	L	N	Hm, M	Np		40
144	Ocyphaps	lophotes		?		≥2	I	E	S	N	N	N	N		>175
147	Petrophassa	plumifera				≥3	S	C	S	N	N	N	N		0
158	Petrophassa	albipennis		?		2	S	E	S	P	N	M	N		26
161	Geopelia	cuneata	N & C Australia	?		1	S	E	S	N	N	N	N		≥230
167	Geopelia	maugei	Sumbawa to Timor	>50,000			S?	C	S?	N?	N	N	N		<50
170	Geopelia	placida	N Australia	?		3	S	E	S	N	N	N	N		>110
173	Geopelia	h. humeralis	N & NE Australia	?		1	S	E	S	N	N	N	N		>110
174	Leucosarcia	melanoleuca	Queensland to Victoria	?		1	S	C	S	L	N	N	N		>230
176	Zenaida	m. marginella	W N America & C America	>3,000,000		1	S	G	S	N	N	M	N	?	?
177	Zenaida	m. carolinensis	E Nth America, Bahama Is	>3,000,000		1	S	G	S	N	N	M	N	?	?
178	Zenaida	m. macroura	Cuba, Hispaniola, Puerto Rico	>100,000		4	S	AAA	S	N	N	M	N	?	<150
181	Zenaida	auriculata		>1,000,000		>20	S	G	S	H,Lf	N	M	N	?	<100
194	Zenaida	aurita		≤500,000		>5	S	G	S	H	N	M	N	?	<50
198	Zenaida	galapagoensis		20,000		>5	S	AA	S	Pe	N	M	N	?	<50
201	Zenaida	asiatica		>5,000,000		>10	S	G	S	H	N	M	N	?	>18
225	Columbina	minuta		>3 million		>6	S	G	S	N	N	N	N	?	>100

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	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRTS	PVA	RSCH	REC	DIFF	NUM
229	Columbina	buckleyi	N Ecuador, NW Peru	>5,000	4	1?	S?	D	S	N?	N	S,M	N	?	<50
230	Columbina	talpacoti		>1 MILLION		75	S	G	S	N	N	N	N		>250
235	Columbina	picui		>500,000	4	>2	S	G	S	N	N	N	N	?	>250
238	Columbina	cruziana	N Ecuador to NW Chile	>100,000	4	>2	S	E	S	N	N	N	N	?	>100
240	Claravis	pretiosa	SE Mexico to Paraguay & N Argentina	>100,000		>5	S	G	S	N	N	N	N	?	>100
243	Metriopelia	ceciliae		>100,000		>5	S	G	S	N	N	N	N	?	10
248	Metriopelia	melanoptera		>100,000		>5	S	G	S	N	N	M	N	?	<30
252	Scardafella	inca	Arizona to N Costa Rica	>3 MILLION		>5	S	G	S	N	N	N	N	?	<80
253	Scardafella	squamata		>100,000		>5	S	G	S	N	N	N	N	?	<100
256	Uropelia	campestris	E Bolivia, C Brazil	>100,000	3	>3	S	G	S	N	N	Lh, M	N	?	0
257	Leptotila	verreauxi		>5,000,000		>13	S	G	S	N	N	M	N	?	23
274	Leptotila	rufaxilla		>100,000		>6	S?	G	S	Lf	N	M	N	?	0
281	Leptotila	plumbeiceps		>50,000		>5	S?	G	S	Lf	N	S,M	Np	?	0
286	Leptotila	pallida	W Colombia, SW Ecuador	>10,000		>2	S	C	S?	Lf	N	M	N	?	0
293	Leptotila	cassini		>100,000		>5	S	G	S	Lf	N	M	N		0
299	Geotrygon	lawrencii		<100,000		>5	S?	G	S	Lf	N	M	N	?	0
303	Geotrygon	costaricensis	Costa Rica, W Panama	>10,000 <50,000		>2	S?	D	S	Lf	N	M	N	?	0

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	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRSTS	PVA	RSCH	REC	DIFF	NUM
307	Geotrygon	saphirina		<50,000		73	S?	F	S?	Lf	N	Lh, M, Lr, Lm	N		0
314	Geotrygon	versicolor	Jamaica	>5,000 - 10,000		>5	S	AAA	S	Lf	N	M	N		7,100
315	Geotrygon	veraguensis	E Costa Rica to NW Ecuador	>10,000 - 50,000		>3	S?	E	S	Lf	N	M	N		
316	Geotrygon	linearis		>100,000		>8	S	G	S	N	N	M	N		
329	Geotrygon	chrysia	Puerto Rico, Bahama Is, Cuba, Hispaniola	<10,000		>10	S	AAA	S	Lf,H	N	M,Lr	N		2
330	Geotrygon	mystacea	Puerto Rico, Virgin Is, Lesser Antilles	>10,000?		>12	S	AAA	S	Lf,H	N	M, Lr	N		0
334	Geotrygon	montana		>200,000		>15	S	G	S	H	N	M	N		18
339	Caloenas	n. nicobarica	Nicobar to Luzon I, New Guinea, Solomon Is	?		>20	D?	E	S?	Lf,H	YES PHIL LIP	S,M,H m Lm, Lr	N		>477
346	Gallicolumba	rufigula	New Guinea	>50,000			S?	I	S	L	N	N	N		<50
355	Gallicolumba	t. bimaculata	S Sulawesi	>25,000	3	F?	D	D	S	L,T	N	N	N		500+
356	Gallicolumba	jobiensis		>50,000			S	E	S	L	N	N	N		400+
359	Gallicolumba	kubaryi	E Caroline Is	294		1	S	AA-2	S	H,Lf	N	M	N		
362	Gallicolumba	stairi	Fiji, Tonga, Samoan Is	10,000?		>10	D	AAA	S? V	Lf,H,Pe	YES-	HM,Lr, Lm,S, M	Np		
366	Gallicolumba	beccarii		>100,000	3	1	S	E	S	N	N	N	N		0
369	Trugon	terrestris		>25,000	3	1	D	E	S	L	N	N	N		<10?
371	Otidiphaps	nobilis	W New Guinea	>50,000	3	1	S	E	S	L	N	N	N		>250

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	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRSTS	PVA	RSCH	REC	DIFF	NUM
381	Phapitreron	leucotis		>30,000	3	F	D	E	S	H,L	N	Hm	N		±50
383	Phapitreron	a. amethystina	Luzon, Samar, Leyte, Bohol, Mindanao Is	>25,000		F	D	E	S	L,H	N	N	N		
386	Treron	fulvicollis	Malaysia, Sumatra, S. Borneo	>50,000		?	D	F	S	L	N	N	N		0?
387	Treron	olax	Malaysia, Sumatra, Borneo, Java	>50,000	3	1?	S?	G	S	L	N	N	N		0?
388	Treron	vernans	Indochina, Indonesia, Philippines	>100,000	3	7+	D	G	S	L	N	N	N		>50
389	Treron	bicincta	India to Indonesia	>50,000	3			G	S	L	N	N	N		
390	Treron	pompadora	India to Philippines	>100,000		10+	D	G	S	L,H	N	N	N		
391	Treron	p. axillaris	Philippines	<25,000		F	D	E	S/V	L,H	N	S	N		
393	Treron	curvirostra	Nepal to Philippines & Indonesia	>100,000		F	D	G	S	L,H	N	N	N		
394	Treron	griseicauda	Indonesia	>25,000		5+	D	E	S	L	N	N	N		
396	Treron	floris	Lesser Sunda Is from Lombok to Alor I	>10,000		?	D	C	S/V	L,H	N	M	N		
397	Treron	psittacea	Timor, Samau Is	>10,000		?	D?	C	S/V	L	N	S	N		
399	Treron	phoenicoptera	India to Indochina	>100,000		1	D	G	S	L	N	N	N		
400	Treron	waali	Senegal to S Arabia	>1,000,000			D	F	S	H	N	N	N		
401	Treron	australis	Madagascar	>10,000	3	F	D	E	S?	L,H	N	M	N		
405	Treron	sanctithomae	Sao Thome I	>2,000	3	1	D?	AA	S?	L,H	N	M	N		
406	Treron	apicauda	Himilayas, W Burma, S. Vietnam	>50,000	4		D	F	S	L,H	N	N	N		

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	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRSTS	PVA	RSCH	REC	DIFF	NUM
407	Treron	oxyura	Sumatra W Java	>20,000	4		D	E	S	L,H	N	N	N		
409	Treron	sphenura	Kashmir to Vietnam & Indonesia	>50,000	3		D	F	S	L,H	N	N	N		
411	Treron	sieboldii	Japan, Vietnam	>50,000	4		D?	E	S?	L,H	N	N	N		
417	Ptilinopus	cincta	Indonesia	>20,000		>5	D	D	S	H,L,T	N	M	N		>50
418	Ptilinopus	alligator	Nthn Territory	>10,000		?	S?	C	S	L,P	N	N	N		
420	Ptilinopus	porphyrea	Sumatra, Java, Bali	>50,000		F	D	E	S	L,H,T	N	Hm,Lr, M	N		<100
425	Ptilinopus	occipitalis	Philippine Is	>20,000	3	F	D	E	S?	H,L	N	Hm,M	N		
426	Ptilinopus	fischeri	Sulawesi	>10,000	3	F	D?	D	S?	L	N	S	N		
427	Ptilinopus	jambu	Malaysia, Sumatra, Borneo	20,000-50,000	4	?	D	F	S/V	H,L,T	N	S,Lr	N		
428	Ptilinopus	subularis		>10,000	4	?	D	E	S	L	N	S	N		
429	Ptilinopus	leclancheri	Philippine Is	<20,000	3	F	D	E	S/V	H,L	N	S,Hm, Lr	N		
430	Ptilinopus	bernsteinii	Obi, Terbnate Is	>20,000	4	>2	S?	C	S?	L	N	M	N		
431	Ptilinopus	magnificus	New Guinea, Australia	>500,000	2	>5	D-	F	S	L,H	N	N	N		34
432	Ptilinopus	perlatus	New Guinea	>500,000	3	>3	S?	E	S	N	N	N	N		
433	Ptilinopus	ornatus	New Guinea	>250,000	3	?	D?	E	S	L	N	N	N		
434	Ptilinopus	tannensis	New Hebrides, Banks Is	>10,000	3	?	S?	AAA	S?	L?	N	M	N		
435	Ptilinopus	aurantiifrons	New Guinea & NW islands	>250,000	3	1	S?	E	S	N?	N	N	N		

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436	Ptilinopus	wallacii	Babar, Kai, Aur Is, SW New Guinea	>250,000	4	>3	S?	D	S	N?	N	N	N		
437	Ptilinopus	superbus	Sulawesito Solomon Is, NE Australia	>500,000	3	10+	S?	F	S	L	N	N	N		>200
440	Ptilinopus	p. mariae	Tonga, Fiji Is	>5,000	3	>10	S?	AAA	S?	L,H,Sh	N	S,M	N		
444	Ptilinopus	p. ponapensis	Caroline Is	>32,000		2	S	AA-1	S	H	N	M	N		
445	Ptilinopus	p. porphyraceus	Tonga, Fiji Is	>5,000		>5	S?	AA	S?	H	N	S,M	N		
446	Ptilinopus	pelewensis	Palau Is	>45,000		>3	S	AA-1	S?	H?	N	M	N		
449	Ptilinopus	r. goodwini	Cook Is	>1,000	3	1	S?	AA-2	S?	Lf,Sh	N	S	N		
452	Ptilinopus	r. roseipileum, xanthogaster	Wetar, Roma, Kissar, Moa, to Tanimabr Is	<10,000	4	8+	D?	AAA	S/V	L,H	N	S	N		
453	Ptilinopus	r. flavicollis, ewingii, regina	Flores, to Australia	>50,000	3	3+	S	E	S	L	N	N	N		55
456	Ptilinopus	purpuratus		>5,000	3	>4	S?	AA	S?	H,Lf,Sh,Pe	N	M	N		
462	Ptilinopus	greyii	Santa Cruz Is, New Hebrides, New Caledonia	>5,000	4	>5	S?	AAA	S?	H,Lf	N	S,M	N		
464	Ptilinopus	dupetithouarsii	Marquesas Is	<5,000	3	>5	S	AA-2	S	Lf,Sh,H	N	S	N		
467	Ptilinopus	coronulatus	New Guinea	>200,000	3	?	S?	E	S	L?	N	N	N		
468	Ptilinopus	pulchellus	New Guinea	>200,000	3	2+	S	E	S	L	N	N	N		
470	Ptilinopus	rivoli	Aru, Buru, Talaut Isl	>200,000	3	3+	S?	E	S	L	N	N	N		
472	Ptilinopus	solomonensis	Solomon Is	>200,000	4	3+	S?	E	S	L	N	N	N		
474	Ptilinopus	virdis	Solomon Is, New Guinea	>2,000,000		>8	D	E	S	L	N	N	N		

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	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRTS	PVA	RSCH	REC	DIFF	NUM
476	Ptilinopus	iozonus	New Guinea	>500,000		5	S	E	S	L?	N	N	N		<50
477	Ptilinopus	insolitus	New Britain	<25,000	3	2	D?	C	S?	L	N	M	N		0
478	Ptilinopus	hyogaster	Halmahera, Batjan, Morotai, Ternate Is	>20,000	3	?	D	C	S	L	N	N	N		0
480	Ptilinopus	melanospila		>250,000	3	>10	D?	E	S	L,T	N	N	N		>250
481	Ptilinopus	naina	W Papua Is, S New Guinea	>50,000	3	?	D?	E	S	L?	N	N	N		0
483	Ptilinopus	victor	Fiji Is	>10,000	3	>5	S?	AAA	S	Lf	N	S	N		
484	Ptilinopus	luteovirens	Fiji Is	>10,000	3	>5	S?	AAA	S	Lf	N	S	N		
485	Ptilinopus	layardi	Kandavu I (Fiji Is)	<10,000	3	1	S?	AA-1	S	Lf	N	S	N		
487	Alectroenas	madagascariensis	Madagascar	10,000±	3	F	D	D	S?	L,H	N	M,Hm	N		0
489	Alectroenas	s. minor	Aldabra I	<1,000	4	1	S?	AA-2	S?	N?	N	M	N		
491	Alectroenas	pulcherrima	Seychelles	3,000±	2	?	S	AA-1	S	N?	N	M	N		
497	Ducula	c. carola	Luzon, Mindoro Mindanao Is	<10,000	4	F	D	E	S/V	L,H	N	S	N		
499	Ducula	aenea	India, Indonesia, Philippines	>100,000		15+	D	G	S	L,H	N	N	N		<100
501	Ducula	a. aneothorax	Enggano I	<5,000	4	1	D?	AA-1	S?	L?	N	S	N		
502	Ducula	perspicillata	Moluccas	>20,000	3	?	D?	C	S	L,H	N	M	N		
505	Ducula	p. tarrali	New Guinea Islands, New Hebrides	<10,000	3	1?	D?	C	S	H	N	M	N		
506	Ducula	p. pacifica	Ellis, Tonga Is	>2,000		>5	S?	AA-1	S?	L,H?,Sh	N	S,M	N		
507	Ducula	p. intensitinta	Fiji Is	>2,000		>3	S?	AA-1	S?	L,Sh	N	S,M	N		

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511	Ducula	o. monacha	Yap, Palau Is	10,000-15,000		2	S	AA-1	S	H,Lf,Sh	N	M	N		
514	Ducula	o. oceanica	Kusaie Marshall Is	7,500		2	S	AA-1	S	Lf,H,Sh	N	M	N		
519	Ducula	r. rubricera	Bismarck Arch, Lihir Is	>10,000	3	1?	S	C	S	H	N	N	N		
522	Ducula	rufigaster	New Guinea	>250,000	3		S?	F	S	L,T,H	N	N	N		<100
523	Ducula	basilica	Mollucas	>10,000	4	1	D	C	S?	L,H	N	S	N		0?
524	Ducula	chalconota	New Guinea	<20,000	3	?	S/D?	E	S?	L,H	N	S,Lh	N		0
527	Ducula	pistrinaria	Solomon, Admiralty Is	>25,000	4	4	D?	D	S?	H	N	M,Lr	N		0?
528	Ducula	rosacea	Lesser Sunda Is	>20,000	3	F	D	D	S?	H,L	M	S	N		
531	Ducula	latrans	Fiji Islands	>10,000	3	>5	S?	AAA	S	Lf	N	S,M	N		
534	Ducula	goliath	New Caledonia	>5,000?	4	>3	S?	AAA	S?	H,Lf	N	S,M	N		
535	Ducula	pinon	New Guinea	>100,000	3	>4	S?	E	S	L,H,T	N	N	N		<50
536	Ducula	melanochroa	Bismarck Arch	<10,000	3	>2	D?	C	S?	L,H	N	M	N		
537	Ducula	mullerii	New Guinea	>50,000	3	1	D?	E	S	L,H	N	N	N		
538	Ducula	zoeae	New Guinea & SW & SE islands	>100,000	3	1	S?	E	S	L,H	N	N	N		
539	Ducula	badia	India, Himalayas, SE Asia, Borneo, Sumatra, Java	>100,000	3	F	D	G	S	L,H	N	N	N		
540	Ducula	lacernulata	Java, Bali, Lombok, Flores	10,000+	3	F	D	E	S	L,H	N	Hm	N		
541	Ducula	cineracea	Timor, Wetar Is	<5,000	3	2	S	C	S	L	N	Hm	N		

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	SCIENTIFIC NAME			EST#	DQ	SUB POP	TRND	AREA	M/L	THRTS	PVA	RSCH	REC	DIFF	NUM
542	Ducula	bicolor	Andaman Is to Philippine Is & Lesser Sunda Is	>100,000	3	>10	S	D	S	H	N	M	N		0
543	Ducula	luctuosa	Sulawesi, Sula Is	>20,000	3	5	S	E	S	L,H	N	N	N		
544	Ducula	spilorrhoa	New Guinea	>50,000	3	5	S	F	S	L,H	N	N	N		
545	Lopholaimus	antarcticus	E. Australia	?	-	1	D-	C	S	H,L	N	M	Np		12
547		n. novaeseelandiae	New Zealand	?	-	?	D	?	S	Lp	N	M, Hm	N		14
549	Cryptophaps	poecilorrhoa	N & SE Sulawesi	>5,000	3	1?	D	E	S	L	N	Hm	N		
550	Gymnophaps	albertsii	New Guinea	>20,000	3	1	S?	E	S	H,L	N	N	N		

**TAXON REPORTS FOR SELECTED SAFE TAXA.**

**SPECIES:** *Columba livia* Feral rock pigeon

**STATUS:**

Mace-Lande: Safe (?) - extent of hybridization problem with feral pigeons needs to be assessed

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Eurasia, northern Africa

**Wild population:** > 1,000,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Hybridization with feral pigeons; genetic integrity of populations needs to be determined.

**Recommendations:**

Research management: Taxonomy

PHVA: No

Other: Genetic research to confirm genetic integrity of populations

**Captive population:** Unknown

**Captive program recommendation:** No

**SPECIES:** *Columba rupestris* Eastern rock pigeon

**STATUS:**

Mace-Lande: Safe (?) (same as *C. livia*)

CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Asia

**Wild population:** > 1,000,000

**Field studies:** Unaware of specific recent efforts

**Threats:** Possible hybridization with feral pigeons; genetic integrity of populations needs to be determined.

**Recommendations:**

Research management: Taxonomy

PHVA: No

Other: Find out whether hybridization is a problem

**Captive population:** Unknown

**Captive program recommendation:** No

**SPECIES:** *Geotrygon chrysia*

**STATUS:**

Mace-Lande: Safe

CITES:

IUCN:

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**Taxonomic status:** Species

**Distribution:** Puerto Rico, Bahama Is., Cuba, Hispaniola

**Wild population:** < 10,000

**Field studies:** There are no studies to determine the trends of this species except in Cuba where the bird apparently has decreased in numbers. This species definitely deserves to be studied.

**Threats:** Habitat fragmentation and hunting.

**Comments:** Rodriguez and Sanchez suggest that this species may be considered vulnerable. From 1968 to 1992, this species has been sited in 15 localities of Cuba including Isla de Juventud (previously Isla de Pinos) and some offshore keys. Nevertheless, the species seems to be common only in dry, mature forests (e.g. south of Isla Juventud; 11 ind./ha) which are not common in the Caribbean. It was the rarest of the 4 species of quail dove studied at Zapata Lagoon (0.20 ind./ha). At this locality it may compete with the Blue-headed and the gray-headed quail doves. This species may have been common in Cuba in the first two or three decades of this century as Danforth (1936) informed that the species was common in Cuba and Haiti. Garrido and Kirconnell (1993) considered the species common but very local. In Puerto Rico the species is rare, found mainly in the dry forest of the southern part of the island. It is also found (also in very low numbers) in the haystack hill of the north. Nevertheless, this type of habitat has been drastically fragmented by the construction of a new highway. It should be mentioned that this species has never been common in Puerto Rico (Wetmore 1916; Danforth 1936). Wetmore and Swales (1931) and Danforth (1936) considered the species common in Haiti. This may not be true today as Haiti is almost completely deforested. No studies have been done with Columbiformes of Haiti. In the Dominican Republic Wetmore and Swales (1931) considered the species uncommon but with an ample distribution. Dod (1985) considered the species relatively rare but with an ample distribution. Wiley considered the species common and widespread in Hispaniola. He suggested > 10,000 in the Caribbean. In the Bahamas the species is considered uncommon and restricted to parts of Andros, Abaco, New Providence, Grand Bahamas and Eleuthera (Paterson 1972).

**Recommendations:**

Research management: Monitoring and limiting factors research

PHVA: No

Other:

**Captive population:** 2

**Captive program recommendation:** No

**SPECIES:** *Gallicolumba stairi*

**STATUS:**

Mace-Lande: Safe (?)/Vulnerable    CITES: Not listed

IUCN: Not listed

**Taxonomic status:** Species

**Distribution:** Fiji, Tonga, Samoan Islands

**Wild population:** 10,000?

**Field studies:**

**Threats:** Habitat fragmentation, hunting and predation by exotics

**Comments:** According to Dr. Blockstein, the Samoan population may be subspecifically distinct. He reports that this is by far the rarest pigeon in Samoa. There is (was?) a small population on one tallus slope on the island of Ofu in American Samoa. Dr. Blockstein believes that they are specialists that require some open ground to forage. He saw just one individual in 6 months in Western Samoa and, unless the situation on Fiji and Tonga are markedly different than on Samoa, the population estimate of 10,000 is at least an order of magnitude too high.

**Recommendations:**

Research management: Survey, monitoring, limiting factor research, limiting factor management and habitat management

PHVA: Yes

Other:

**Captive population:** Unknown

**Captive program recommendation:** Pending survey

**SPECIES:** *Treron psittacea*

**STATUS:**

Mace-Lande: Safe/Vulnerable    CITES: Not listed

IUCN:

**Taxonomic status:** Species

**Distribution:** Timor, Samau Is.

**Wild population:** >10,000

**Field studies:**

**Threats:** Habitat loss

**Comments:** According to Bas van Balen (Birdlife International Indonesia Program) this species may have declined in recent years in west Timor where it was not recorded during a nine week survey by R. Noske in 1993. Should be considered of uncertain or vulnerable status.

**Recommendations:**

Research management: Survey

PHVA: No

Other:

**Captive population:** Unknown

**Captive program recommendation:** None

Table 12. All pigeon and dove taxa.

REVISED 23 March 1993

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/WKSP	RSCH MGMT	REC	DIFF	NUM	
	Columbiformes														
	Columbidae														
1	Columba	livia	W Europe, N Africa, Asia	>1,000,000	3	1	S?	G?	S?	Hyb	N	T	N		
2	Columba	rupestris	C Asia & N China	>100,000	4	-	S?	F	S?	Hyb	N	T	N		
3	Columba	leuconotoa	W & C China	500,000	3	?	S	F	S?	N	N	N	N		
4	Columba	guinea	E & S Africa	>1,000,000	3	2	S	F	S	N	N	N	N	>50	
5	Columba	albitorques	C&E Ethiopia	>100,000	3	1	S	C	S	N	N	N	N		
6	Columba	oenas		>100,000	3	?	D	G	S	H,L	N	N	N	>50	
7	Columba	eversmani	Turkestan to NW India	>100,000	3		S	G	S?	H?	N	N	N		
8	Columba	oliviae	Somalia	<5,000	3		S?	C	V	Ic? L?	N	LR	N		
9	Columba	palumbus	Europe	>100,000	2		S	G	S	N	N	N	N	>8	
10		p. madarensis	Madeira	0-200	3		S/D	AA-2	C	H	N	N	N		
11		p. azorica	Azores	>200			S/D	AA-2	C	H	N	S	N		
12	Columba	trocax	Madeira	500-2000	2		D	AA-2	E	H	N	LM	N		
13	Columba	bollii	Canary Is,	<2,000	2		S?	AA-1	V	N	N	M	N	<5	
14	Columba	unicincta	Liberia to Zaire, Uganda	>100,000	4		D	F	S	L	N	N	N		
15	Columba	junoniae	Palma, Gomera(Canary Is)	<1,500	2		S?	AA-1	V	N	N	M	N		



CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/ WKSP	RSCH MGMT	REC	DIFF	NUM	
16	Columba	sjostedi	SE Nigeria, Cameroon	10,000-50,000	3		D?	C	S?	L	N	S	N		
217	Columba	arquatrix	Ethiopia & Angola to E Sth Africa	>100,000	3		S/D	E	S	N	N	N	N	<50	
18	Columba	thomensis	Sao Tome Island	<2,000	2		D	AA-1	E	H,L	N	Hm,Lm	N		
19	Columba	pollenii	Comoro Is	<2,000		F	D	AA	E	H,L	N	S	Np		
20	Columba	hodgsonii	Himalayas, Burma, W China	>100,000	4	?	S/I	F	S	?	N	N	N		
21	Columba	albinucha	E Zaire, W Uganda	10,000 - 100,000	3	?	D?	E	V?	L?	N	S	N		
22	Columba	pulchricollis	Tibet, N Burma, N Thailand	10,000 - 100,000	4	?	D	E	S?	H,L	N	N	N		
23	Columba	elphinstonii	SW India	>10,000	3	?	D	E	S?	H,L	N	M	N		
24	Columba	torringtoni	Sri Lanka	+10,000	4	?	D?	D	S?	L	N	M	N		
25	Columba	punicea	NE India to N Malaysia, Vietnam	1,000 - 100,000	3	?	D?	F	U	H,L	N	S	N		
26	Columba	argentina	Islands W of Sumatra & N of Borneo	?	4	?	D	C	U	H,L	N	S	N		
27	Columba	palumboides	Andaman, Nicobar Is	>1,000	4	4+	S+	AAA	S/V	H?	N	M	N		
28	Columba	janthina	Japan, Riukiu Is	?	4	F	D?	B	V?	H,L	N	M, Lm	N		
29	Columba	vitiensis	Philippines, Lesser Sunda, New Hebrides	>100,000	4	10+	S?	F	S	H,L	N	N	N		
30		v. halmaheira	Moluccas, New Guinea, Solomon, Sula Is	>100,000	3	10+	S?	F	S	L	N	N	N		
31		v. vitiensis	Fiji Is	>10,000		>5	S	AAA	V	H,Lf,S	N	S,M,Lm	N	?	
32		v. castaneiceps	Samoa	2,000 - 4,000		2	D+	AA	E	H,Lf,Sh	YES	S,M,Hm, Lm	N		
33	Columba	leucomeia	E Australia	?		?	I	C	S	?	N	T	N	98	
34	Columba	jouyi	Okinawa I Ex?	EX?	4				EX?						

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/ WKSP	RSCH MGMT	REC	DIFF	NUM
35	Columba	pallidiceps	Solomon Is, Bismark Arch	2,000 - 20,000	3	3+	D	C	V/E	L,P?	N	Lr	N		
36	Columba	leucocephala	W Indies, S Florida	>200,000	2	>5	D	AAA	V	Hs,L,Sh, H	Yes	Lm,Lr, Hm,S	N	1	65
37	Columba	squamosa	Gtr, Lesser & Dutch Antilles	>100,000	2	>5	S	AAA	S	Hs,Lf	N	M	N	1	<50
38	Columba	speciosa	S Mexico to Brazil & Paraguay	>100,000	3	>5	S	G	S	Lf	N	N	N		
39	Columba	picazuro													
40		p. marginalis	NE Brazil	?	4	?	?	?	?	?	?	?	N	?	?
41		p. picazuro	E Brazil to NE Argentina	>100,000	3	>5	S	G	S	Lf	N	N	N		
42	Columba	corensis	N Colombia, N Venezuela, Dutch Antilles	>10,000 - <100,000	3	>5	S	AAA	S	H,Lf	N	N	N		<50
43	Columba	maculosa	Peru to Argentina	>10,000 - <100,000	3	>5	S	G	S	Lf	N	N	N		0
44	Columba	fasciata													
45		f. fasciata	W Nth America	>50,000 - <100,000	2	>5	D	G	S	H	N	M	N		>100
46		f. monilis	N Baja California	<1,000	1	1	D+	D	E	Lf,H	YES	S,M	I-1	1	0
47		f. vioscae	S Baja California	>10,000	1	1	S	C	S	Lf	N	M	N		
48		f. letonai	Honduras, El Salvador	?		?	?	?	?	?	?	?	?	?	?
49		f. parva	N Nicaragua	?		?	?	?	?	?	?	?	?	?	?
50		f. crissalis	Costa Rica, W Panama	>10,000	3	>5	S	D	S	H,Lf	N	N	N		?

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/WKSP	RSCH MGMT	REC	DIFF	NUM	
51		f. albilinea	N&W Colombia to E Bolivia	>100,000	3	>5	S	G	S	N	N	N	N	?	
52		f. roraimae	Mts Duida, Romaima (Venezuela)	?		?	?	?	?	?	?	?	?	?	
53	Columba	araucana	C&S Chile	>5,000	3	1	S	B	S	Lf,Pe	N	M	N	?	
54	Columba	caribaea	Jamaica	>100	2,3	2	D+	AAA	C	H,Lf,Ps	YES	S,Lr,HM	I-1	2 7+?	
55	Columba	cayennensis	Mexico to Argentina	>100,000	3	>5	S?	G	S	Lf	N	N	N		
56	Columba	flavirostris	Texas to Costa Rica	>100,000		>5	S	G	S	Lf	N	N	N	4	
57		f. madrensis	Tres Marias Is	??	3	3	?	AA	?	?	?	M	N		
58	Columba	oenops	N Peru	<500 ?	3	1	D	A	E	Lf	YES	S,M,Lh	N-2	? 0	
59	Columba	inornata	Cuba, Hispaniola, Jamaica, Puerto Rico	<1,000 C <2,000 H <100 J <200 PR	1,2,3	4	D+	AAA	E(C&H) C(J&PR)	G,H,I,Lf ,Pu,Sh	YES for region	T,Lm,Hm	I-1	2 115	
60	Columba	plumbea	Columbia to Brazil	>100,000	3	>5	S	G	S	Lf	N	N	N	? ?	
61	Columba	subvinacea		>100,000	3	>5	S	G	S	Lf	N	N	N	? ?	
62	Columba	nigrirostris	SE Mexico to E Panama	>10,000		>5	S	G	S	Lf	N	N	N	? 0	
63	Columba	goodsoni	W Colombia, W Ecuador	<10,000		?	?	?	V	Lf,H	N	S,M	N	? ?	
64	Columba	delegorguei	SE Sudan to Sou. Africa	20,000 - 100,000	3	4+	S	D	S	N?	N	N	N		
65	Columba	iridorques	Sierra Leone to Angola, E Zaire	>50,000	4	4+	D?	F	S	L?	N	N	N		
66	Columba	malherbii	Sao Tome, Principe, Annobon Is	<10,000	3		D?	AA-1	S?	L?	N	M	N		

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/ WKSP	RSCH MGMT	REC	DIFF	NUM
67	Columba	mayeri	Mauritius	35	1	1	I	AA-3	C	P	N	Lm	I-1	2	160
68	Streptopelia	turtur	Europe, N Africa	>1,000,000	2	1	I	G	S	N	N	N	N		>500
69	Streptopelia	lugens	E Africa, SW Arabia		4	6	S/I	C	S	N	N	N	N		
70	Streptopelia	l. lugens	Ethiopia, Somalia	5,-10,000	2	2	S	E	S	Lf	YES	S,M	N		
71	Streptopelia	l. funebra	Uganda to Tanzania, Malawi	>10,000	2	<10	S	E	S	Lf	N	S,M	N		
72	Streptopelia	hypopyrrha	E Nigeria, Cameroon	<5,000	2	1	D	B	V	Lf	YES	S,M	I-2	1	0
73	Streptopelia	orientalis	India, China, Japan	>1,000,000	3	1	S	G	S	N	N	S	N		
74	Streptopelia	bitorquata	Philippines, Indonesia	>100,000	3	3	S	F	S	T	N	N	N		
75	Streptopelia	decaocto	Europe, China	10,000,000	2	1	I	G	S	N	N	N	N		>500
76	Streptopelia	roseo-grisea	Ethiopia to Chad	>150,000	3	2	S	D	S	N	N	N	N		>1000
77	Streptopelia	reichenowi	S Somalia, NE Kenya	5,000±	4	1	S	B	S	H	N	N	N		
78	Streptopelia	decipiens	E & S Africa	>150,000	3	5+	S	E	S	N	N	N	N		
79	Streptopelia	semitorquata	Ethiopia to Sth Africa	>200,000	3	1	S/I	F	S	N	N	N	N		>200
80	Streptopelia	capicola	E & S Africa	>200,000	3	1	S/I	E	S	N	N	N	N		<50
81	Streptopelia	vinacea	Senegal to Sudan & N Zaire	>100,000	3	2	S/I	E	S	N	N	N	N		>500
82	Streptopelia	tranquebarica	India, Indochina, Philippines	>1,000,000	3	2+	S	G	S	N	N	N	N		>200
83	Streptopelia	picturata													>100

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/WKSP	RSCH MGMT	REC	DIFF	NUM	
84	Streptopelia	p. picturata	Madagascar	>100,000	2	>10	D	AAA	S	Lf	N	N	N		
85	Streptopelia	p. coppingeri	Glorioso Is	?											
86	Streptopelia	p. comorensis	Anjouan I (Comoro)	<1,000											
87	Streptopelia	p. aldabrana	Aldabra I	<1,000						H					
88	Streptopelia	p. assumptionis	Assumption I	Extinct											
89	Streptopelia	p. saturata	Amirante I	<1,000											
90	Streptopelia	p. rostrata	Seychelles												
91	Streptopelia	p. chuni	Diego Garcia I												
92	Streptopelia	chinensis	China, India, Indonesia	>1,000,000	2	>10	S	G	S	N	N	N	N	>250	
93	Streptopelia	senegalensis	N&E&S Africa, ME	>1,000,000	3	6+	I	F	S	N	N	N	N	>500	
94	Streptopelia	s. phoenicophila	Morocco, Algeria, Tunisia	>1,000,000	2	>10	S	G	S	N	N	N	N		
95	Streptopelia	s. aegyptica	Nile Valley, Egypt	>100,000	2	>5	S	G	S	N	N	N	N		
96		s. senegalensis	Senegal	>1,000,000	2	>10	S	G	S	N	N	N	N		
97	Aplopelia	larvata	Subsah. Africa	5,000±	4	6+	D	D	S	H	N	N	N		
98	Macropygia	unchall	China, Indochina, Indonesia	>500,000	4		S	F	S	H	N	N	N	<200	
99	Macropygia	amboinensis	Indonesia, New Guinea	>500,000	3		S	F	S	L	N	N	N		
100	Macropygia	phasianella	Philippines, N Borneo, Simalur Isl, Nias Isl, Mentawi Isl, Kangean Isl, N Australia, S Queensland, New South Wales	>10,000	3		S	C	S	H	N	N	N		

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/ WKSP	RSCH MGMT	REC	DIFF	NUM	
108	Macropygia	emilliana	Sumatra to Flores I.												
109	Macropygia	magna													
110	Macropygia	m. macassariensis	Saley I, S Sulawesi												
111	Macropygia	m. longa	Djampea I												
112	Macropygia	m. magna	Timor, Alor, Wetar I												
113	Macropygia	m. timorlaensis	Tanimbar Is												
114	Macropygia	ruffipenis													
115	Macropygia	r. ruffipenis	Andaman, Nicobar Is												
116	Macropygia	r. tiwarii	Gt. Nicobar I												
117	Macropygia	nigrirostris	New Guinea & NE Isl	>100,000	3	1	S?	E	S	N	N	N	N	<20	
118	Macropygia	mackinlayi	New Guinea	>25,000	3	?	D?	C	S	L	N	N	N		
	Macropygia	ruficeps	Indochina, Indonesia	>100,000	4	4+	D?	F	S	L	N	N	N	<20	
119	Reinwardtoena	reinwardtsi		>50,000	3	3+	S?	E	S	L	N	N	N	<20	
120	Reinwardtoena	browni	New Britain, Duke of York I	<10,000	4	3+	D?	C	U	L,H	N	S	N	<10	
121	Reinwardtoena	crassirostris	Solomon Is	± 5,000		5+	D?	C	U	L,H	N	S	N	<10	
122	Turacoena	manadensis	Sulawesi, Peleng, Sula Is	>25,000		1?	D?	E	S	L	N	N	N	<10	
123	Turacoena	modesta	Timor, Wetar Is	<20,000		2?	D	C	V/S	?	N	S	N	<10	
124	Turtur	chalcospilos	Somalia to Angola & Capr Province	>750k	3	1	S	G	S	N	N	N	N	<50	
125	Turtur	abyssinicus	Senegal to N Ethiopia	>700k	3	1	S	F	S	N	N	N	N	<30	
126	Turtur	afer	Senegal to Ethiopia & Transvaal	>500k	3	1	S	G	S	N	N	N	N	4	
127	Turtur	tympanistria	Sierra Leone to Tanzania, E Cape Province	>750K	3	2	S/I	G	S	N	N	N	N	<50	

	TAXON		WILD POPULATION									CAPTIVE PROGRAM			
CODE	SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/WKSP	RSCH MGMT	REC	DIFF	NUM
128	Turtur	brehmeri	W & S Africa	<100 K	3	1	D	F	S?	L	N	Lr	N		<4
129	Oena	capensis	Senegal, Arabia, Cape Province, Madagascar	>100,000	3	2	S	G	S	N	N	N	N		≥2,000
130	Chalcophaps	indica		>500,000	3	10+	S D-	G	S	L	N	T	N		≥500
131	Chalcophaps	stephani		>100,000	3	1	S	E	S	N?	N	N	N		<10
132	Henicophaps	albifrons	New Guinea, Waigeu Misol, Japen Is	>5,000	3	1	S?	E	S	L?,H?	N	N	N		UNK
133	Henicophaps	foersteri	New Britain	<5,000	4	1	D?	C	U	L?,H?	N	S	N		UNK
134	Phaps	chalcoptera	W, SW, S & N Australia, S Queensland to Tasmania	?	3	≥4	S	E	S	N?	N	N	Np		>200
138	Phaps	elegans		?		≥2	D-	C	S	H,L,P	N	T,S	Np		>50
139	Phaps	e. neglecta	Southern Australia												
140	Phaps	e. elegans	Tasmania												
141	Phaps	histrionica	NW Australia, W Queensland, W New South Wales	?		≥2	S?	D	S	L	N	Hm, M	Np		40
144	Ocyphaps	lophotes		?		≥2	I	E	S	N	N	N	N		>175
145	Ocyphaps	l. whitlocki	WC Australia												
146	Ocyphaps	l. lophotes	C & EC Australia												
147	Petrophassa	plumifera	NW Australia to NW Queensland, Derby District, Upper Fitzroy Riv., N. South Australia, Northern Territory			≥3	S	C	S	N	N	N	N		0
152	Petrophassa	ferruginea	NW Australia	?		?	?	?	?	?	?	?	Np		30
153	Petrophassa	scripta													
154	Petrophassa	s. peninsulae	N Queensland												
155	Petrophassa	s. scripta	C Queensland	?		2	D	C	V	H,L	N	M	Np		70

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/WKSP	RSCH MGMT	REC	DIFF	NUM
156	Petrophassa	smithii	N & NW Australia	?		2	S?	C	V	H,L	N	M	Np		17
157	Petrophassa	rufipennis	N Territory	?		?	?	?	?	?	?	?	?	?	?
158	Petrophassa	albipennis	N Western Australia, N Northern Territory	?		2	S	E	S	P	N	M	N		26
161	Geopelia	cuneata	N & C Australia	?		1	S	E	S	N	N	N	N		≥230
162	Geopelia	striata													
163	Geopelia	s. striata	S Burma to Philippine Is, Borneo												
164	Geopelia	s. papua	S New Guinea												
165	Geopelia	s. tranquilla	C Australia	?											
166	Geopelia	s. clelandi	mid Western Australia	?											
167	Geopelia	maugei	Sumbawa to Timor, Tanibar, Kai Isl	>50,000			S?	C	S?	N?	N	N	N		<50
170	Geopelia	placida	N Australia	?		3	S	E	S	N	N	N	N		>110
171	Geopelia	humeralis													
172	Geopelia	h. gregalis	S New Guinea												
173	Geopelia	h. humeralis	N & NE Australia	?		1	S	E	S	N	N	N	N		>110
174	Leucosarcia	melanoleuca	Queensland to Victoria	?		1	S	C	S	L	N	N	N		>230
175	Zenaida	macroura													
176	Zenaida	m. marginella	W N America & C America	>3,000,000		1	S	G	S	N	N	M	N	?	?
177	Zenaida	m. carolinensis	E Nth America, Bahama Is	>3,000,000		1	S	G	S	N	N	M	N	?	?
178	Zenaida	m. macroura	Cuba, Hispaniola, Puerto Rico	>100,000		4	S	AAA	S	N	N	M	N	?	<150
179	Zenaida	m. clarionensis	Clarion	>1,000		1	S?	AA	V	La,Lp	YES	S,M	Np	?	0
180	Zenaida	graysoni	Socorro Islands	0		0	?	AA	C	H,La	N	Hm,Lm	I-1	2	300

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CODE	SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/ WKSP	RSCH MGMT	REC	DIFF	NUM
181	Zenaida	auriculata	Colombia, W Ecuador, W Peru, Chile, W Argentina, Bolivia to Uruguay & S Argentina, NE Brazil, River Amazon estuary, Grenada I, Trinidad, NE Sth America, NW Venezuela, Curacao, Aruba, Bonaire Isl.	>1,000,000		>20	S	G	S	H,Lf	N	M	N	?	<100
194	Zenaida	aurita	Yucatan coast & islands, Bahama, Gtr Antilles, Virgin Isl, Lesser Antilles	<500,000		>5	S	G	S	H	N	M	N	?	<50
198	Zenaida	galapagoensis	Galapagos Isl, Culpepper, Wenman Isl	20,000		>5	S	AA	S	Pe	N	M	N	?	<50
201	Zenaida	asiatica	S & SW USA, E & W Mexico, Tres Marias Isl, Gtr Antilles Isl, W Costa Rica	>5,000,000		>10	S	G	S	H	N	M	N	?	>18
205	Zenaida	meloda	SW Ecuador to N Chile	?		?	?	?	?	?	?	?	?	?	?
206	Columbina	passerina	SE & S USA to Guatamala & Belize, Colombia, Bahama, Bermuda Isl, Cayman Isl, Lesser, Gtr & Dutch Antilles, Venezuela, N Brazil, Los Hermanos, La Tortuga Isl, the Guianas, St Croix Isl., C Ecuador, Jamaica, Haiti, Puerto Rico, Virgin Isl, Martinique, Socorro Isl, Honduras to Costa Rica	>3,000,000	>20	5	G	S	N	N	M	N	N		>6
225	Columbina	minuta	SE Mexico, Guatemala, Belize, SW Costa Rica, WC Colombia, Venezuela, the Guianas, Peru, Brazil, Paraguay	>3 million		>6	S	G	S	N	N	N	N	-	>100
229	Columbina	buckleyi	N Ecuador, NW Peru	>5,000	4	1?	S?	D	S	N?	N	S,M	N	-	<50

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230	Columbina	talpacoti	W & SE Mexico to Colombia, N Venezuela, Cauca Valley, C & E Sth America from the Guianas to C Argentina	>1 MILLION		75	S	G	S	N	N	N	N		>250
235	Columbina	picui	NE Brazil, Bolivia & S Brazil to C Chile & Argentina	>500,000	4	>2	S	G	S	N	N	N	N	-	>250
238	Columbina	cruziana	N Ecuador to NW Chile	>100,000	4	>2	S	E	S	N	N	N	N	-	>100
239	Columbina	cyanopsis	C Brazil	4,000		>3	D?	B?	E?	Lf		S, M	I-1	1	0
240	Claravis	pretiosa	SE Mexico to Paraguay & N Argentina	>100,000		>5	S	G	S	N	N	N	N	-	>100
241	Claravis	godefrida	SE Brazil, E Paraguay	<1,000	3	>1	D+	B	C?	Lf	YES	S, Lh, Lr, Lm	I-1	1	0
242	Clavaris	mondetoura		>1,000	2-3	>5	D	G	V	Lf	YES	S, Lh, Lr, Lm	I-1	1	0
243	Metriopelia	ceciliae	W, E & S Peru, Bolivia, N Chile	>100,000		>5	S	G	S	N	N	N	N	-	10
247	Metriopelia	morenoi	NW Argentina	ASK CLEMENT					?						
248	Metriopelia	melanoptera	S Colombia, Ecuador, Peru to Chile & W Argentina	>100,000		>5	S	G	S	N	N	M	N	-	<30
251	Metriopelia	aymara	S Peru to Chile, W Argentina	>ASK CLEMENT					?						
252	Scardafella	inca	Arizona to N Costa Rica	>3 MILLION		>5	S	G	S	N	N	N	N	-	<80
253	Scardafella	squamata	coast of Columbia & Venezuela, Trinidad, E & S Brazil	>100,000		>5	S	G	S	N	N	N	N	-	<100
256	Uropelia	campestris	E Bolivia, C Brazil	>100,000	3	>3	S	G	S	N	N	Lh, M	N	-	0

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CODE	SCIENTIFIC NAME		RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/WKSP	RSCH MGMT	REC	DIFF	NUM
257	Leptotila	verreauxi	Tres Marias Isl, Mexico, Guatemala, Belize, W & SW Nicaragua, Ometepe I (Lake Nicaragua) N Venezuela, Dutch Antilles, Trinidad, Tobago I, W Colombia, W Ecuador, N & E Peru, the Guianas, Brazil, E & S Bolivia, Uruguay, N Argentina	>5,000,000		>13	S	G	S	N	N	M	N	-	23
271	Leptotila	megalura													
272	Leptotila	m. megalura	N & C Bolivia												
273	Leptotila	m. saturata	S Bolivia, NW Argentina												
274	Leptotila	rufaxilla	E Colombia, E Ecuador to E Venezuela, French Guiana, N Venezuela, Trinidad E & C Brazil to Paraguay & Uruguay	>100,000		>6	S?	G	S	Lf	N	M	N	-	0
281	Leptotila	plumbeiceps	SE Mexico to W Costa Rica, W Panama, Mala peninsula, W Panama, Coiba Isl	>50,000		>5	S?	G	S	Lf	N	S,M	Npd	-	0
286	Leptotila	pallida	W Colombia, SW Ecuador	>10,000		>2	S	C	S?	Lf	N	M	N	-	0
287	Leptotila	wellsi	Grenada I	>100		1	D+	AAA	C	Lf, Pe, Ic, Sf	YES	M,Hm	I-1	1	0
288	Leptotila	jamaicensis													
289	Leptotila	j. gaumeri	N Yucatan peninsula & islands												
290	Leptotila	j. collaris	Gd Cayman I												
291	Leptotila	j. jamaicensis	Jamaica												
292	Leptotila	j. neoxena	St Andrews I												
293	Leptotila	cassini	S Mexico, E Guatemala to Panama, SW Costa Rica, N Colombia	>100,000		>5	S	G	S	Lf	N	M	N		0

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297	Leptotila	ochraceiventris	SW Ecuador	<1,000		>3	D+	B	E	Lf	YES	S,Lh, Lr,Lm, Hm	I-1	1	0
298	Leptotila	conoveri	C Colombia	<1,000	S	>3	D	B	E	Lf	YES	S,Lr, Lm,Hm	I-1	1	0
299	Geotrygon	lawrencii	Vera Cruz, Mexico, E & NW Costa Rica, W Panama	<100,000		>5	S?	G	S	Lf	N	M	N	-	0
303	Geotrygon	costaricensis	Costa Rica, W Panama	>10,000 <50,000		>2	S?	D	S	Lf	N	M	N	-	0
304	Geotrygon	goldmani	E Panama	>10,000		72	S?	B	V	Lf	PEND SERV		N		
307	Geotrygon	saphirina	W Colombia, W & E Ecuador, Marcapata Valley, Peru	<50,000		73	S?	F	S?	Lf	N	Lh, M, Lr, Lm	N		0
311	Geotrygon	caniceps													
312	Geotrygon	c.caniceps	Cuba	>1,000		>5	D	AAA	E	Lf,H,I,H f	YES	Lh,Lr,L m,Hm,S	I-1	1	0
313	Geotrygon	c.leucometopius	Hispaniola	<500		74	D+	AAA	E	Lf,H,I,H f	YES	Lh, Lr, Lm, Hm, S	I-1	1	0
314	Geotrygon	versicolor	Jamaica	>5,000 - 10,000		>5	S	AAA	S	Lf	N	M	N		7,100
315	Geotrygon	veraguensis	E Costa Rica to NW Ecuador	>10,000 - 50,000		>3	S?	E	S	Lf	N	M	N		
316	Geotrygon	linearis	Mexico, NE & W Guatemala, Guerrero, El Salvador, Honduras, N Nicaragua, Costa Rica, W panama, Santa Marta, Colombia, W & NE Venezuela, Trinidad	>100,000		>8	S	G	S	N	N	M	N		
325	Geotrygon	frenata		?	ASK CLEM ENTS				?						

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326	Geotrygon	f. bourcierii	Colombia, Ecuador											
327	Geotrygon	f. subgrisea	SW Ecuador											
328	Geotrygon	f. frenata	Peru, Bolivia											
329	Geotrygon	chrysia	Puerto Rico, Bahama Is, Cuba, Hispaniola	<10,000		>10	S	AAA	S	Lf,H	N	M, Lr	N	2
330	Geotrygon	mystacea	Puerto Rico, Virgin Is, Lesser Antilles	≥ 10,000		>12	S	AAA	S	Lf,H	N	M, Lr	N	0
331	Geotrygon	violacea		ASK CLEMEN NTS					?					
332	Geotrygon	v. albiventer	Nicaragua to N Colombia											
333	Geotrygon	v. violacea	Surinam to Paraguay											
334	Geotrygon	montana	Lesser & Gtr Antilles, Mexico to N Argentina, Trinidad	>200,000		>15	S	G	S	N	N	M	N	18
337	Starmoenas	cynocephala	Cuba, Isle of Pines	<500			D	AAA	C?	Lf,H	YES	S,Lh, Lr	I-1	1 0
338	Caloenas	nicobarica												
339	Caloenas	n. nicobarica	Nicobar to Luzon I, New Guinea, Solomon Is	?		>20	D?	E	S?	Lf,H	YES PHILLIP	S,M,Hm, Lm, Lr	N	>477
340	Caloenas	n. pelewensis	Palau Is	<1,000		1	S?	AA-1	V	Lf,H	PND	M	Np	
341	Gallicolumba	luzonica	Luzon I, Polilo Is	5,000-25,000	3	F	D	C	V	H,L,T	N	Hm,Lr	Nuc-1	1 >1,000
342	Gallicolumba	criniger	Mindanao, Leyte, Samar, Basilan Is	5,000 - 25,000	3	F	D	C	V	H,L,T	N	Hm, Lr	Nuc-1	1 >750
343	Gallicolumba	platenae	Mindoro I	<500			D	AA-1	C	H,L	N	Hm, Lr,S	1-1	1 0
344	Gallicolumba	keyi	Negros I	<500			D	AA-1	C	H,L	N	Hm, Lr, S	1-1	1 0

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345	Gallicolumba	menagei	Tawitawi Is	<2,000			D	AA-1	E	H,L	N	Hm, Lr, S	Np		
346	Gallicolumba	rufigula	New Guinea	>50,000			S?	I	S	L	N	N	N		<50
347	Gallicolumba	r. helviventris	Aru Is	<5,000			D	AA	V	T	N	S	Np		<20
348	Gallicolumba	r. rufigula	W New Guinea												
349	Gallicolumba	r. septentrionalis	N New Guinea												
350	Gallicolumba	r. alaris	S New Guinea												
351	Gallicolumba	r. orientalis	SE New Guinea												
352	Gallicolumba	tristigmata													
353	Gallicolumba	t. tristigmata	N Sulawesi	<5,000	3	F?	D	B	V	L	N	S	N		<25
354	Gallicolumba	t. auripectus	C & SE Sulawesi												
355	Gallicolumba	t. bimaculata	S Sulawesi	>25,000	3	F?	D	D	S	L,T	N	N	N		500+
356	Gallicolumba	jobiensis	New Guinea, Bismark Arch, Vellaalvella, Guadalcanal Isl	>50,000			S	E	S	L	N	N	N		400+
359	Gallicolumba	kubaryi	E Caroline Is	294		1	S	AA-2	S	H,Lf	N	M	N		
360	Gallicolumba	erythroptera	Society, Tuamotu Is	<5,000		>2	D	AA-2	E	H,Lf	YES	S,M,Lm, Hm	N		0
361	Gallicolumba	xanthonura	Mariana, Yap Is	<3,000		5	D	AA-1	V	H,Lf,Pe	YES	M,Hm,Lm,Lr,Hr	I-2	1	0
362	Gallicolumba	stairi	Fiji, Tonga, Samoan Is	10,000?		>10	D	AAA	S/V	Lf,H,Pe	YES-	Hm,Lr, Lm,S,M	Np		
363	Gallicolumba	sanctaerucis	Santa Cruz Is	CLEME NT											
364	Gallicolumba	salamonis	San Cristobal, Ramos Is	CLEME NT											
365	Gallicolumba	rubescens	Marquesas Is	225		2	S?	AA-2	C	Lf,Pe,Sh	YES	S	Np		
366	Gallicolumba	beccarii		>100,00 0	3	1	S	E	S	N	N	N	N		0

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367	Gallicolumba	canifrons	Palau Is	<2000		73	D	AA-1	V	Lf,Pe,Sh	N	S, M Hm	N		
368	Gallicolumba	hoedtii	Wetar, Timor Is												
369	Trugon	terrestris		>25,000	3	1	D	E	S	L	N	N	N		<10?
370	Microgoura	meeeki	Choiseul I e?	0-100	4	1	D?	AA	EX?	P	N	S	N		0
371	Otidiphaps	nobilis	W New Guinea	>50,000	3	1	S	E	S	L	N	N	N		>250
372		aruensis	Aru Is	<5,000		4	D	AAA	V	L,T	N	S	Nuc-1	1	<30
373	Goura	cristata	NW New Guinea, W Papuan islands	<5,000	3	F?	D	C	E	L,H,T	YES	S,Hm	I-1	2	220 (217 unk subsp)
374	Goura	scheepmakeri													
375	Goura	s. sclaterii	S New Guinea	>5,000	3	1?	D	D	V	H	N	S, Hm	N	-	8 (66 unk subsp)
376	Goura	s. scheepmakeri	SE New Guinea	>5,000	3	1	D	D	V	H,T	N	S, Hm, T	I-1	2	0 (66 unk subsp)
377	Goura	victoria													
378	Goura	v. victoria	Japen, Biak Is	<1,000	3	2	D	B	E	T,L	YES	S,Lm,T, Hm	I-1	2	0 (235 unk subsp)
379	Goura	v. beccarii	N New Guinea	>5,000	3	1?	D	D	V	H,L	N	S,Hm,T	N	-	HYBRI D? 6 (235 unk subsp)
380	Didunculus	strigirostris	Upolu, Savii Is (Samoa)	>2,000		2	D-	AA	E	LF,H,Sh	YES	S,M,Lm Hm,Lh, Lr	I-1	2/3	0
381	Phapitreron	leucotis		>30,000	3	F	D	E	S	H,L	N	Hm	N		+50

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382	Phapitreron	amethystina													
383	Phapitreron	a. amethystina	Luzon, Samar, Leyte, Bohol, Mindanao Is	>25,000		F	D	E	S	L,H	N	N	N		
384	Phapitreron	a. maculipectus	Negros I	<2,000		F	D	AA	E	L,H	N	S,Hm	N	0?	
385	Phapitreron	a. frontalis	Cebu I						EXT.						
386	Treron	fulvicollis	Malaysia, Sumatra, S. Borneo	>50,000		?	D	F	S	L	N	N	N	0?	
387	Treron	olax	Malaysia, Sumatra, Borneo, Java	>50,000	3	1?	S?	G	S	L	N	N	N	0?	
388	Treron	vernans	Indochina, Indonesia, Philippines	>100,000	3	7+	D	G	S	L	N	N	N	>50	
389	Treron	bicincta	India to Indonesia	>50,000	3			G	S	L	N	N	N		
390	Treron	pompadora	India to Philippines	>100,000		10+	D	G	S	L,H	N	N	N		
391	Treron	p. axillaris	Philippines	<25,000		F	D	E	S/V	L,H	N	S	N		
392	Treron	p. everetti	Sulu Arch.	<5,000		F?	D	C	V?	L,H	N	S	N		
393	Treron	curvirostra	Nepal to Philippines & Indonesia	>100,000		F	D	G	S	L,H	N	N	N		
394	Treron	griseicauda	Indonesia	>25,000		5+	D	E	S	L	N	N	N		
395	Treron	teysmanni	Sumba I	>10,000		?	D	AAA	V	L	N	Hm	N	<10	
396	Treron	floris	Lesser Sunda Is from Lombok to Alor I	>10,000		?	D	C	S/V	L,H	N	M	N		
397	Treron	psittacea	Timor, Samau Is	>10,000		?	D?	C	S/V	L	N	S	N		
398	Treron	capellei	Malaysia, Indonesia	10,000+		F?	D	F	V	L,H	N	S,Lr	N	<10	
399	Treron	phoenicoptera	India to Indochina	>100,000		1	D	G	S	L	N	N	N		
400	Treron	waali	Senegal to S Arabia	>1,000,000			D	F	S	H	N	N	N		
401	Treron	australis	Madagascar	>10,000	3	F	D	E	S?	L,H	N	M	N		

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402	Treron	a. griveaudi	Moheli I (Comoro Is)	<1,000	4	?	D	AA-1	E	L,H	N	S,Hm	Np		
403	Treron	calva	Subsaharan Africa	>250,000	3	1	s	g	s	N?	N	N	N		
404	Treron	pembaensis	Pemba Is	<500	2	1	D	AA-2	E/C	L,H	N	Lr	Nuc-1	1	0
405	Treron	sanctithomae	Sao Thome I	>2,000	3	1	D?	AA	S?	L,H	N	M	N		
406	Treron	apicauda	Himilayas, W Burma, S. Vietnam	>50,000	4		D	F	S	L,H	N	N	N		
407	Treron	oxyura	Sumatra W Java	>20,000	4		D	E	S	L,H	N	N	N		
408	Treron	seimundi	Malaysia to Vietnam	<10,000	4	2+	D	D	U	L,H	N	S	N		
409	Treron	sphenura	Kashmir to Vietnam & Indonesia	>50,000	3		D	F	S	L,H	N	N	N		
410	Treron	s. oblitus	Hainan I	<2,000	4		D	AA	E?	L,H	N	S,Hm,T	N		
411	Treron	sieboldii	Japan, Vietnam, Shensi, Taiwan	>50,000	4		D?	E	S?	L,H	N	N	N		
416	Treron	formosae	Riukiu Is, Philippine Is	<20,000	4	>4	D	D	V/S	L,H	N	S	N		
	PTILINOPUS														
417	Ptilinopus	cincta	Indonesia	>20,000		>5	D	D	S	H,L,T	N	M	N		>50
418	Ptilinopus	alligator	Nthn Territory	>10,000		?	S?	C	S	L,P	N	N	N		
419	Ptilinopus	dohertyi	Sumba I	<5,000		F	D	AAA	E	L,H	N	Hm,Lr	N		
420	Ptilinopus	porphyrea	Sumatra, Java, Bali	>50,000		F	D	E	S	L,H,T	N	Hm,Lr, M	N		<100
421	Ptilinopus	marchei	Luzon	<2,500	3	F	D	B	E	L,H,T	N	Hm,Lr	Nuc-1	2	<10
422	Ptilinopus	merrilli													
423	Ptilinopus	m. faustinoi	Mt. Tabuan (N Luzon I)	<12,000	2	?	D	C	V	H,L	N	Hm,Lr	N		
424	Ptilinopus	m. merrilli	E & S Luzon, Polillo Is	<10,000	3	F	D	C	V	H,L	N	Hm,Lr,S	Np		

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425	Ptilinopus	occipitalis	Philippine Is	>20,000	3	F	D	E	S?	H,L	N	Hm,M	N		
426	Ptilinopus	fischeri	Sulawesi	>10,000	3	F	D?	D	S?	L	N	S	N		
427	Ptilinopus	jambu	Malaysia, Sumatra, Borneo	20,000-50,000	4	?	D	F	S/V	H,L,T	N	S,Lr	N		
428	Ptilinopus	subgularis		>10,000	4	?	D	E	S	L	N	S	N		
429	Ptilinopus	leclancheri	Philippine Is	<20,000	3	F	D	E	S/V	H,L	N	S,Hm,Lr	N		
430	Ptilinopus	bernsteinii	Obi, Terbnate Is	>20,000	4	>2	S?	C	S?	L	N	M	N		
431	Ptilinopus	magnificus	New Guinea, Australia	>500,000	2	>5	D-	F	S	L,H	N	N	N	34	
432	Ptilinopus	perlatus	New Guinea	>500,000	3	>3	S?	E	S	N	N	N	N		
433	Ptilinopus	ornatus	New Guinea	>250,000	3	?	D?	E	S	L	N	N	N		
434	Ptilinopus	tannensis	New Hebrides, Banks Is	>10,000	3	?	S?	AAA	S?	L?	N	M	N		
435	Ptilinopus	aurantiifrons	New Guinea & NW islands	>250,000	3	1	S?	E	S	N?	N	N	N		
436	Ptilinopus	wallacii	Babar, Kai, Aur Is, SW New Guinea	>250,000	4	>3	S?	D	S	N?	N	N	N		
437	Ptilinopus	superbus	Sulawesito Solomon Is, NE Australia	>500,000	3	10+	S?	F	S	L	N	N	N	>200	
438	Ptilinopus	perousii													
439	Ptilinopus	p. perousii	Samoan Is	Amer <50 W. <1,000	1	5	D-	AA	E	L,H,Sh	YES	M,Lr,Lm,Hm	Nuc-1		
440	Ptilinopus	p. mariae	Tonga, Fiji Is	>5,000	3	>10	S?	AAA	S?	L,H,Sh	N	S,M	N		
441	Ptilinopus	porphyraceus													
442	Ptilinopus	p. fasciatus	Samoan Is	>5,000	1	5	D+	AA	V	L,H,Sh	N	S,M	N		
443	Ptilinopus	p. graeffei	Uvea Is	<2,000	4	1	S?	AA-2	V	L,Sh	N	S	N		

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/ WKSP	RSCH MGMT	REC	DIFF	NUM	
444	Ptilinopus	p. ponapensis	Caroline Is	>32,000		2	S	AA-1	S	H	N	M	N		
445	Ptilinopus	p. porphyraceus	Tonga, Fiji Is	>5,000		>5	S?	AA	S?	H	N	S,M	N		
446	Ptilinopus	pelewensis	Palau Is	>45,000		>3	S	AA-1	S?	H?	N	M	N		
447	Ptilinopus	rarotongensis													
448	Ptilinopus	r. rarotongensis	Rarotonga I	<1,000	3	1	D?	AA-2	E	Lf,H?,Sh	YES	S,M,Lr, Lm	Np		
449	Ptilinopus	r. goodwini	Cook Is	>1,000	3	1	S?	AA-2	S?	Lf,Sh	N	S	N		
450	Ptilinopus	roseicapilla	Mariana Is	<10,000	2	4	S?	AA-1	V	Pe,Sh,H	YES	M,Lr,L m	I-1	1	0
451	Ptilinopus	regina													
452	Ptilinopus	r. roseipileum, xanthogaster	Wetar, Roma, Kissar, Moa, to Tanimabr Is	<10,000	4	8+	D?	AAA	S/V	L,H	N	S	N		
453	Ptilinopus	r. flavicollis, ewingii, regina	Flores, to Australia	>50,000	3	3+	S	E	S	L	N	N	N		55
454	Ptilinopus	richardsii													
455	Ptilinopus	r. richardsii	E Solomon Is												
	Ptilinopus	r. cyanopterus	Rennell I												
456	Ptilinopus	purpuratus	W Society Isl, Moorea Isl, Tahiti	>5,000	3	>4	S?	AA	S?	H,Lf,Sh, Pe	N	M	N		
460	Ptilinopus	chalcurus	Makatea I	<1,000	3	1	S?	AA-2	V	Sh,Lf?	YES	S,M,Lr,	Np		
461	Ptilinopus	coralensis	Tuamotu Is	<1,000 - 5,000	3	>20	S?	AA-2	V	Sh,Pe	YES	S,M,Lr,	Np		
462	Ptilinopus	greyii	Santa Cruz Is, New Hebrides, New Caledonia	>5,000	4	>5	S?	AAA	S?	H,Lf	N	S,M	N		
463	Ptilinopus	huttoni	Rapa I	250±	2	1	D	AA-2	C	Lf,Sh,H?	YES	S,M,Lr, Lm	I-1	1	0
464	Ptilinopus	dupetithouarsii	Marquesas Is	<5,000	3	>5	S	AA-2	S	Lf,Sh,H	N	S	N		
465	Ptilinopus	mercierii	Nukuhiva, Hivaoa Is	Extinct					EX						

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/WKSP	RSCH MGMT	REC	DIFF	NUM	
466	Ptilinopus	insularis	Henderson I (Pitcairn Is)	<5,000		1	S?		?						
467	Ptilinopus	coronulatus	New Guinea	>200,000	3	?	S?	E	S	L?	N	N	N		
468	Ptilinopus	pulchellus	New Guinea	>200,000	3	2+	S	E	S	L	N	N	N		
469	Ptilinopus	monacha	N Moluccas												
470	Ptilinopus	rivoli	Aru, Buru, Talaut Isl	>200,000	3	3+	S?	E	S	L	N	N	N		
471	Ptilinopus	r. miquelii	Japen, Meos Num Is	<5,000	4	1	D?	AAA	V/S	L	N	S	Np		
472	Ptilinopus	solomonensis	Solomon Is	>200,000	4	3+	S?	E	S	L	N	N	N		
473	Ptilinopus	s. speciosus	Numfor, Biak Is	<10,000		2+	D	AAA	V	L,H	N	S,Hm	N		
474	Ptilinopus	viridis	Solomon Is, New Guinea	>2,000,000		>8	D	E	S	L	N	N	N		
475	Ptilinopus	eugeniae	Ugi Is, Guadacanal	<10,000	4	2	D	AAA	V/S	L	N	S,Hm	N	0	
476	Ptilinopus	iozonus	New Guinea	>500,000		5	S	E	S	L?	N	N	N	<50	
477	Ptilinopus	insolitus	New Britain	<25,000	3	2	D?	C	S?	L	N	M	N	0	
478	Ptilinopus	hyogaster	Halmahera, Batjan, Morotai, Ternate Is	>20,000	3	?	D	C	S	L	N	N	N	0	
479	Ptilinopus	granulifrons	Obi Major I	<10,000	3	1	D	AAA	V	L	N	Hm	N	0	
480	Ptilinopus	melanospila		>250,000	3	>10	D?	E	S	L,T	N	N	N	>250	
481	Ptilinopus	naina	W Papua Is, S New Guinea	>50,000	3	?	D?	E	S	L?	N	N	N	0	
482	Ptilinopus	arcanus	NC Negros I	0-500	2	F?		AAA	Extinct?	L	N	S	Np		
483	Ptilinopus	victor	Fiji Is	>10,000	3	>5	S?	AAA	S	Lf	N	S	N		
484	Ptilinopus	luteovirens	Fiji Is	>10,000	3	>5	S?	AAA	S	Lf	N	S	N		
485	Ptilinopus	layardi	Kandavu I (Fiji Is)	<10,000	3	1	S?	AA-1	S	Lf	N	S	N		

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/ WKSP	RSCH MGMT	REC	DIFF	NUM	
	DREPANOPTILA														
486	Drepanoptila	holosericea	New Caledonia	>5,000	3	>5	D	AAA	V	H,Lf	YES	S,M,Lf	I-1	1	20
	ALECTROENAS														
487	Alectroenas	madagascariensis	Madagascar	10,000±	3	F	D	D	S?	L,H	N	M,Hm	N		0
488	Alectroenas	sganzini													
489	Alectroenas	s. minor	Aldabra I	<1,000	4	1	S?	AA-2	S?	N?	N	M	N		
490	Alectroenas	s. sganzi	Comoro Is	<2,000	3	F	D	AA	V/E	L,H	N	S,Hm	Np		
491	Alectroenas	pulcherrima	Seychelles	3,000±	2	?	S	AA-1	S	N?	N	M	N		
	DUCULA														
492	Ducula	poliocephala	Philipine Is	<20,000					?						
493	Ducula	forsteni	Sulawesi												
494	Ducula	mindorensis	Mindoro I	<2,000		F?	D	AAA	E	L,H	N	Lr,Hm	Nuc-1	2	0
495	Ducula	radiata	Sulawesi												
496	Ducula	carola													
497	Ducula	c. carola	Luzon, Mindoro Mindanao Is	<10,000	4	F	D	E	S/V	L,H	N	S	N		
498	Ducula	c. nigrorum	Negros I	<500	3	F	D	AAA	E/C	L,H	N	S,Hm	Np		
499	Ducula	aenea	India, Indonesia, Philippines	>100,000		15+	D	G	S	L,H	N	N	N		<100

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/ WKSP	RSCH MGMT	REC	DIFF	NUM	
500	Ducula	a. nuchalis	Luzon	<10,000	4	F?	D	C	V	L,H	N	S,Hm	Np		
501	Ducula	a. aneothorax	Enggano I	<5,000	4	1	D?	AA-1	S?	L?	N	S	N		
502	Ducula	perspicillata	Moluccas	>20,000	3	?	D?	C	S	L,H	N	M	N		
503	Ducula	concinna		<20,000	3	?	D	B/C	V?	L,H	N	S	Np		
504	Ducula	pacifica													
505	Ducula	p. tarrali	New Guinea Islands, New Hebrides	<10,000	3	1?	D?	C	S	H	N	M	N		
506	Ducula	p. pacifica	Ellis, Tonga Is	>2,000		>5	S?	AA-1	S?	Lf,H?,Sh	N	S,M	N		
507	Ducula	p. intensitinta	Fiji Is	>2,000		>3	S?	AA-1	S?	Lf,Sh	N	S,M	N		
508	Ducula	p. microcera	Samoa Is	>2,000		5	D	AAA	V	H,Lf,Sh	YES	S,M,Lf, Lm	N		
509	Ducula	p. sejuncta	Bismarck Arch												
510	Ducula	oceanica													
511	Ducula	o. monacha	Yap, Palau Is	10,000-15,000		2	S	AA-1	S	H,Lf,Sh	N	M	N		
512	Ducula	o. teraokai	Truk I	50	2	1	D?	AA-2	C	H,Lf,Sh	YES	M,Lf,Lm	I-1	1	0
513	Ducula	o. townsendi	Ponape I	800		1	S?	AA-1	V	H,Lf,Sh	N	M	N		
514	Ducula	o. oceanica	Kusaie Marshall Is	7,500		2	S	AA-1	S	Lf,H,Sh	N	M	N		
515	Ducula	o. ratakensis	Arno, Wotje Is (Marshall Is)	?			?	AA-2	U	?	N	S	Np		
516	Ducula	aurorae	Society Is	100-1,000		2	D	AA	E	H,Lf,Sh, Pe	YES	S,M,Lm Lf	Nuc-2	1	0
517	Ducula	galeata	Nukuhiva I	<300	3	1	D	AA-2	E	Lf,H	YES	S,M,Lm Lf,Tl	Nuc-1		
518	Ducula	rubricera													
519	Ducula	r. rubricera	Bismarck Arch, Lihir Is	>10,000	3	1?	S	C	S	H	N	N	N		
520	Ducula	r. rufigula	Solomon Is												

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRTS	PVA/ WKSP	RSCH MGMT	REC	DIFF	NUM	
521	Ducula	myristicivora	Papua	<10,000	4	?	D	C	V?	H,L	N	S	N		
522	Ducula	rufigaster	New Guinea	>250,000	3		S?	F	S	L,T,H	N	N	N	<100	
523	Ducula	basilica	Mollucas	>10,000	4	1	D	C	S?	L,H	N	S	N	0?	
524	Ducula	chalconota	New Guinea	<20,000	3	?	S/D?	E	S?	L,H	N	S,Lh	N	0	
527	Ducula	pistrinaria	Solomon, Admiralty Is	>25,000	4	4	D?	D	S?	H	N	M,Lr	N	0?	
528	Ducula	rosacea	Lesser Sunda Is	>20,000	3	F	D	D	S?	H,L	M	S	N		
529	Ducula	whartoni	Christmas I												
530	Ducula	pickeringii	N Bornean islands, Sulu Arch, Talaut Is	<10,000	4	F	D	C	U	H?,L?	N	S	Np		
531	Ducula	latrans	Fiji Islands	>10,000	3	>5	S?	AAA	S	Lf	N	S,M	N		
532	Ducula	brenchleyi	Solomon Is												
533	Ducula	bakeri	New Hebrides	<10,000	3	?	D	AAA	V?	H	N	Lm	N		
534	Ducula	goliath	New Caledonia	>5,000?	4	>3	S?	AAA	S?	H,Lf	N	S,M	N		
535	Ducula	pinon	New Guinea	>100,000	3	>4	S?	E	S	L,H,T	N	N	N	<50	
536	Ducula	melanochroa	Bismarck Arch	<10,000	3	>2	D?	C	S?	L,H	N	M	N		
537	Ducula	mullerii	New Guinea	>50,000	3	1	D?	E	S	L,H	N	N	N		
538	Ducula	zoecae	New Guinea & SW & SE islands	>100,000	3	1	S?	E	S	L,H	N	N	N		
539	Ducula	badia	India, Himalayas, SE Asia, Borneo, Sumatra, Java	>100,000	3	F	D	G	S	L,H	N	N	N		
540	Ducula	lacernulata	Java, Bali, Lombok, Flores	10,000±	3	F	D	E	S	L,H	N	Hm	N		
541	Ducula	cineracea	Timor, Wetar Is	<5,000	3	2	S	C	S	L	N	Hm	N		
542	Ducula	bicolor	Andaman Is to Philippine Is & Lesser Sunda Is	>100,000	3	>10	S	D	S	H	N	M	N	0	
543	Ducula	luctuosa	Sulawesi, Sula Is	>20,000	3	5	S	E	S	L,H	N	N	N		

CODE	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME	RANGE	EST#	DQ	SUB POP	TRND	AREA	M/L STS	THRSTS	PVA/ WKSP	RSCH MGMT	REC	DIFF	NUM	
544	Ducula	spilorrhoea	New Guinea	>50,000	3	5	S	F	S	L,H	N	N	N		
	Lopholaimus														
545	Lopholaimus	antarcticus	E. Australia	?	-	1	D-	C	S	H,L	N	M	Np		12
	HEMIPHAGA														
546	Hemiphaga	novaeseelandiae													
547		n. novaeseelandiae	New Zealand	?	-	?	D	?	S	Lp	N	M, Hm	N		14
548		n. chathamensis	Chatham I	50	3	1	S?	AA-2	C	?	N	M, Hm	I-1	2	0
	Cryptophaps														
549	Cryptophaps	poecilorrhoea	N & SE Sulawesi	>5,000	3	1?	D	E	S	L	N	Hm	N		
	Gymnophaps														
550	Gymnophaps	albertsii	New Guinea	>20,000	3	1	S?	E	S	H,L	N	N	N		
551	Gymnophaps	mada	Buru, Seram Is	?	4	2	D	C	V/S	H,L	N	Hm,S	N		
552	Gymnophaps	solomonensis	Solomon Is												

**CONSERVATION ASSESSMENT  
AND MANAGEMENT PLAN  
FOR PIGEONS AND DOVES**

**Report from a Workshop  
held 10-13 March 1993  
San Diego, CA**

**SECTION 3**

**INTERNATIONAL SPECIES INFORMATION SYSTEM DATA**



Taxon	Number of Collections	31/12/1993 Census	Crude Demographics					Crude Genetics				
			CBR	CIR	CDR	CDRn	CER	CRC	%>=F2	WCbr	WCliv	WClivbr

### Explanatory Notes

Collection- Number of collections holding living specimens on ISIS as of report date.  
? = specimen currently OFF ISIS inventory

Census - Live count on ISIS as of end of year (Male.Female.Unknown).

Crude Demographics> mean of last 5 years annual rates

- CBR - Crude birth rate (births per 100).
- CIR - Crude import rate (imports per 100).
- CDR - Crude death rate (deaths per 100).
- CDRn - Crude death rate of neonates (neonatal deaths per 100 births).
- CER - Crude export rate (exports per 100).
- CRC - Crude rate of change (actual observed annual growth rate).

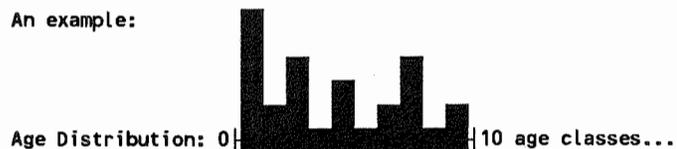
Crude Genetics>

- %>=F2 - Percent living in second or higher generation of captivity.
- WCbr - Wild caught breeders.
- WCliv - Wild caught individuals currently alive.
- WClivbr - Wild caught individuals currently alive that are breeders.
- LivBr - Total living breeders of all origins.

The AgeBar is intended to represent a density bar chart of the populations age distribution. A dark square indicates that the bar for that age class should rise to within 80 percent of the chart top. A single dot indicates that the bar is less than or equal to only 20 percent toward the chart top. Other densities lie between.

An example:

(bar chart)



Age Distribution: 0 | 10 age classes...

(single line chart)









Taxon	Number of Collections	31/12/1993 Census	Crude Demographics						Crude Genetics					
			CBR	CIR	CDR	CDRn	CER	CRC	%>=F2	WCbr	WCliv	WClivbr	LivBr	
<i>Columba livia</i> (no subsp)/ <b>ROCK DOVE/</b>														
ISIS Global:	17	33.31.37	25%	8%	17%	18%	0%	1.048	3%	0	14	0	4	
N.AMERICA Region:	13	16.11.34	29%	30%	18%	2%	0%	1.075	0%	0	12	0	0	
Age Distribution: 0	100 age classes...													
<i>Columba livia livia</i> / <b>FERAL ROCK DOVE/</b>														
ISIS Global:	1	0.0.1	94%	0%	45%	0%	0%	1.492	0%	0	0	0	0	
N.AMERICA Region:	0	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0	
Age Distribution: 0	100 age classes...													
<i>Columba oenas</i> / <b>STOCK DOVE/</b>														
ISIS Global:	3	4.2.6	38%	0%	4%	0%	0%	1.204	58%	0	0	0	4	
N.AMERICA Region:	0	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0	
Age Distribution: 0	100 age classes...													
<i>Columba oenops</i> / <b>PERUVIAN PIGEON/</b>														
ISIS Global:	1	2.2.0	7%	0%	0%	0%	0%	1.067	50%	0	0	0	2	
N.AMERICA Region:	0	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0	
Age Distribution: 0	100 age classes...													
<i>Columba palumbus</i> / <b>WOOD PIGEON/</b>														
ISIS Global:	5	5.5.5	6%	17%	8%	0%	0%	1.148	7%	0	5	0	2	
N.AMERICA Region:	1	0.1.0	0%	0%	0%	0%	0%	1.000	0%	0	0	0	0	
Age Distribution: 0	100 age classes...													
<i>Columba picazuro</i> / <b>PICAZURO PIGEON/</b>														
ISIS Global:	2	0.1.2	0%	0%	5%	0%	0%	0.950	0%	0	0	0	0	
N.AMERICA Region:	0	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0	
Age Distribution: 0	100 age classes...													
<i>Columba pulchricollis</i> / <b>ASHY WOOD PIGEON/</b>														
ISIS Global:	1	5.0.3	25%	0%	14%	12%	0%	0.909	0%	0	4	0	0	
N.AMERICA Region:	1	5.0.3	25%	0%	14%	12%	0%	0.909	0%	0	4	0	0	
Age Distribution: 0	100 age classes...													
<i>Columba speciosa</i> / <b>SCALED PIGEON/</b>														
ISIS Global:	1	2.2.0	0%	0%	0%	0%	0%	0.000	0%	0	4	0	0	
N.AMERICA Region:	1	2.2.0	0%	0%	0%	0%	0%	0.000	0%	0	4	0	0	
Age Distribution: 0	100 age classes...													

Age Distribution Percentiles: ■ &gt; 80th, ■■ &gt; 60th, ■■■ &gt; 40th, ■■■■ &gt; 20th





Taxon	Number of Collections	31/12/1993 Census	Crude Demographics						Crude Genetics					
			CBR	CIR	CDR	CDRn	CER	CRC	%>=F2	WCbr	WCliv	WClivbr	LivBr	
<b><i>Ducula lacernulata</i>/BLACK-BACKED IMPERIAL PIGEON/</b>														
	ISIS Global:	3	2.2.3	15%	30%	4%	0%	0%	0.973	0%	0	5	0	0
	N.AMERICA Region:	3	2.2.3	15%	33%	4%	0%	0%	0.973	0%	0	5	0	0
Age Distribution: 0 ■■■■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Ducula mullerii</i>/MULLERS IMPERIAL PIGEON/</b>														
	ISIS Global:	2	2.2.0	0%	47%	0%	0%	0%	1.267	0%	0	4	0	0
	N.AMERICA Region:	2	2.2.0	0%	47%	0%	0%	0%	1.267	0%	0	4	0	0
Age Distribution: 0 ■■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Ducula perspicillata</i>/MOLUCCA IMPERIAL PIGEON/</b>														
	ISIS Global:	1	0.2.0	0%	0%	5%	0%	0%	0.700	0%	0	2	0	0
	N.AMERICA Region:	1	0.2.0	0%	0%	5%	0%	0%	0.700	0%	0	2	0	0
Age Distribution: 0 ■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Ducula pinon</i>/PINON IMPERIAL PIGEON/</b>														
	ISIS Global:	9	14.10.4	26%	440%	56%	0%	0%	4.874	0%	4	20	4	4
	N.AMERICA Region:	6	11.9.2	8%	22%	21%	0%	0%	0.884	0%	4	15	4	4
Age Distribution: 0 ■■■■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Ducula poliocephala</i>/PINK-BELLIED IMPERIAL PIGEON/</b>														
	ISIS Global:	1	2.0.0	0%	13%	22%	0%	0%	0.917	0%	2	2	0	0
	N.AMERICA Region:	1	2.0.0	0%	0%	0%	0%	0%	0.400	0%	0	2	0	0
Age Distribution: 0 ■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Ducula rufigaster</i>/PURPLE-TAILED IMPERIAL PIGEON/</b>														
	ISIS Global:	8	11.17.5	17%	67%	35%	15%	0%	1.485	3%	6	21	5	5
	N.AMERICA Region:	5	8.16.4	21%	55%	32%	14%	0%	1.417	4%	4	16	3	3
Age Distribution: 0 ■■■■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Ducula spilorrhhoa (unk sp)</i>/NUTMEG PIGEON/</b>														
	ISIS Global:	8	15.15.29	19%	0%	8%	16%	0%	1.094	2%	4	13	4	6
	N.AMERICA Region:	1	2.3.0	0%	0%	0%	0%	0%	1.000	0%	0	4	0	0
Age Distribution: 0 ■■■■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Ducula zoeae</i>/ZOE IMPERIAL PIGEON/</b>														
	ISIS Global:	2	1.7.1	8%	23%	12%	0%	0%	0.993	0%	0	7	0	0
	N.AMERICA Region:	2	1.7.1	8%	23%	12%	0%	0%	0.993	0%	0	7	0	0
Age Distribution: 0 ■■ ..... ..... ..... ..... ..... ..... 100 age classes...														

Age Distribution Percentiles: ■ &gt; 80th, ■■ &gt; 60th, ■■■ &gt; 40th, ■■■■ &gt; 20th







Taxon	Number of Collections	31/12/1993 Census	Crude Demographics						Crude Genetics				LivBr
			CBR	CIR	CDR	CDRn	CER	CRC	%>=F2	WCbr	WCliv	WClivbr	
N.AMERICA Region:	2	1.1.3	0%	13%	0%	0%	0%	0.733	0%	0	5	0	0
Age Distribution: 0	100 age classes...												
<i>Leptotila/DOVE/genus</i>													
<i>Leptotila verreauxi (unk sp)/WHITE-FRONTED DOVE/</i>													
ISIS Global:	4	5.6.9	115%	181%	35%	6%	0%	3.586	50%	0	8	0	4
N.AMERICA Region:	2	2.3.0	0%	3%	6%	0%	0%	0.376	0%	0	5	0	0
Age Distribution: 0	100 age classes...												
<i>Leptotila verreauxi angelica/WHITE-TIPPED DOVE/</i>													
ISIS Global:	1	1.0.2	37%	0%	22%	0%	0%	1.150	33%	0	0	0	1
N.AMERICA Region:	1	1.0.2	37%	0%	22%	0%	0%	1.150	33%	0	0	0	1
Age Distribution: 0	100 age classes...												
<i>Leucosarcia/PIGEON,WONGA/genus</i>													
<i>Leucosarcia melanoleuca/WONGA PIGEON/</i>													
ISIS Global:	18	36.38.37	23%	4%	14%	9%	0%	1.045	23%	5	23	5	27
N.AMERICA Region:	8	10.12.4	39%	37%	37%	38%	0%	1.219	19%	4	11	4	7
Age Distribution: 0	100 age classes...												
<i>Lopholaimus/PIGEON, TOPKNOT/genus</i>													
<i>Lopholaimus antarcticus/TOPKNOT PIGEON/</i>													
ISIS Global:	2	2.1.1	0%	35%	12%	0%	0%	1.233	0%	0	4	0	0
N.AMERICA Region:	0	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0
Age Distribution: 0	100 age classes...												
<i>Macropygia/CUCKOO-DOVE/genus</i>													
<i>Macropygia amboinensis (no subsp)/AMBOINA CUCKOO-DOVE/</i>													
ISIS Global:	1	2.6.5	32%	33%	16%	10%	0%	1.395	0%	5	6	4	5
N.AMERICA Region:	0	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0
Age Distribution: 0	100 age classes...												

Age Distribution Percentiles: ■ &gt; 80th, ■■ &gt; 60th, ■■■ &gt; 40th, ■■■■ &gt; 20th







Taxon	Number of Collections	31/12/1993 Census	Crude Demographics						Crude Genetics				
			CBR	CIR	CDR	CDRn	CER	CRC	%>=F2	Wcbr	Wcliv	Wclivbr	LivBr
N.AMERICA Region:	3	2.1.3	14%	8%	25%	0%	0%	0.856	0%	1	2	0	0
Age Distribution: 0 ■■■■■													
<i>Phaps elegans</i> /BRUSH BRONZEWING PIGEON/													
ISIS Global:	5	5.7.8	29%	2%	20%	37%	0%	0.974	5%	2	5	2	5
N.AMERICA Region:	2	2.3.0	27%	33%	12%	20%	0%	1.283	0%	2	4	2	2
Age Distribution: 0 ■■■■■													
<i>Phaps histrionica</i> /FLOCK PIGEON/													
ISIS Global:	3	8.4.3	2%	2%	13%	7%	0%	0.908	20%	0	3	0	3
N.AMERICA Region:	0	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0
Age Distribution: 0 ■■■■■													
<i>Ptilinopus</i> /DOVE,FRUIT/genus													
<i>Ptilinopus aurantiifrons</i> /ORANGE-FRONT FRUIT DOVE/													
ISIS Global:	3	5.5.1	31%	33%	18%	20%	0%	1.244	0%	2	5	2	2
N.AMERICA Region:	0	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0
Age Distribution: 0 ■■■■■													
<i>Ptilinopus cinctus</i> (no subsp)/BLACK-BANDED FRUIT DOVE/													
ISIS Global:	3	4.2.0	11%	32%	31%	30%	0%	1.077	0%	4	4	1	1
N.AMERICA Region:	3	3.2.0	11%	32%	31%	30%	0%	1.048	0%	4	3	1	1
Age Distribution: 0 ■■■■■													
<i>Ptilinopus cinctus albocinctus</i> /BLACK-BANDED FRUIT DOVE/													
ISIS Global:	1	1.1.0	0%	0%	0%	0%	0%	0.000	0%	2	2	2	2
N.AMERICA Region:	0	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0
Age Distribution: 0 ■■■■■													
<i>Ptilinopus coronulatus</i> (no subsp)/LILAC CROWNED FRUIT DOVE/													
ISIS Global:	4	8.7.5	26%	16%	31%	12%	0%	0.879	0%	2	10	2	2
N.AMERICA Region:	2	6.5.4	45%	24%	51%	12%	0%	0.932	0%	2	6	2	2
Age Distribution: 0 ■■■■■													
<i>Ptilinopus coronulatus geminus</i> /LILAC-CAPPED FRUIT DOVE/													
ISIS Global:	1	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0
N.AMERICA Region:	1	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0
Age Distribution: 0 ■■■■■													

Age Distribution Percentiles: ■ > 80th, ■■ > 60th, ■■■ > 40th, ■■■■ > 20th





Taxon	Number of Collections	31/12/1993 Census	Crude Demographics					Crude Genetics						
			CBR	CIR	CDR	CDRn	CER	CRC	%>=F2	WCbr	WCliv	WClivbr	LivBr	
<i>Ptilinopus superbus superbus</i> /SUPERB FRUIT DOVE/														
	ISIS Global:	3	5.4.1	7%	47%	0%	0%	0%	1.533	0%	4	8	4	4
	N.AMERICA Region:	2	3.3.0	10%	20%	0%	0%	0%	1.300	0%	4	4	4	4
Age Distribution: 0  ■■■■·■■■■· ..... ..... ..... ..... ..... 100 age classes...														
<i>Ptilinopus superbus temminckii</i> /PURPLE-CAPPED FRUIT DOVE/														
	ISIS Global:	2	4.1.0	20%	0%	5%	0%	0%	1.150	0%	5	2	2	2
	N.AMERICA Region:	2	4.1.0	20%	0%	5%	0%	0%	1.150	0%	5	2	2	2
Age Distribution: 0  ■■■■·■■■■· ..... ..... ..... ..... ..... 100 age classes...														
<i>Ptilinopus superbus superbus</i> /SUPERB FRUIT DOVE/														
	ISIS Global:	3	5.4.1	7%	47%	0%	0%	0%	1.533	0%	4	8	4	4
	N.AMERICA Region:	2	3.3.0	10%	20%	0%	0%	0%	1.300	0%	4	4	4	4
Age Distribution: 0  ■■■■·■■■■· ..... ..... ..... ..... ..... 100 age classes...														
<i>Ptilinopus superbus temminckii</i> /PURPLE-CAPPED FRUIT DOVE/														
	ISIS Global:	2	4.1.0	20%	0%	5%	0%	0%	1.150	0%	5	2	2	2
	N.AMERICA Region:	2	4.1.0	20%	0%	5%	0%	0%	1.150	0%	5	2	2	2
Age Distribution: 0  ■■■■·■■■■· ..... ..... ..... ..... ..... 100 age classes...														
<i>Reinwardtoena</i> /CUCKOO-DOVE/genus														
<i>Reinwardtoena reinwardtsi</i> /GREAT CUCKOO-DOVE/														
	ISIS Global:	2	3.2.0	0%	70%	23%	0%	0%	1.467	0%	0	5	0	0
	N.AMERICA Region:	2	3.2.0	0%	70%	23%	0%	0%	1.467	0%	0	5	0	0
Age Distribution: 0  ■■■■·■■■■· ..... ..... ..... ..... ..... 100 age classes...														
<i>Scardafella</i> /DOVE/genus														
<i>Scardafella inca</i> /INCA DOVE/														
	ISIS Global:	5	2.4.20	2%	48%	22%	0%	0%	1.239	0%	2	25	1	1
	N.AMERICA Region:	5	2.4.20	2%	56%	23%	0%	0%	1.283	0%	2	25	1	1
Age Distribution: 0  ■■■■·■■■■· ..... ..... ..... ..... ..... 100 age classes...														
<i>Starnoenas</i> /DOVE,BLUE-HEADED QUAIL/genus														
<i>Streptopelia</i> /DOVE,TURTLE/genus														

Age Distribution Percentiles: ■ &gt; 80th, ■■ &gt; 60th, ■■■ &gt; 40th, ■■■■ &gt; 20th



Taxon	Number of Collections	31/12/1993 Census	Crude Demographics						Crude Genetics					
			CBR	CIR	CDR	CDRn	CER	CRC	%>=F2	Wcbr	WCliv	WClivbr	LivBr	
<i>Streptopelia roseogrisea</i> /PINK-HEADED TURTLE DOVE/														
	ISIS Global:	2	5.5.1	50%	0%	0%	0%	0%	1.390	18%	0	1	0	8
	N.AMERICA Region:	1	5.5.0	16%	7%	0%	0%	0%	0.443	20%	0	0	0	8
Age Distribution: 0 ■■■■■■■■■■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<i>Streptopelia semitorquata</i> /RED-EYED DOVE/														
	ISIS Global:	4	3.5.32	60%	30%	17%	2%	0%	1.508	10%	0	2	0	2
	N.AMERICA Region:	2	1.1.26	77%	8%	8%	2%	0%	1.237	0%	0	1	0	0
Age Distribution: 0 ■■..... ..... ..... ..... ..... ..... ..... 100 age classes...														
<i>Streptopelia senegalensis</i> /LAUGHING DOVE/														
	ISIS Global:	16	17.14.82	18%	7%	14%	5%	0%	1.006	11%	3	42	2	7
	N.AMERICA Region:	3	3.2.8	15%	8%	14%	3%	0%	1.051	8%	0	4	0	0
Age Distribution: 0 ■■■■■■■■■■ ■■■■■■■■■■ ..... ..... ..... ..... ..... 100 age classes...														
<i>Streptopelia tranquebarica</i> (no sbp)/RED TURTLE DOVE/														
	ISIS Global:	2	8.2.0	18%	9%	20%	7%	0%	1.047	0%	0	6	0	0
	N.AMERICA Region:	1	5.2.0	47%	29%	37%	7%	0%	1.313	0%	0	3	0	0
Age Distribution: 0 ■■■■■■■■■■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<i>Streptopelia turtur</i> (unk sp)/TURTLE DOVE/														
	ISIS Global:	5	2.5.25	72%	1%	12%	0%	0%	1.610	0%	2	4	1	1
	N.AMERICA Region:	1	1.1.0	0%	0%	0%	0%	0%	0.200	0%	0	2	0	0
Age Distribution: 0 ■■■■■■■■■■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<i>Streptopelia turtur turtur</i> /TURTLE DOVE/														
	ISIS Global:	1	2.3.0	13%	0%	5%	0%	0%	1.083	20%	0	0	0	2
	N.AMERICA Region:	0	0.0.0	0%	0%	0%	0%	0%	0.000	0%	0	0	0	0
Age Distribution: 0 ..... ..... ..... ..... ..... ..... ..... 100 age classes...														
<i>Streptopelia vinacea</i> /VINAVEOUS DOVE/														
	ISIS Global:	2	1.3.0	20%	0%	10%	0%	0%	1.000	0%	0	0	0	0
	N.AMERICA Region:	2	1.3.0	0%	0%	0%	0%	0%	0.400	0%	0	0	0	0
Age Distribution: 0 ■■■■■■■■■■ ..... ..... ..... ..... ..... ..... 100 age classes...														
<i>Treron</i> /PIGEON/genus														
<i>Treron bicincta</i> /ORANGE-BREASTED PIGEON/														
	ISIS Global:	2	0.0.1	0%	0%	0%	0%	0%	0.600	0%	0	0	0	0
Age Distribution Percentiles: ■ > 80th, ■■ > 60th, ■■■ > 40th, ■■■■ > 20th														



Taxon	Number of Collections	31/12/1993 Census	Crude Demographics						Crude Genetics					
			CBR	CIR	CDR	CDRn	CER	CRC	%>=F2	WCbr	WCliv	WClivbr	LivBr	
<b><i>Treron waalia</i>/BRUCES GREEN PEGEON/</b>														
	ISIS Global:	1	0.0.2	0%	0%	0%	0%	0%	1.000	0%	0	2	0	0
	N.AMERICA Region:	1	0.0.1	0%	0%	0%	0%	0%	1.000	0%	0	1	0	0
Age Distribution: 0 ..... ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Trugon</i>/DOVE, THICK-BILLED GROUND/genus</b>														
<b><i>Trugon terrestris</i>/THICK-BILLED GROUND DOVE/</b>														
	ISIS Global:	1	2.1.0	0%	7%	7%	0%	0%	0.600	0%	0	3	0	0
	N.AMERICA Region:	1	2.1.0	0%	7%	7%	0%	0%	0.600	0%	0	3	0	0
Age Distribution: 0 ..... ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Turacoena</i>/PIGEON/genus</b>														
<b><i>Turacoena manadensis</i>/CELEBES PIGEON/</b>														
	ISIS Global:	1	2.2.1	33%	10%	21%	7%	0%	1.088	0%	1	2	1	1
	N.AMERICA Region:	1	2.2.1	46%	43%	12%	7%	0%	1.576	0%	1	2	1	1
Age Distribution: 0 ..... ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Turtur</i>/DOVE, WOOD/genus</b>														
<b><i>Turtur abyssinicus</i>/BLACK-BILLED WOOD DOVE/</b>														
	ISIS Global:	3	5.0.2	155%	0%	33%	9%	0%	2.047	0%	0	0	0	2
	N.AMERICA Region:	2	4.0.2	42%	80%	16%	9%	0%	1.660	0%	0	0	0	2
Age Distribution: 0 ..... ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Turtur chalcospilos</i>/EMERALD-SPOTTED WOOD DOVE/</b>														
	ISIS Global:	4	3.4.5	45%	78%	22%	2%	0%	2.017	0%	1	6	0	0
	N.AMERICA Region:	3	3.4.1	9%	13%	13%	0%	0%	0.460	0%	0	2	0	0
Age Distribution: 0 ..... ..... ..... ..... ..... ..... ..... 100 age classes...														
<b><i>Turtur tympanistria</i>/TAMBOURINE DOVE/</b>														
	ISIS Global:	4	12.5.2	38%	22%	38%	22%	0%	1.214	0%	0	4	0	1
	N.AMERICA Region:	3	6.3.1	76%	83%	79%	7%	0%	0.900	0%	0	4	0	0
Age Distribution: 0 ..... ..... ..... ..... ..... ..... ..... 100 age classes...														

Age Distribution Percentiles: █ > 80th, █ > 60th, █ > 40th, █ > 20th





Family Totals: 37.50.347 =434      Captive Born: 9%    Wild Born: 89%    Captive births last 12 months: 20    Deaths first 30 days (of captive birth): 4

**Family - Pteroclididae/SANDGROUSE/**

*Pterocles alchata* (no subsp)/PIN-TAILED SANDGROUSE/

RIYADH 1. 5. 0(0)    Region {1.5.0(0)}

Total held: 1.5.0 =6      Number of institutions: 1    Captive Born:100%    Wild Born: 0%    Captive births last 12 months: 0    Deaths first 30 days: 0

*Pterocles alchata alchata*/PIN-TAILED SANDGROUSE/

BARCELONA 0. 1. 0(0)    Region {0.1.0(0)}

Total held: 0.1.0 =1      Number of institutions: 1    Captive Born: 0%    Wild Born:100%    Captive births last 12 months: 0    Deaths first 30 days: 0

*Pterocles decoratus*/BLACK-FACED SANDGROUSE/

NY BRONX 1. 1. 0(0)    Region {1.1.0(0)}

Total held: 1.1.0 =2      Number of institutions: 1    Captive Born: 0%    Wild Born: 0%    Captive births last 12 months: 0    Deaths first 30 days: 0

*Pterocles exustus* (no subsp)/CHESTNUT-BELLIED SANDGROUSE/

BALTIMORE 1. 2. 0(0)    HONOLULU 1. 0. 0(0)    MILWAUKEE 1. 0. 0(0)    SANDIEGOZ 2. 1. 0(1)    SD-WAP 0. 1. 0(0)    ST LOUIS 3. 3. 0(0)  
TRACY AV 2. 1. 0(0)    Region {10.8.0(1)}    RIYADH 3. 4. 0(0)    Region {3.4.0(0)}

Total held: 13.12.0 =25      Number of institutions: 8    Captive Born: 24%    Wild Born: 76%    Captive births last 12 months: 1    Deaths first 30 days: 0

*Pterocles exustus exustus*/CHESTNUT-BELLIED SANDGROUSE/

SANDIEGOZ 0. 1. 2(3)    SD-WAP 1. 0. 0(2)    Region {1.1.2(5)}

Total held: 1.1.2 =4      Number of institutions: 2    Captive Born: 75%    Wild Born: 25%    Captive births last 12 months: 5    Deaths first 30 days: 1

*Pterocles gutturalis*/YELLOW-THROATED SANDGROUSE/

INDIANAPL 0. 1. 0(0)    PORTLAND 1. 1. 0(0)    Region {1.2.0(0)}

Total held: 1.2.0 =3      Number of institutions: 2    Captive Born: 0%    Wild Born: 33%    Captive births last 12 months: 0    Deaths first 30 days: 0

*Pterocles orientalis*/BLACK-BELLY SANDGROUSE/

ANTWERP 1. 0. 0(0)    Region {1.0.0(0)}

Total held: 1.0.0 =1      Number of institutions: 1    Captive Born: 0%    Wild Born: 0%    Captive births last 12 months: 0    Deaths first 30 days: 0

Family Totals: 18.22.2 =42      Captive Born: 36%    Wild Born: 52%    Captive births last 12 months: 6    Deaths first 30 days (of captive birth): 1

**Family - Columbidae/PIGEONS, DOVES/**

*Aplopelia larvata* (no subsp)/LEMON DOVE/

PRET POT 3. 1. 4(0)    PRETORIA 3. 3. 1(0)    Region {6.4.5(0)}      SANDIEGOZ 0. 1. 12(0)    Region {0.1.12(0)}

Total held: 6.5.17 =28      Number of institutions: 3    Captive Born: 57%    Wild Born: 0%    Captive births last 12 months: 0    Deaths first 30 days: 0

*Aplopelia larvata larvata*/LEMON DOVE/

CLERES 1. 1. 3(2)    Region {1.1.3(2)}

Total held: 1.1.3 =5      Number of institutions: 1    Captive Born:100%    Wild Born: 0%    Captive births last 12 months: 2    Deaths first 30 days: 0

*Caloenas nicobarica* (no subsp)/NICOBAR PIGEON/

ALPHEN 3. 4. 3(0)	AMSTERDAM 1. 0. 1(0)	ARNHEM 9. 7. 15(12)	BRISTOL 2. 0. 1(0)	FRANKFURT 2. 2. 1(0)	MULHOUSE 0. 0. 4(0)
MUNSTER 2. 2. 0(0)	TOUROPARC 0. 0. 1(0)	ZURICH 1. 0. 0(0)	Region (20.15.26(12))	PRETORIA 2. 2. 1(0)	Region (2.2.1(0))
AUDUBON 1. 1. 2(2)	CHICAGOLP 4. 3. 0(0)	CINCINNAT 1. 1. 2(1)	CLEVELAND 3. 1. 3(1)	DENVER 2. 2. 2(1)	DES MOINE 0. 1. 0(0)
EVANSVILLE 1. 1. 0(0)	FORTWORTH 2. 0. 0(0)	FRANKLINP 3. 2. 0(0)	HOUSTON 1. 2. 0(0)	LAKEBUENA 1. 1. 0(0)	LODI 2. 2. 2(2)
LOSANGELE 0. 0. 1(0)	LOUISVILL 1. 1. 0(0)	LOWRY 7. 5. 1(8)	MEMPHIS 0. 2. 0(0)	METROZOO 0. 2. 1(0)	MILWAUKEE 3. 2. 0(0)
MINNESOTA 7. 10. 7(3)	MONROE 2. 1. 0(0)	NZP-WASH 0. 1. 0(0)	OKLAHOMA 1. 1. 0(0)	OMAHA 1. 0. 0(0)	PHILADELP 8. 2. 0(1)
PITTS CA 0. 0. 0(1)	RIO GRAND 5. 0. 0(0)	SEATTLE 1. 1. 0(0)	SEDGWICK 3. 2. 1(1)	ST LOUIS 2. 0. 0(0)	TOPEKA 1. 4. 0(0)
TORONTO 11. 4. 2(0)	TUCSON 3. 2. 1(3)	W PALM BE 1. 0. 0(0)	WILD WRLD 5. 7. 0(0)	Region (83.64.25(24))	TOKYOUENO 0. 2. 1(0)
Region (0.2.1(0))	ADELAIDE 6. 5. 4(3)	MELBOURNE 5. 0. 0(0)	SYDNEY 19. 15. 2(10)	WELLINGTN 1. 0. 0(0)	Region (31.20.6(13))

Total held: 136.103.59 =298 Number of institutions: 49 Captive Born: 87% Wild Born: 3% Captive births last 12 months: 49 Deaths first 30 days: 14

*Caloenas nicobarica nicobarica*/NICOBAR PIGEON/

BARCELONA 3. 4. 18(5)	BELFAST 1. 1. 0(0)	ROTTERDAM 4. 2. 1(7)	ZURICH 5. 4. 1(1)	Region (13.11.20(13))	FT WAYNE 1. 0. 0(0)
HONOLULU 1. 2. 3(4)	MEMPHIS 2. 0. 0(0)	PITTS CA 8. 3. 1(1)	SANDIEGOZ 6. 6. 5(0)	SD-WAP 0. 0. 1(0)	Region (18.11.10(5))
KHAOKHEOW 4. 4. 0(0)	Region (4.4.0(0))				

Total held: 35.26.30 =91 Number of institutions: 11 Captive Born: 69% Wild Born: 16% Captive births last 12 months: 18 Deaths first 30 days: 5

*Chalcophaps indica* (no subsp)/GREEN-WINGED DOVE/

ALPHEN 1. 0. 0(0)	ARNHEM 0. 0. 7(12)	BURFORD 1. 0. 0(0)	CHESTER 3. 1. 0(0)	CLERES 3. 3. 2(6)	GIVSKUD 1. 1. 0(0)
MULHOUSE 0. 2. 0(0)	PAIGNTON 5. 3. 2(1)	Region (14.10.11(19))	PRETORIA 1. 0. 0(0)	Region (1.0.0(0))	BROWNSVIL 0. 2. 1(0)
COAL VAL 2. 2. 0(0)	FT WAYNE 0. 1. 3(0)	HOUSTON 6. 5. 10(8)	JACKSONVL 0. 1. 0(0)	LOWRY 2. 2. 2(1)	METROZOO 1. 1. 2(0)
MONROE 1. 1. 1(0)	NY BRONX 1. 0. 0(0)	PUEBLO 1. 1. 0(2)	SANDIEGOZ 1. 1. 3(0)	ST LOUIS 1. 0. 0(0)	TOLEDO 1. 1. 0(0)
Region (17.18.22(11))	KHAOKHEOW 13. 12. 25(0)	TOKYOTAMA 0. 0. 8(0)	Region (13.12.33(0))	PERTH 4. 5. 5(9)	SYDNEY 4. 5. 5(0)
WELLINGTN 2. 3. 0(0)	WINNELLIE 3. 1. 1(1)	Region (13.14.11(10))			

Total held: 58.54.77 =189 Number of institutions: 28 Captive Born: 59% Wild Born: 29% Captive births last 12 months: 40 Deaths first 30 days: 8

*Chalcophaps indica chrysochlora*/EMERALD DOVE/

FT WAYNE 0. 1. 0(0)	Region (0.1.0(0))	CURRUMBIN 0. 0. 0(2)	HEALESVIL 7. 3. 9(0)	MELBOURNE 12. 6. 1(14)	TIPP STAT 1. 2. 2(2)
Region (20.11.12(18))					

Total held: 20.12.12 =44 Number of institutions: 5 Captive Born: 95% Wild Born: 0% Captive births last 12 months: 18 Deaths first 30 days: 5

*Chalcophaps indica longirostris*/EMERALD DOVE/

PHILADELP 1. 0. 0(0)	Region (1.0.0(0))				
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Total held: 1.0.0 =1 Number of institutions: 1 Captive Born: 100% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Chalcophaps indica indica*/EMERALD DOVE/

SANDIEGOZ 0. 0. 0(1)	Region (0.0.0(1))				
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Total held: 0.0.0 =0 Number of institutions: 1 Captive Born: \*\*\*% Wild Born: \*\*\*% Captive births last 12 months: 1 Deaths first 30 days: 1

*Chalcophaps stephani*/BROWN-BACKED GROUND PIGEON/

NY BRONX 0. 1. 0(0)	SANDIEGOZ 0. 1. 0(0)	Region (0.2.0(0))			
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Total held: 0.2.0 =2 Number of institutions: 2 Captive Born: 0% Wild Born: 50% Captive births last 12 months: 0 Deaths first 30 days: 0

*Claravis pretiosa*/BLUE GROUND PIGEON/

SANDIEGOZ 0. 1. 0(0)	Region (0.1.0(0))				
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Total held: 0.1.0 =1 Number of institutions: 1 Captive Born: 0% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Columba arquatrix*/OLIVE PIGEON/

CLERES 2. 2. 4(3) Region {2.2.4(3)}      PRETORIA 2. 1. 1(0)      Region {2.1.1(0)}      SANDIEGOZ 1. 1. 0(0)      SD-WAP 1. 3. 0(1)  
 Region {2.4.0(1)}

Total held: 6.7.5 =18      Number of institutions: 4      Captive Born: 78%      Wild Born: 11%      Captive births last 12 months: 4      Deaths first 30 days: 1

*Columba cayennensis*/PALE-VENTED PIGEON/

PRETORIA 0. 1. 0(0)      Region {0.1.0(0)}      BALTIM AQ 2. 0. 0(0)      Region {2.0.0(0)}

Total held: 2.1.0 =3      Number of institutions: 2      Captive Born:100%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Columba corensis*/BARE-EYED PIGEON/

SANDIEGOZ 0. 0. 2(0)      Region {0.0.2(0)}

Total held: 0.0.2 =2      Number of institutions: 1      Captive Born: 0%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Columba fasciata*/BAND-TAILED PIGEON/

HOGLE 0. 2. 0(0)      PORTLAND 1. 1. 1(0)      Region {1.3.1(0)}

Total held: 1.3.1 =5      Number of institutions: 2      Captive Born: 0%      Wild Born:100%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Columba flavirostris*/RED-BILLED PIGEON/

CLERES 0. 2. 5(3)      Region {0.2.5(3)}      ABILENE 2. 2. 0(0)      SD-WAP 3. 2. 2(3)      Region {5.4.2(3)}

Total held: 5.6.7 =18      Number of institutions: 3      Captive Born: 56%      Wild Born: 22%      Captive births last 12 months: 6      Deaths first 30 days: 0

*Columba guinea* (no subsp)/SPECKLED PIGEON/

ALPHEN 1. 1. 4(0)      ANTWERP 1. 0. 2(0)      ARNHEM 0. 0. 9(4)      AUGSBURG 0. 1. 0(0)      BARCELONA 0. 1. 2(0)      CHESTER 0. 0. 1(0)  
 GIVSKUD 3. 3. 0(0)      LISBON 0. 0. 5(0)      LONDON RP 0. 0. 21(6)      MULHOUSE 2. 0. 0(0)      ODENSE 1. 0. 5(0)      PAIGNTON 0. 2. 11(4)  
 VIENNA 0. 2. 0(0)      Region {8.10.60(14)}      PRET POT 1. 2. 4(0)      PRETORIA 7. 9. 5(1)      Region {8.11.9(1)}      BALTIMORE 0. 0. 2(0)  
 CINCINNAT 9. 10. 11(7)      DALLAS 2. 2. 9(5)      DES MOINE 1. 2. 2(2)      DICKERSON 0. 0. 1(0)      FORTWORTH 0. 1. 0(0)      FRESNO 0. 0. 1(0)  
 LOSANGELE 0. 0. 1(0)      OMAHA 1. 1. 1(0)      QUEBEC 0. 0. 1(0)      SAN FRAN 1. 0. 0(0)      SANDIEGOZ 1. 1. 9(2)      SD-WAP 0. 2. 0(0)  
 ST LOUIS 1. 5. 2(0)      TOPEKA 2. 2. 1(0)      Region {18.26.41(16)}      RAMAT GAN 0. 3. 0(0)      Region {0.3.0(0)}

Total held: 34.50.110 =194      Number of institutions: 31      Captive Born: 89%      Wild Born: 3%      Captive births last 12 months: 31      Deaths first 30 days: 0

*Columba guinea* (no subsp)/ <<< Hybrid >>> /SPECKLED PIGEON/

FORTWORTH 0. 0. 1(1)      Region {0.0.1(1)}

Total held: 0.0.1 =1      Number of institutions: 1      Captive Born:100%      Wild Born: 0%      Captive births last 12 months: 1      Deaths first 30 days: 0

*Columba guinea guinea*/SPECKLED PIGEON/

SANDIEGOZ 0. 0. 7(7)      Region {0.0.7(7)}

Total held: 0.0.7 =7      Number of institutions: 1      Captive Born:100%      Wild Born: 0%      Captive births last 12 months: 7      Deaths first 30 days: 0

*Columba guinea phaeonota*/SPECKLED PIGEON/

FORTWORTH 2. 1. 3(3)      Region {2.1.3(3)}

Total held: 2.1.3 =6      Number of institutions: 1      Captive Born:100%      Wild Born: 0%      Captive births last 12 months: 3      Deaths first 30 days: 0

*Columba leucocephala*/WHITE-CROWNED PIGEON/

ANTWERP 0. 0. 1(0)      Region {0.0.1(0)}      EL PASO 1. 1. 0(0)      HOUSTON 0. 1. 0(0)      LOWRY 2. 1. 0(0)      MONTGOMRY 0. 1. 8(4)  
 PROVIDNCE 0. 1. 0(0)      Region {3.5.8(4)}      CURRUMBIN 1. 2. 0(0)      Region {1.2.0(0)}

Total held: 4.7.9 =20      Number of institutions: 7      Captive Born: 65%      Wild Born: 0%      Captive births last 12 months: 4      Deaths first 30 days: 1

***Columba leucomela*/PIGEON/**

BROWNSVIL	0.	5.	0(0)	COLUMBUS	1.	2.	6(6)	LOUISVILL	0.	0.	1(0)	LOWRY	0.	0.	1(0)	MANHATTAN	1.	2.	0(0)	SANDIEGOZ	1.	3.	1(0)	
SD-WAP	0.	1.	0(0)	Region {3.13.9(6)}	CURRUMBIN	0.	0.	8(0)	HEALESVIL	2.	2.	0(0)	MELBOURNE	6.	3.	7(9)	PERTH	1.	0.	0(0)				
SYDNEY	8.	1.	2(2)	Region {17.6.17(11)}																				

Total held: 20.19.26 =65      Number of institutions: 12      Captive Born: 66%      Wild Born: 6%      Captive births last 12 months: 17      Deaths first 30 days: 0

***Columba livia* (no subsp)/ROCK DOVE/**

AMSTERDAM	4.	0.	0(0)	LODZ	2.	2.	2(7)	WHIPSNAD	11.	17.	0(0)	Region {17.19.2(7)}	CINCINNAT	1.	0.	13(0)	EL PASO	0.	1.	0(0)				
GRASSMERE	0.	0.	1(0)	HOUSTON	3.	0.	1(0)	INDIANAPL	6.	5.	4(0)	KNOXVILLE	3.	3.	7(4)	MINNESOTA	0.	0.	1(0)	NY BRONX	1.	1.	0(0)	
PANAMACTY	1.	1.	0(0)	PROSPECTP	0.	0.	8(0)	PUEBLO	1.	0.	0(0)	REDWOOD	2.	2.	0(0)	TOLEDO	0.	0.	1(0)	Region {18.13.36(4)}				
MOSCOW	0.	0.	2(0)	Region {0.0.2(0)}																				

Total held: 35.32.40 =107      Number of institutions: 17      Captive Born: 84%      Wild Born: 3%      Captive births last 12 months: 11      Deaths first 30 days: 7

***Columba livia livia*/FERAL ROCK DOVE/**

BARCELONA	0.	0.	1(0)	Region {0.0.1(0)}																			
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Total held: 0.0.1 =1      Number of institutions: 1      Captive Born:100%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

***Columba oenas*/STOCK DOVE/**

CLERES	2.	2.	6(5)	HEIDELBRG	0.	0.	1(0)	Region {2.2.7(5)}	MOSCOW	2.	0.	0(0)	Region {2.0.0(0)}												
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Total held: 4.2.7 =13      Number of institutions: 3      Captive Born:100%      Wild Born: 0%      Captive births last 12 months: 5      Deaths first 30 days: 0

***Columba oenops*/PERUVIAN PIGEON/**

PARIS JP	2.	2.	0(0)	Region {2.2.0(0)}																			
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Total held: 2.2.0 =4      Number of institutions: 1      Captive Born:100%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

***Columba palumbus*/WOOD PIGEON/**

LISBON	0.	0.	1(0)	LODZ	1.	0.	1(0)	Region {1.0.2(0)}	PRETORIA	1.	1.	3(1)	Region {1.1.3(1)}	TRACY AV	0.	1.	0(0)								
Region {0.1.0(0)}	MOSCOW	2.	2.	0(0)	Region {2.2.0(0)}																				

Total held: 4.4.5 =13      Number of institutions: 5      Captive Born: 62%      Wild Born: 38%      Captive births last 12 months: 1      Deaths first 30 days: 0

***Columba picazuro*/PICAZURO PIGEON/**

BARCELONA	0.	1.	0(0)	Region {0.1.0(0)}	PRETORIA	0.	0.	2(0)	Region {0.0.2(0)}																
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Total held: 0.1.2 =3      Number of institutions: 2      Captive Born:100%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

***Columba pulchricollis*/ASHY WOOD PIGEON/**

SANDIEGOZ	4.	1.	3(3)	Region {4.1.3(3)}																			
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Total held: 4.1.3 =8      Number of institutions: 1      Captive Born: 50%      Wild Born: 0%      Captive births last 12 months: 3      Deaths first 30 days: 1

***Columba speciosa*/SCALED PIGEON/**

SANDIEGOZ	2.	2.	0(0)	Region {2.2.0(0)}																			
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Total held: 2.2.0 =4      Number of institutions: 1      Captive Born: 0%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

***Columba squamosa*/SCALY-NAPED PIGEON/**

LOSANGELE	0.	1.	0(0)	MONTGOMRY	1.	1.	0(0)	PITTS CA	0.	2.	6(3)	SYRACUSE	1.	2.	0(0)	Region {2.6.6(3)}								
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Total held: 2.6.6 =14      Number of institutions: 4      Captive Born: 71%      Wild Born: 21%      Captive births last 12 months: 3      Deaths first 30 days: 0

*Columba vitiensis*/WHITE-THROATED WOOD PIGEON/

SANDIEGOZ 2. 2. 2(2) Region (2.2.2(2))

Total held: 2.2.2 =6 Number of institutions: 1 Captive Born: 33% Wild Born: 67% Captive births last 12 months: 2 Deaths first 30 days: 1

*Columba mayeri*/MAURITIUS PINK PIGEON/

ALPHEN 2. 1. 0(0)	ANTWERP 0. 1. 0(0)	CHARD 2. 2. 1(0)	CHESTER 4. 4. 0(0)	HAYLE 2. 2. 0(0)	JERSEY 12. 14. 12(12)
LEEDS 3. 2. 0(4)	PAIGNTON 3. 2. 0(0)	ROTTERDAM 2. 2. 0(1)	Region (30.30.13(17))	AUDUBON 1. 0. 0(0)	BROWNSVIL 2. 0. 0(0)
CENTRALPK 1. 0. 0(0)	CHICAGOLP 1. 0. 0(0)	EVANSVILLE 1. 1. 0(0)	HOUSTON 2. 2. 0(0)	MEMPHIS 0. 3. 0(0)	NY BRONX 3. 3. 1(5)
OMAHA 1. 0. 0(0)	PITTS CA 1. 1. 0(0)	RIO GRAND 0. 1. 1(0)	SAN ANTON 1. 0. 0(0)	SANDIEGOZ 0. 0. 2(0)	SD-WAP 3. 3. 1(1)
ST LOUIS 4. 2. 0(0)	Region (21.16.5(6))				

Total held: 51.46.18 =115 Number of institutions: 24 Captive Born: 94% Wild Born: 3% Captive births last 12 months: 23 Deaths first 30 days: 11

*Columbina cruziana*/CROAKING GROUND DOVE/

ALPHEN 1. 1. 0(0) CLERES 0. 1. 3(0) DUDLEY 1. 1. 0(0) Region (2.3.3(0))

Total held: 2.3.3 =8 Number of institutions: 3 Captive Born: 50% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Columbina passerina*/GROUND DOVE/

PALM DES 0. 0. 6(0) Region (0.0.6(0))

Total held: 0.0.6 =6 Number of institutions: 1 Captive Born: 17% Wild Born: 83% Captive births last 12 months: 0 Deaths first 30 days: 0

*Columbina picui*/PICUI GROUND DOVE/

GIVSKUD 1. 1. 0(0) Region (1.1.0(0)) SANDIEGOZ 1. 1. 2(0) Region (1.1.2(0))

Total held: 2.2.2 =6 Number of institutions: 2 Captive Born: 67% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Columbina talpacoti*/RUDDY GROUND DOVE/CLERES 2. 0. 0(0) Region (2.0.0(0)) BLOOMINGT 0. 0. 1(0) CHICAGOLP 2. 0. 0(0) MILWAUKEE 0. 2. 0(0) TUCSON 1. 1. 0(0)  
Region (3.3.1(0))

Total held: 5.3.1 =9 Number of institutions: 5 Captive Born: 56% Wild Born: 44% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ducula aenea* (no subsp)/GREEN IMPERIAL PIGEON/

BRISTOL 0. 0. 1(0)	BURFORD 1. 1. 0(0)	HAYLE 2. 0. 0(0)	LONDON RP 1. 1. 2(2)	Region (4.2.3(2))	CHICAGOLP 1. 1. 1(1)
DENVER 0. 1. 0(0)	LOWRY 1. 0. 0(0)	SANDIEGOZ 2. 0. 0(0)	SD-WAP 2. 3. 1(0)	Region (6.5.2(1))	KHAOKHEOW 5. 5. 0(0)
Region (5.5.0(0))					

Total held: 15.12.5 =32 Number of institutions: 10 Captive Born: 16% Wild Born: 44% Captive births last 12 months: 3 Deaths first 30 days: 0

*Ducula aenea paulina*/GREEN IMPERIAL PIGEON/

BRISTOL 2. 1. 3(4) Region (2.1.3(4))

Total held: 2.1.3 =6 Number of institutions: 1 Captive Born: 67% Wild Born: 0% Captive births last 12 months: 4 Deaths first 30 days: 1

*Ducula bicolor*/PIED IMPERIAL PIGEON/

ALPHEN 3. 2. 0(2)	ARNHEM 4. 4. 19(5)	BRISTOL 2. 3. 0(0)	BURFORD 1. 1. 0(2)	CHESTER 2. 2. 0(0)	DUDLEY 1. 1. 0(0)
LONDON RP 0. 1. 0(0)	MULHOUSE 0. 0. 12(1)	PAIGNTON 2. 2. 0(1)	Region (15.16.31(11))	PRETORIA 1. 1. 2(1)	Region (1.1.2(1))
FRANKLINP 2. 8. 0(0)	FT WAYNE 3. 3. 1(0)	HOGLE 3. 1. 0(0)	HONOLULU 2. 1. 0(0)	KANSASCTY 2. 1. 0(0)	LOUISVILL 1. 1. 0(0)
LOWRY 0. 0. 0(1)	MINNESOTA 9. 3. 5(2)	NY BRONX 2. 2. 1(0)	OMAHA 1. 1. 0(0)	PITTS CA 8. 5. 1(4)	SAN ANTON 2. 3. 3(6)
SANDIEGOZ 4. 3. 6(1)	ST LOUIS 5. 5. 0(5)	Region (44.37.17(19))	KHAOKHEOW 1. 0. 0(0)	TOKYOTAMA 1. 2. 1(0)	TOKYOUENO 0. 0. 6(0)
Region (2.2.7(0))	WINNELLIE 2. 0. 20(0)	Region (2.0.20(0))			

Total held: 64.56.77 =197 Number of institutions: 28 Captive Born: 75% Wild Born: 13% Captive births last 12 months: 31 Deaths first 30 days: 6

*Ducula carola*/SPOTTED IMPERIAL PIGEON/

LOSANGELE 1. 1. 0(0) SANDIEGOZ 2. 1. 0(0) SD-WAP 3. 1. 0(0) Region {6.3.0(0)}

Total held: 6.3.0 =9 Number of institutions: 3 Captive Born: 22% Wild Born: 56% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ducula concinna*/BLUE-TAILED IMPERIAL PIGEON/

ALPHEN 2. 1. 0(0) Region {2.1.0(0)}

Total held: 2.1.0 =3 Number of institutions: 1 Captive Born: 33% Wild Born: 67% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ducula forsteni*/FORSTERS IMPERIAL PIGEON/

CINCINNAT 1. 3. 0(0) SANDIEGOZ 1. 1. 0(0) SD-WAP 2. 1. 0(0) Region {4.5.0(0)}

Total held: 4.5.0 =9 Number of institutions: 3 Captive Born: 0% Wild Born: 89% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ducula lacernulata*/BLACK-BACKED IMPERIAL PIGEON/

SANDIEGOZ 1. 1. 2(0) SD-WAP 1. 1. 0(0) Region {2.2.2(0)}

Total held: 2.2.2 =6 Number of institutions: 2 Captive Born: 17% Wild Born: 33% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ducula mullerii*/MULLERS IMPERIAL PIGEON/

SANDIEGOZ 1. 1. 0(0) SD-WAP 1. 1. 0(0) Region {2.2.0(0)}

Total held: 2.2.0 =4 Number of institutions: 2 Captive Born: 0% Wild Born: 50% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ducula perspicillata*/MOLUCCA IMPERIAL PIGEON/

SD-WAP 0. 2. 0(0) Region {0.2.0(0)}

Total held: 0.2.0 =2 Number of institutions: 1 Captive Born: 0% Wild Born: 100% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ducula pinon*/PINON IMPERIAL PIGEON/AGRATE 1. 0. 2(0) DUISBURG 1. 1. 0(0) Region {2.1.2(0)} PRETORIA 1. 0. 0(0) Region {1.0.0(0)} CHICAGOLP 3. 1. 0(1)  
CINCINNAT 0. 0. 1(0) LOSANGELE 2. 2. 0(0) MILWAUKEE 0. 2. 0(0) SANDIEGOZ 3. 1. 0(0) SEATTLE 3. 3. 2(3) Region {11.9.3(4)}

Total held: 14.10.5 =29 Number of institutions: 9 Captive Born: 31% Wild Born: 59% Captive births last 12 months: 4 Deaths first 30 days: 0

*Ducula poliocephala*/PINK-BELLIED IMPERIAL PIGEON/

LOWRY 2. 0. 0(0) Region {2.0.0(0)}

Total held: 2.0.0 =2 Number of institutions: 1 Captive Born: 0% Wild Born: 100% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ducula rufigaster*/PURPLE-TAILED IMPERIAL PIGEON/AGRATE 0. 0. 1(0) ALPHEN 2. 1. 0(1) AMSTERDAM 1. 0. 0(0) Region {3.1.1(1)} LOWRY 2. 3. 0(1) PITTS CA 0. 2. 0(0)  
SANDIEGOZ 1. 2. 2(0) SD-WAP 3. 8. 0(3) SEDGWICK 1. 0. 0(0) Region {7.15.2(4)}

Total held: 10.16.3 =29 Number of institutions: 8 Captive Born: 31% Wild Born: 55% Captive births last 12 months: 5 Deaths first 30 days: 2

*Ducula spilorrhoa* (unk sp)/NUTMEG PIGEON/AMSTERDAM 2. 0. 0(0) LISBON 0. 0. 1(0) ROTTERDAM 2. 2. 0(1) Region {4.2.1(1)} SANDIEGOZ 2. 3. 0(0) Region {2.3.0(0)}  
AUCKLAND 0. 0. 2(0) MELBOURNE 1. 1. 21(0) PERTH 2. 2. 1(0) SYDNEY 6. 6. 4(3) Region {9.9.28(3)}

Total held: 15.14.29 =58 Number of institutions: 8 Captive Born: 78% Wild Born: 7% Captive births last 12 months: 4 Deaths first 30 days: 2

*Ducula zoeae*/ZOE IMPERIAL PIGEON/

SD-WAP 1. 5. 2(3) Region {1.5.2(3)}

Total held: 1.5.2 =8 Number of institutions: 1 Captive Born: 38% Wild Born: 63% Captive births last 12 months: 3 Deaths first 30 days: 0

*Gallicolumba criniger*/BARLETT'S DOVE/

ALPHEN 0. 1. 0(0)	AMSTERDAM 1. 2. 3(3)	ANTWERP 1. 1. 1(1)	AUGSBURG 0. 1. 0(0)	CLERES 2. 1. 0(0)	FRANKFURT 2. 2. 2(1)
HAYLE 1. 1. 0(1)	ROTTERDAM 1. 1. 0(2)	Region (8.10.6(8))	AUDUBON 1. 0. 0(0)	DENVER 1. 2. 1(14)	SAN ANTON 1. 0. 0(0)
SANDIEGOZ 0. 1. 0(0)	TOLEDO 1. 0. 0(0)	Region (4.3.1(14))	RAMAT GAN 1. 1. 0(0)	Region (1.1.0(0))	

Total held: 13.14.7 =34      Number of institutions: 14      Captive Born: 79%      Wild Born: 6%      Captive births last 12 months: 22      Deaths first 30 days: 15

*Gallicolumba jobiensis* (no subsp)/WHITE-BREADED GROUND DOVE/

BLOOMINGT 1. 1. 0(0)	PHILADELP 1. 0. 0(0)	PITTS CA 1. 3. 0(0)	SANDIEGOZ 4. 2. 0(0)	SD-WAP 0. 1. 0(0)	SEDGWICK 0. 2. 0(0)
Region (7.9.0(0))	SYDNEY 1. 0. 0(0)	TIPP STAT 0. 0. 4(0)	Region (1.0.4(0))		

Total held: 8.9.4 =21      Number of institutions: 8      Captive Born: 90%      Wild Born: 10%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Gallicolumba jobiensis jobiensis*/WHITE-BREADED GROUND DOVE/

SANDIEGOZ 1. 0. 0(0)	Region (1.0.0(0))
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Total held: 1.0.0 =1      Number of institutions: 1      Captive Born: 0%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Gallicolumba luzonica*/BLEEDING HEART PIGEON/

ALPHEN 2. 1. 0(0)	BRISTOL 1. 1. 0(0)	BURFORD 1. 1. 0(1)	CHESTER 2. 2. 0(0)	CLERES 2. 1. 0(0)	DUDLEY 1. 0. 0(0)
HAMBURG 1. 1. 0(0)	HAYLE 1. 1. 0(0)	HEIDELBRG 1. 1. 0(0)	PAIGNTON 1. 0. 0(0)	Region (13.9.0(1))	COLUMBIA 3. 2. 0(3)
DETROIT 1. 1. 0(0)	FRESNO 1. 1. 1(2)	FT WAYNE 1. 1. 0(0)	HONOLULU 3. 2. 2(5)	HOUSTON 1. 1. 0(0)	LITTLEROC 1. 1. 0(0)
LOSANGELE 2. 4. 2(0)	LOWRY 1. 1. 0(2)	MADISON 0. 0. 2(0)	MEMPHIS 0. 1. 0(2)	METROZOO 1. 1. 3(0)	MINNESOTA 1. 3. 3(6)
OMAHA 0. 0. 3(0)	PHOENIX 2. 1. 0(0)	PITTS CA 1. 1. 0(0)	PUEBLO 1. 2. 0(0)	RACINE 1. 1. 0(0)	ROCHESTER 1. 1. 0(0)
S BARBARA 2. 1. 6(0)	SAFARI W 0. 1. 0(0)	SAN ANTON 2. 2. 0(4)	SANDIEGOZ 1. 2. 0(2)	ST LOUIS 1. 1. 2(3)	TRACY AV 1. 0. 0(0)
TUCSON 1. 1. 1(1)	Region (30.33.25(30))	ADELAIDE 4. 0. 2(3)	MELBOURNE 5. 3. 2(3)	PERTH 3. 3. 14(12)	TIPP STAT 0. 0. 7(0)
WELLINGTN 2. 1. 1(1)	Region (14.7.26(19))				

Total held: 57.49.51 =157      Number of institutions: 41      Captive Born: 83%      Wild Born: 1%      Captive births last 12 months: 50      Deaths first 30 days: 23

*Gallicolumba rufigula*/RED-THROATED GROUND DOVE/

ALPHEN 5. 1. 1(1)	ARNHEM 1. 0. 0(0)	CHESTER 0. 1. 0(0)	DUISBURG 1. 1. 0(0)	PAIGNTON 2. 0. 0(0)	Region (9.3.1(1))
LOUISVILL 1. 0. 0(0)	MEMPHIS 2. 1. 2(3)	SANDIEGOZ 2. 1. 0(0)	SD-WAP 1. 1. 0(1)	ST LOUIS 1. 1. 0(0)	TOLEDO 2. 0. 0(0)
Region (9.4.2(4))					

Total held: 18.7.3 =28      Number of institutions: 11      Captive Born: 46%      Wild Born: 21%      Captive births last 12 months: 5      Deaths first 30 days: 2

*Gallicolumba tristigmata*/YELLOW-BREADED GROUND DOVE/

ALPHEN 1. 1. 2(2)	BANHAM 0. 0. 2(0)	BRISTOL 2. 3. 6(4)	DUDLEY 1. 1. 3(2)	Region (4.5.13(8))	BLOOMINGT 2. 1. 1(3)
COLUMBIA 3. 0. 0(0)	NZP-WASH 1. 1. 0(0)	OKLAHOMA 0. 1. 0(0)	RIO GRAND 1. 1. 1(1)	SANDIEGOZ 2. 1. 2(0)	SD-WAP 5. 3. 1(1)
SEDGWICK 0. 1. 0(0)	Region (14.9.5(5))				

Total held: 18.14.18 =50      Number of institutions: 12      Captive Born: 64%      Wild Born: 18%      Captive births last 12 months: 13      Deaths first 30 days: 4

*Geopelia cuneata* (no subsp)/DIAMOND DOVE/

ALPHEN 1. 0. 4(0)	CHESTER 1. 1. 0(0)	CLERES 0. 0. 1(0)	DUBLIN 0. 0. 2(2)	DUDLEY 2. 2. 0(0)	DUISBURG 0. 0. 3(0)
LEEDS 2. 0. 0(0)	MAGDEBURG 1. 0. 0(0)	Region (7.3.10(2))	PRETORIA 4. 0. 9(2)	Region (4.0.9(2))	CALGARY 3. 3. 0(0)
CINCINNAT 2. 0. 2(0)	CLEVELAND 0. 0. 1(0)	EVANSVILLE 0. 0. 8(5)	INDIANAPL 5. 4. 5(0)	KANSASCTY 1. 1. 0(0)	LANSING 1. 1. 0(0)
LODI 0. 1. 0(0)	MEMPHIS 0. 1. 1(2)	MINNESOTA 0. 1. 1(0)	OKLAHOMA 1. 1. 0(0)	PHOENIX 0. 1. 2(2)	PUEBLO 0. 1. 0(0)
S BARBARA 0. 0. 7(0)	SAN ANTON 1. 0. 6(13)	SANDIEGOZ 0. 1. 0(0)	TORONTO 2. 0. 0(0)	TUCSON 0. 0. 3(0)	VANCOUVER 0. 1. 0(0)
WILLOW PK 1. 0. 0(0)	Region (17.17.36(22))	KHAOKHEOW 36. 30. 0(0)	MOSCOW 0. 0. 15(2)	RIGA 1. 0. 0(0)	RIYADH 2. 2. 0(0)
TALLIN 2. 2. 1(1)	TOKYOUENO 0. 1. 3(0)	Region (41.35.19(3))	AUCKLAND 1. 0. 1(1)	CURRUMBIN 1. 1. 0(0)	DUNEDINAV 2. 3. 2(4)
SYDNEY 1. 2. 8(4)	TIPP STAT 2. 2. 13(9)	WINNELLIE 0. 2. 0(0)	Region (7.10.24(18))		

Total held: 76.65.98 =239      Number of institutions: 41      Captive Born: 54%      Wild Born: 3%      Captive births last 12 months: 47      Deaths first 30 days: 4

*Geopelia humeralis*/BAR-SHOULDERED DOVE/

CLERES 5. 4. 4(4)	Region (5.4.4(4))	FT WAYNE 3. 1. 0(0)	LOUISVILL 1. 0. 0(0)	SANDIEGOZ 2. 2. 0(0)	Region (6.3.0(0))
CURRUMBIN 0. 0. 1(0)	HEALESVIL 1. 2. 17(4)	SYDNEY 3. 3. 2(2)	TIPP STAT 0. 0. 1(0)	WELLINGTN 1. 2. 5(1)	WINNELLIE 0. 0. 21(1)
Region (5.7.47(8))					

Total held: 16.14.51 =81      Number of institutions: 10      Captive Born: 78%      Wild Born: 22%      Captive births last 12 months: 12      Deaths first 30 days: 1

*Geopelia striata* (no subsp)/ZEBRA DOVE/

PRETORIA 0. 0. 1(0)	Region (0.0.1(0))	EVANSVILLE 0. 0. 7(0)	MINNESOTA 1. 0. 0(0)	RIO GRAND 4. 2. 7(0)	TORONTO 0. 0. 7(2)
TUCSON 1. 1. 0(0)	Region (6.3.21(2))	KHAOKHEOW 16. 16. 0(0)	TOKYOUENO 0. 1. 0(0)	Region (16.17.0(0))	

Total held: 22.20.22 =64      Number of institutions: 8      Captive Born: 48%      Wild Born: 50%      Captive births last 12 months: 2      Deaths first 30 days: 1

*Geopelia striata placida*/PEACEFUL DOVE/

PRETORIA 0. 1. 0(0)	Region (0.1.0(0))	CURRUMBIN 0. 0. 4(0)	HEALESVIL 2. 3. 12(3)	MELBOURNE 1. 0. 5(3)	SYDNEY 6. 5. 0(0)
WINNELLIE 0. 0. 8(0)	Region (9.8.29(6))				

Total held: 9.9.29 =47      Number of institutions: 6      Captive Born: 70%      Wild Born: 21%      Captive births last 12 months: 6      Deaths first 30 days: 2

*Geotrygon linearis*/WHITE-FACED QUAIL DOVE/

FORTWORTH 0. 1. 0(0)	Region (0.1.0(0))
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Total held: 0.1.0 =1      Number of institutions: 1      Captive Born: 0%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Geotrygon montana*/RUDDY QUAIL DOVE/

CLERES 3. 3. 12(8)	Region (3.3.12(8))	SD-WAP 0. 2. 1(0)	STATEN IS 0. 1. 0(0)	Region (0.3.1(0))
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Total held: 3.6.13 =22      Number of institutions: 3      Captive Born: 86%      Wild Born: 0%      Captive births last 12 months: 8      Deaths first 30 days: 1

*Geotrygon versicolor*/CRESTED QUAIL DOVE/

ALPHEN 1. 2. 0(0)	BANHAM 2. 2. 0(0)	CHESTER 2. 1. 1(0)	CLERES 1. 1. 0(0)	HAMBURG 1. 1. 0(0)	HAYLE 2. 4. 0(1)
LEEDS 3. 2. 1(0)	PAIGNTON 1. 0. 2(3)	Region (13.13.4(4))	BLOOMINGT 1. 1. 0(1)	BRIDGEPT 0. 1. 1(0)	FORTWORTH 3. 0. 0(0)
HOUSTON 2. 1. 0(0)	MILWAUKEE 1. 1. 0(0)	NY BRONX 0. 1. 0(0)	PITTS CA 1. 1. 1(0)	PROVIDNCE 1. 2. 0(0)	SAN ANTON 2. 2. 1(1)
SAN FRAN 1. 0. 0(0)	SEDGWICK 2. 4. 1(2)	TOLEDO 1. 1. 1(0)	TRACY AV 1. 1. 0(0)	Region (16.16.5(4))	KINGSTON 0. 0. 29(1)
Region (0.0.29(1))					

Total held: 29.29.38 =96      Number of institutions: 22      Captive Born: 61%      Wild Born: 30%      Captive births last 12 months: 9      Deaths first 30 days: 5

*Goura* (unk sp)/ <<< Hybrid >>> /CROWNED PIGEON/

SAN FRAN 0. 1. 2(0)	Region (0.1.2(0))
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Total held: 0.1.2 =3      Number of institutions: 1      Captive Born: 100%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Goura cristata* (no subsp)/COMMON CROWNED PIGEON/

ALPHEN 2. 2. 1(1)	BARCELONA 2. 2. 5(0)	BUDAPEST 1. 0. 0(0)	CHESTER 1. 1. 0(0)	DUISBURG 1. 0. 0(0)	FONTAINE 1. 1. 0(0)
LISBON 0. 1. 0(0)	WUPPERTAL 1. 1. 0(0)	Region (9.8.6(1))	JOHANSBRG 2. 1. 0(0)	PRETORIA 2. 2. 0(2)	Region (4.3.0(2))
AUDUBON 1. 0. 0(0)	CALGARY 1. 1. 0(0)	CLEVELAND 2. 1. 0(0)	EVANSVILLE 1. 1. 0(0)	FORTWORTH 2. 3. 0(0)	GRANBY 1. 1. 0(0)
MADISON 0. 0. 1(0)	MIAMI PJ 1. 2. 0(0)	NZP-WASH 1. 1. 0(0)	OMAHA 0. 1. 0(0)	PHOENIX 1. 1. 0(0)	PITTS CA 1. 1. 0(0)
SAN ANTON 2. 2. 2(3)	SANDIEGOZ 1. 3. 0(0)	SD-WAP 2. 1. 0(0)	TOPEKA 0. 0. 1(0)	TRACY AV 2. 1. 0(0)	TUCSON 1. 1. 1(2)
WILD WRLD 1. 0. 0(0)	YULEE 1. 1. 0(0)	Region (22.22.5(5))	KHAOKHEOW 1. 2. 0(0)	RAMAT GAN 1. 0. 0(0)	RIYADH 1. 1. 1(0)
SINGAPORE 0. 0. 4(0)	TOKYOUENO 0. 0. 1(0)	Region (3.3.6(0))			

Total held: 38.36.17 =91      Number of institutions: 35      Captive Born: 47%      Wild Born: 23%      Captive births last 12 months: 8      Deaths first 30 days: 3

*Goura scheepmakeri*/SCHEEPMAKER'S CROWNED PIGEON/

BARCELONA 1. 0. 0(0)	KOBENHAVN 1. 1. 0(0)	MULHOUSE 1. 0. 1(0)	ROTTERDAM 1. 2. 2(3)	ZURICH 1. 1. 0(0)	Region (5.4.3(3))
CINCINNAT 0. 0. 1(0)	LITTLEROC 1. 2. 0(3)	LOSANGELE 1. 2. 1(1)	MEMPHIS 0. 1. 0(0)	Region (2.5.2(4))	GUADALJR 0. 1. 0(0)
Region (0.1.0(0))					

Total held: 7.10.5 =22      Number of institutions: 10      Captive Born: 77%      Wild Born: 18%      Captive births last 12 months: 7      Deaths first 30 days: 3

*Goura victoria*/VICTORIA CROWNED PIGEON/

ALPHEN 1. 1. 0(1)	AMSTERDAM 3. 2. 0(0)	ARNHEM 5. 2. 1(3)	AUGSBURG 1. 1. 0(0)	BARCELONA 1. 1. 3(4)	CLERES 1. 1. 0(0)
DUBLIN 0. 1. 0(0)	HANNOVER 0. 1. 0(0)	HAYLE 1. 1. 0(0)	LA PALMYR 0. 2. 1(0)	LISBON 0. 1. 1(0)	ROTTERDAM 2. 2. 0(0)
Region (15.16.6(8))	PRETORIA 0. 1. 0(0)	Region (0.1.0(0))	ASHEBORO 1. 2. 1(1)	BATONROUG 0. 1. 1(3)	CINCINNAT 0. 0. 1(0)
COLUMBIA 1. 1. 0(0)	DALLAS 1. 1. 0(0)	DENVER 2. 1. 0(0)	FRANKLINP 1. 3. 1(3)	HONOLULU 1. 1. 0(0)	HOUSTON 1. 2. 1(0)
KANSASCTY 1. 1. 0(1)	MIAMI PJ 2. 2. 0(0)	MILWAUKEE 1. 1. 0(0)	MINNESOTA 1. 1. 2(1)	NY BRONX 0. 1. 0(0)	PHILADELP 1. 1. 0(1)
PITTS CA 1. 1. 1(2)	PROVIDNCE 1. 1. 0(0)	RIO GRAND 2. 3. 1(1)	SAFARI W 1. 3. 0(0)	SANDIEGOZ 0. 0. 2(0)	SD-WAP 1. 1. 0(0)
ST LOUIS 1. 1. 0(0)	TORONTO 3. 2. 1(4)	TULSA 1. 0. 0(0)	Region (25.31.12(17))	RAMAT GAN 1. 1. 0(0)	Region (1.1.0(0))
SYDNEY 5. 0. 1(0)	Region (5.0.1(0))				

Total held: 46.49.19 =114      Number of institutions: 39      Captive Born: 69%      Wild Born: 15%      Captive births last 12 months: 25      Deaths first 30 days: 11

*Goura victoria*/ <<< Hybrid >>> /VICTORIA CROWNED PIGEON/

HAYLE 1. 0. 0(0)	Region (1.0.0(0))
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Total held: 1.0.0 =1      Number of institutions: 1      Captive Born: 100%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Gymnophaps albertisii* (no subsp)/MOUNTAIN PIGEON/

SANDIEGOZ 1. 2. 0(0)	Region (1.2.0(0))
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Total held: 1.2.0 =3      Number of institutions: 1      Captive Born: 33%      Wild Born: 67%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Hemiphaga novaeseelandiae*/NEW ZEALAND PIGEON/

AUCKLAND 2. 3. 1(2)	HAMILTON 2. 1. 2(0)	ORANA 2. 1. 0(0)	WELLINGTN 2. 1. 0(0)	Region (8.6.3(2))
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Total held: 8.6.3 =17      Number of institutions: 4      Captive Born: 35%      Wild Born: 65%      Captive births last 12 months: 2      Deaths first 30 days: 1

*Henicophaps albifrons*/WHITE-CAPPED GROUND PIGEON/

SANDIEGOZ 1. 1. 3(0)	SD-WAP 0. 1. 0(0)	Region (1.2.3(0))
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Total held: 1.2.3 =6      Number of institutions: 2      Captive Born: 0%      Wild Born: 100%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Leptotila verreauxi* (unk sp)/WHITE-FRONTED DOVE/

CLERES 3. 3. 5(2)	PARIS JP 0. 0. 3(0)	Region (3.3.8(2))	MILWAUKEE 1. 1. 0(0)	SEATTLE 1. 2. 0(0)	Region (2.3.0(0))
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Total held: 5.6.8 =19      Number of institutions: 4      Captive Born: 58%      Wild Born: 26%      Captive births last 12 months: 2      Deaths first 30 days: 0

*Leptotila verreauxi angelica*/WHITE-TIPPED DOVE/

ASDM TUSC 1. 0. 2(2)	Region (1.0.2(2))
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Total held: 1.0.2 =3      Number of institutions: 1      Captive Born: 100%      Wild Born: 0%      Captive births last 12 months: 2      Deaths first 30 days: 1

*Leucosarcia melanoleuca*/WONGA PIGEON/

ALPHEN 0. 1. 0(0)	DUISBURG 0. 0. 1(0)	LEEDS 2. 2. 1(5)	Region (2.3.2(5))	LOUISVILL 1. 1. 0(0)	MEMPHIS 1. 1. 2(4)
OKLAHOMA 1. 1. 0(0)	RIO GRAND 2. 1. 1(1)	SANDIEGOZ 0. 2. 0(0)	SD-WAP 2. 1. 1(0)	SEDGWICK 1. 3. 0(0)	ST LOUIS 1. 1. 0(0)
Region (9.11.4(5))	AUCKLAND 0. 0. 1(0)	CURRUMBIN 2. 4. 8(0)	HEALESVIL 12. 5. 6(3)	MELBOURNE 1. 2. 11(3)	PERTH 2. 3. 8(0)
SYDNEY 3. 4. 0(0)	WELLINGTN 2. 4. 1(0)	Region (22.22.35(6))			

Total held: 33.36.41 =110      Number of institutions: 18      Captive Born: 79%      Wild Born: 8%      Captive births last 12 months: 16      Deaths first 30 days: 3

*Lopholaimus antarcticus*/TOPKNOT PIGEON/

CURRUMBIN 0. 0. 1(0) SYDNEY 1. 1. 0(0) Region {1.1.1(0)}

Total held: 1.1.1 =3 Number of institutions: 2 Captive Born: 0% Wild Born: 67% Captive births last 12 months: 0 Deaths first 30 days: 0

*Macropygia amboinensis* (no subsp)/AMBOINA CUCKOO-DOVE/

SYDNEY 2. 6. 5(6) Region {2.6.5(6)}

Total held: 2.6.5 =13 Number of institutions: 1 Captive Born: 54% Wild Born: 46% Captive births last 12 months: 6 Deaths first 30 days: 1

*Macropygia amboinensis phasianella*/BROWN CUCKOO-DOVE/

CURRUMBIN 1. 2. 2(0) HEALESVIL 0. 0. 3(0) MELBOURNE 2. 4. 0(1) Region {3.6.5(1)}

Total held: 3.6.5 =14 Number of institutions: 3 Captive Born: 86% Wild Born: 0% Captive births last 12 months: 1 Deaths first 30 days: 0

*Macropygia nigrirostris*/BLACK-BILL CUCKOO-DOVE/

NZP-WASH 0. 1. 0(0) PHILADELP 0. 1. 0(0) SANDIEGOZ 0. 1. 0(0) Region {0.3.0(0)}

Total held: 0.3.0 =3 Number of institutions: 3 Captive Born: 0% Wild Born: 100% Captive births last 12 months: 0 Deaths first 30 days: 0

*Macropygia phasianella*/SLENDER-BILL CUCKOO-DOVE/

SANDIEGOZ 6. 3. 1(3) Region {6.3.1(3)}

Total held: 6.3.1 =10 Number of institutions: 1 Captive Born: 70% Wild Born: 30% Captive births last 12 months: 3 Deaths first 30 days: 1

*Macropygia unchall* (no subsp)/BAR-TAILED CUCKOO-DOVE/PAIGNTON 2. 0. 0(0) Region {2.0.0(0)} PRETORIA 1. 2. 0(0) Region {1.2.0(0)} MINNESOTA 0. 1. 0(0) SANDIEGOZ 1. 1. 0(0)  
Region {1.2.0(0)}

Total held: 4.4.0 =8 Number of institutions: 4 Captive Born: 88% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Metriopelia ceciliae* (no subsp)/BARE-FACED GROUND DOVE/

CLERES 1. 2. 0(0) Region {1.2.0(0)} SANDIEGOZ 2. 1. 0(0) Region {2.1.0(0)}

Total held: 3.3.0 =6 Number of institutions: 2 Captive Born: 100% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Metriopelia ceciliae ceciliae*/BARE-FACED GROUND DOVE/

SANDIEGOZ 0. 0. 4(4) Region {0.0.4(4)}

Total held: 0.0.4 =4 Number of institutions: 1 Captive Born: 100% Wild Born: 0% Captive births last 12 months: 4 Deaths first 30 days: 0

*Metriopelia melanoptera* (no subsp)/BLACK-WINGED GROUND DOVE/

SANDIEGOZ 2. 1. 1(0) Region {2.1.1(0)}

Total held: 2.1.1 =4 Number of institutions: 1 Captive Born: 75% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ocyphaps lophotes* (no subsp)/CRESTED PIGEON/ALPHEN 3. 3. 4(0) AMSTERDAM 0. 0. 1(0) ANTWERP 1. 1. 10(0) ARNHEN 0. 1. 0(2) BANHAM 1. 1. 0(0) CHESTER 1. 1. 4(0)  
CLERES 3. 1. 4(1) HEIDELBRG 0. 0. 2(0) LEEDS 3. 1. 2(8) LISBON 0. 0. 2(0) TOUROPARC 1. 1. 0(0) Region {13.10.29(11)}  
PRETORIA 1. 2. 2(5) Region {1.2.2(5)} AUDUBON 1. 2. 3(3) BIRMINGHM 0. 0. 1(0) COAL VAL 0. 1. 0(0) DES MOINE 0. 1. 0(0)  
EVANSVILLE 1. 1. 0(0) FRANKLINP 1. 1. 2(2) FT WAYNE 0. 1. 2(0) HONOLULU 1. 1. 0(0) LOSANGELE 1. 0. 0(0) LOUISVILL 2. 1. 0(0)  
MONTGOMRY 1. 1. 1(0) NY BRONX 1. 0. 0(0) OMAHA 0. 2. 3(0) PANAMACTY 1. 0. 0(0) PITTS CA 0. 0. 1(0) ROCHESTER 0. 1. 2(0)  
SAN FRAN 0. 0. 1(0) SEDGWICK 1. 0. 0(0) Region {11.13.16(5)} MOSCOW 3. 2. 0(0) RAMAT GAN 1. 2. 0(0) Region {4.4.0(0)}  
AUCKLAND 0. 0. 4(0) HEALESVIL 2. 1. 24(5) MELBOURNE 1. 4. 1(2) PERTH 0. 0. 1(0) SYDNEY 1. 0. 6(0) WELLINGTON 0. 0. 1(0)  
Region {4.5.37(7)}

Total held: 33.34.84 =151 Number of institutions: 38 Captive Born: 66% Wild Born: 10% Captive births last 12 months: 28 Deaths first 30 days: 7

*Oena capensis*/NAMAQUA DOVE/

VIENNA 1. 0. 0(0)	Region (1.0.0(0))	PRETORIA 1. 0. 0(0)	Region (1.0.0(0))	SANDIEGOZ 1. 0. 1(0)	SD-WAP 1. 0. 0(0)
TUCSON 1. 1. 0(0)	Region (3.1.1(0))	RAMAT GAN 2. 1. 0(0)	RIYADH 1. 1. 0(0)	Region (3.2.0(0))	DUNEDINAV 4. 2. 0(0)
MELBOURNE 2. 5. 2(0)	SYDNEY 0. 0. 0(7)	Region (6.7.2(7))			

Total held: 14.10.3 =27      Number of institutions: 10      Captive Born: 81%      Wild Born: 7%      Captive births last 12 months: 7      Deaths first 30 days: 6

*Otidiphaps nobilis* (no subsp)/MAGNIFICENT GROUND PIGEON/

ALPHEN 3. 3. 0(1)	ANTWERP 3. 4. 0(0)	ARNHEM 6. 3. 1(1)	ROTTERDAM 2. 1. 0(0)	Region (14.11.1(2))	CINCINNAT 0. 0. 1(0)
CLEVELAND 1. 1. 0(0)	HONOLULU 2. 0. 2(8)	METROZOO 1. 1. 0(0)	MILWAUKEE 3. 1. 1(4)	NY BRONX 1. 1. 1(1)	NZP-WASH 2. 1. 0(0)
PITTS CA 1. 0. 0(0)	RIO GRAND 3. 2. 0(0)	SANDIEGOZ 4. 4. 7(9)	SD-WAP 1. 2. 6(6)	ST LOUIS 0. 1. 0(0)	Region (19.14.18(28))

Total held: 33.25.19 =77      Number of institutions: 16      Captive Born: 74%      Wild Born: 14%      Captive births last 12 months: 30      Deaths first 30 days: 9

*Otidiphaps nobilis nobilis*/PHEASANT PIGEON/

BARCELONA 1. 2. 1(2)	FRANKFURT 1. 1. 1(1)	Region (2.3.2(3))	DENVER 1. 1. 1(3)	HOUSTON 2. 2. 0(2)	Region (3.3.1(5))
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Total held: 5.6.3 =14      Number of institutions: 4      Captive Born: 64%      Wild Born: 21%      Captive births last 12 months: 8      Deaths first 30 days: 5

*Otidiphaps nobilis aruensis*/PHEASANT PIGEON/

FRANKFURT 1. 0. 0(0)	KREFELD 1. 1. 2(2)	Region (2.1.2(2))	CINCINNAT 1. 3. 4(3)	SANDIEGOZ 1. 0. 0(0)	Region (2.3.4(3))
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Total held: 4.4.6 =14      Number of institutions: 4      Captive Born: 71%      Wild Born: 14%      Captive births last 12 months: 5      Deaths first 30 days: 0

*Otidiphaps nobilis cervicalis*/PHEASANT PIGEON/

BARCELONA 2. 2. 1(0)	Region (2.2.1(0))				
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Total held: 2.2.1 =5      Number of institutions: 1      Captive Born: 20%      Wild Born: 80%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Petrophassa albipennis*/WHITE-QUILLED ROCK PIGEON/

PERTH 0. 1. 0(0)	TIPP STAT 1. 1. 0(0)	Region (1.2.0(0))			
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Total held: 1.2.0 =3      Number of institutions: 2      Captive Born: 67%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Petrophassa plumifera*/PLUMED PIGEON/

HAMBURG 2. 1. 0(0)	Region (2.1.0(0))	HOUSTON 0. 1. 0(0)	Region (0.1.0(0))	CURRUMBIN 0. 0. 3(0)	SYDNEY 2. 2. 2(2)
Region (2.2.5(2))					

Total held: 4.4.5 =13      Number of institutions: 4      Captive Born: 69%      Wild Born: 0%      Captive births last 12 months: 2      Deaths first 30 days: 0

*Petrophassa scripta* (no subsp)/SQUATTER PIGEON/

SAN ANTON 0. 1. 0(0)	SANDIEGOZ 2. 1. 2(1)	SD-WAP 3. 2. 4(1)	Region (5.4.6(2))	ADELAIDE 2. 2. 1(3)	CURRUMBIN 1. 2. 0(0)
PERTH 2. 1. 0(0)	SYDNEY 1. 1. 2(0)	Region (6.6.3(3))			

Total held: 11.10.9 =30      Number of institutions: 7      Captive Born: 70%      Wild Born: 0%      Captive births last 12 months: 5      Deaths first 30 days: 2

*Petrophassa scripta scripta*/PARTRIDGE BRONZEWING/

SANDIEGOZ 0. 0. 1(1)	SD-WAP 0. 1. 3(8)	Region (0.1.4(9))	MELBOURNE 3. 2. 4(5)	Region (3.2.4(5))	
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Total held: 3.3.8 =14      Number of institutions: 3      Captive Born: 100%      Wild Born: 0%      Captive births last 12 months: 14      Deaths first 30 days: 4

*Petrophassa smithiira*/PARTRIDGE PIGEON/

WINNELLIE 1. 0. 6(2)	Region (1.0.6(2))				
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Total held: 1.0.6 =7      Number of institutions: 1      Captive Born: 71%      Wild Born: 14%      Captive births last 12 months: 2      Deaths first 30 days: 0

*Phapitreron leucotis*/WHITE-EARED BROWN FRUIT DOVE/

BRISTOL 1. 1. 3(2) Region (1.1.3(2)) SANDIEGOZ 0. 1. 1(0) Region (0.1.1(0))

Total held: 1.2.4 =7 Number of institutions: 2 Captive Born: 43% Wild Born: 43% Captive births last 12 months: 2 Deaths first 30 days: 0

*Phaps chalcoptera*/BRONZEWING PIGEON/ALPHEN 2. 1. 2(1) ANTWERP 2. 2. 0(0) BANHAM 5. 2. 1(0) BURFORD 1. 1. 0(0) CHARD 1. 1. 1(1) CHESTER 2. 2. 0(0)  
CLERES 2. 1. 0(0) LEEDS 1. 1. 0(0) PAIGNTON 1. 1. 0(0) Region (17.12.4(2)) OMAHA 1. 0. 0(0) TORONTO 1. 1. 1(0)  
WILD WRLD 0. 0. 2(0) Region (2.1.3(0)) CURRUMBIN 0. 0. 2(0) HEALESVIL 10. 5. 1(0) MELBOURNE 5. 8. 3(4) PERTH 0. 1. 0(0)  
TIPP STAT 4. 3. 16(1) WINNELLIE 5. 5. 7(0) Region (24.22.29(5))

Total held: 43.35.36 =114 Number of institutions: 18 Captive Born: 84% Wild Born: 5% Captive births last 12 months: 7 Deaths first 30 days: 0

*Phaps elegans*/BRUSH BRONZEWING PIGEON/CLERES 0. 1. 0(0) Region (0.1.0(0)) SANDIEGOZ 1. 2. 0(0) ST LOUIS 1. 1. 0(0) Region (2.3.0(0)) HEALESVIL 3. 3. 5(1)  
SYDNEY 0. 0. 2(0) Region (3.3.7(1))

Total held: 5.7.7 =19 Number of institutions: 5 Captive Born: 74% Wild Born: 0% Captive births last 12 months: 1 Deaths first 30 days: 0

*Phaps histrionica*/FLOCK PIGEON/

MELBOURNE 6. 1. 0(0) PERTH 1. 2. 2(0) SYDNEY 2. 2. 1(0) Region (9.5.3(0))

Total held: 9.5.3 =17 Number of institutions: 3 Captive Born: 71% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ptilinopus aurantiifrons*/ORANGE-FRONT FRUIT DOVE/

ALPHEN 3. 2. 1(3) ARNHEM 1. 2. 0(0) ROTTERDAM 1. 1. 0(0) Region (5.5.1(3))

Total held: 5.5.1 =11 Number of institutions: 3 Captive Born: 55% Wild Born: 18% Captive births last 12 months: 3 Deaths first 30 days: 0

*Ptilinopus cinctus* (no subsp)/BLACK-BANDED FRUIT DOVE/

LONDON RP 2. 0. 0(0) Region (2.0.0(0)) RIO GRAND 0. 1. 0(0) SANDIEGOZ 1. 0. 0(0) SD-WAP 2. 1. 0(0) Region (3.2.0(0))

Total held: 5.2.0 =7 Number of institutions: 4 Captive Born: 29% Wild Born: 57% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ptilinopus coronulatus* (no subsp)/LILAC CROWNED FRUIT DOVE/

AUGSBURG 1. 1. 0(0) DUISBURG 1. 1. 1(0) Region (2.2.1(0)) SANDIEGOZ 6. 4. 4(1) SD-WAP 1. 1. 0(0) Region (7.5.4(1))

Total held: 9.7.5 =21 Number of institutions: 4 Captive Born: 52% Wild Born: 29% Captive births last 12 months: 1 Deaths first 30 days: 0

*Ptilinopus coronulatus geminus*/LILAC-CAPPED FRUIT DOVE/

SANDIEGOZ 0. 0. 1(2) Region (0.0.1(2))

Total held: 0.0.1 =1 Number of institutions: 1 Captive Born: 100% Wild Born: 0% Captive births last 12 months: 2 Deaths first 30 days: 1

*Ptilinopus iozonus* (no subsp)/ORANGE-BELLIED FRUIT DOVE/ALPHEN 2. 0. 0(0) Region (2.0.0(0)) PRETORIA 1. 1. 0(0) Region (1.1.0(0)) PITTS CA 1. 1. 0(1) SANDIEGOZ 1. 0. 0(0)  
SD-WAP 1. 0. 0(0) Region (3.1.0(1))

Total held: 6.2.0 =8 Number of institutions: 5 Captive Born: 25% Wild Born: 63% Captive births last 12 months: 1 Deaths first 30 days: 1

*Ptilinopus iozonus humeralis*/ORANGE-BELLIED FRUIT DOVE/

SANDIEGOZ 0. 1. 0(0) Region (0.1.0(0))

Total held: 0.1.0 =1 Number of institutions: 1 Captive Born: 100% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ptilinopus jambu*/JAMBU FRUIT DOVE/

ALPHEN 1. 1. 0(0)	AMSTERDAM 1. 0. 0(0)	BRISTOL 1. 2. 0(0)	LEEDS 2. 2. 2(3)	LONDON RP 1. 2. 0(0)	Region {6.7.2(3)}
ASHEBORO 2. 1. 0(0)	ATTLEBORO 1. 1. 0(0)	BLOOMINGT 1. 1. 0(0)	CHICAGOLP 2. 3. 0(2)	CINCINNAT 1. 1. 0(1)	CLEVELAND 1. 1. 0(0)
DALLAS 1. 1. 0(0)	FRESNO 1. 1. 0(0)	FT WAYNE 2. 0. 1(0)	HOUSTON 2. 2. 0(1)	LOUISVILL 1. 1. 0(0)	MEMPHIS 3. 3. 3(10)
MILWAUKEE 2. 1. 0(0)	NY BRONX 3. 3. 0(0)	OKLAHOMA 1. 2. 0(0)	OMAHA 1. 0. 0(0)	PROVIDNCE 1. 0. 0(0)	SANDIEGOZ 5. 7. 0(4)
SD-WAP 1. 2. 0(0)	SEDGWICK 3. 2. 0(2)	ST LOUIS 4. 3. 0(0)	TOLEDO 2. 2. 0(0)	TORONTO 1. 1. 0(0)	Region {42.39.4(20)}

Total held: 48.46.6 =100 Number of institutions: 28 Captive Born: 42% Wild Born: 45% Captive births last 12 months: 23 Deaths first 30 days: 13

*Ptilinopus leclancheri*/BLACK-CHINNED FRUIT DOVE/

ALPHEN 4. 3. 1(10)	ROTTERDAM 1. 3. 1(1)	Region {5.6.2(11)}	LOSANGELE 0. 1. 0(0)	SANDIEGOZ 2. 3. 2(4)	Region {2.4.2(4)}
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Total held: 7.10.4 =21 Number of institutions: 4 Captive Born: 48% Wild Born: 33% Captive births last 12 months: 15 Deaths first 30 days: 7

*Ptilinopus magnificus*/MAGNIFICENT FRUIT DOVE/

ARNHEM 2. 2. 0(1)	BRISTOL 1. 1. 1(1)	LONDON RP 2. 1. 0(0)	Region {5.4.1(2)}	BIRMINGHM 1. 1. 0(0)	HOUSTON 3. 2. 1(7)
KANSASCTY 1. 2. 0(0)	LOSANGELE 1. 0. 0(0)	MEMPHIS 4. 4. 0(2)	PITTS CA 0. 0. 1(0)	SANDIEGOZ 2. 0. 0(0)	SD-WAP 2. 1. 0(0)
Region {14.10.2(9)}	CURRUMBIN 1. 1. 0(0)	Region {1.1.0(0)}			

Total held: 20.15.3 =38 Number of institutions: 12 Captive Born: 21% Wild Born: 39% Captive births last 12 months: 11 Deaths first 30 days: 5

*Ptilinopus marchei*/MARCHES FRUIT PIGEON/

SANDIEGOZ 0. 1. 0(0)	Region {0.1.0(0)}
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Total held: 0.1.0 =1 Number of institutions: 1 Captive Born: 0% Wild Born: 100% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ptilinopus melanospila*/BLACK-NAPED FRUIT DOVE/

BRISTOL 0. 1. 0(0)	CHESINGTN 0. 1. 0(1)	CLERES 5. 4. 0(2)	DUDLEY 1. 1. 0(0)	FRANKFURT 2. 2. 1(1)	LONDON RP 2. 2. 0(0)
VIENNA 1. 1. 0(0)	Region {11.12.1(4)}	ASHEBORO 0. 2. 0(0)	CENTRALPK 2. 0. 0(0)	COLO SPRG 1. 1. 0(0)	DETROIT 1. 0. 0(0)
FT WAYNE 2. 1. 0(0)	HOUSTON 1. 0. 0(0)	KANSASCTY 0. 1. 0(0)	LOSANGELE 4. 1. 0(0)	LOUISVILL 2. 1. 0(0)	LOWRY 3. 5. 0(2)
MEMPHIS 1. 2. 1(2)	METROZOO 1. 0. 1(0)	MILWAUKEE 2. 2. 0(3)	NY BRONX 1. 0. 0(0)	NZP-WASH 1. 0. 0(0)	OKLAHOMA 1. 1. 2(5)
PHOENIX 1. 1. 0(0)	PITTS CA 2. 1. 0(0)	ROCHESTER 1. 1. 0(0)	S BARBARA 1. 1. 0(0)	SANDIEGOZ 1. 1. 0(0)	SD-WAP 0. 1. 0(0)
SEDGWICK 1. 1. 0(0)	ST LOUIS 2. 1. 1(2)	TOLEDO 1. 1. 1(1)	Region {33.26.6(15)}		

Total held: 44.38.7 =89 Number of institutions: 32 Captive Born: 67% Wild Born: 20% Captive births last 12 months: 19 Deaths first 30 days: 4

*Ptilinopus merrilli*/MERRILL'S FRUIT PIGEON/

SANDIEGOZ 1. 0. 0(0)	Region {1.0.0(0)}
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Total held: 1.0.0 =1 Number of institutions: 1 Captive Born: 0% Wild Born: 100% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ptilinopus occipitalis*/YELLOW-BREASTED FRUIT DOVE/

BRISTOL 1. 1. 1(0)	DUISBURG 0. 0. 3(0)	Region {1.1.4(0)}	LOSANGELE 0. 1. 2(0)	SANDIEGOZ 2. 2. 0(0)	SD-WAP 1. 1. 1(0)
ST LOUIS 0. 1. 0(0)	Region {3.5.3(0)}				

Total held: 4.6.7 =17 Number of institutions: 6 Captive Born: 24% Wild Born: 53% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ptilinopus ornatus*/ORNATE FRUIT DOVE/

SANDIEGOZ 1. 1. 0(0)	Region {1.1.0(0)}
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Total held: 1.1.0 =2 Number of institutions: 1 Captive Born: 50% Wild Born: 50% Captive births last 12 months: 0 Deaths first 30 days: 0

*Ptilinopus perlatus*/PINK-SPOTTED FRUIT DOVE/

SANDIEGOZ 1. 1. 4(2)	SD-WAP 4. 1. 1(3)	Region {5.2.5(5)}
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Total held: 5.2.5 =12 Number of institutions: 2 Captive Born: 75% Wild Born: 0% Captive births last 12 months: 5 Deaths first 30 days: 3

*Ptilinopus porphyrea*/TEMMINCK'S FRUIT PIGEON/

BLOOMINGT 1. 1. 0(0)	BROWNSVIL 2. 2. 0(0)	CENTRALPK 1. 0. 1(0)	COLUMBIA 1. 1. 1(2)	KANSASCTY 0. 1. 0(0)	KNOWLAND 0. 1. 0(0)
MILWAUKEE 2. 2. 1(1)	NZP-WASH 0. 1. 0(0)	OMAHA 0. 0. 1(0)	PHOENIX 1. 2. 0(0)	PITTS CA 1. 2. 1(2)	SAN ANTON 2. 3. 1(4)
SANDIEGOZ 2. 2. 0(1)	SD-WAP 1. 1. 0(0)	ST LOUIS 2. 3. 2(3)	TOLEDO 1. 1. 0(1)	Region (17.23.8(14))	

Total held: 17.23.8 =48      Number of institutions: 16      Captive Born: 71%      Wild Born: 21%      Captive births last 12 months: 14      Deaths first 30 days: 3

*Ptilinopus pulchellus*/BEAUTIFUL FRUIT DOVE/

AMSTERDAM 2. 2. 0(0)	AUGSBURG 1. 1. 0(0)	Region (3.3.0(0))	BATONROUG 0. 1. 0(0)	DENVER 3. 2. 3(4)	LOUISVILL 1. 0. 1(1)
MEMPHIS 1. 2. 2(4)	OKLAHOMA 1. 1. 0(1)	PITTS CA 1. 1. 0(0)	SAN ANTON 1. 1. 0(0)	SANDIEGOZ 2. 2. 1(1)	SD-WAP 4. 2. 2(1)
ST LOUIS 3. 3. 1(2)	Region (17.15.10(14))				

Total held: 20.18.10 =48      Number of institutions: 12      Captive Born: 79%      Wild Born: 19%      Captive births last 12 months: 14      Deaths first 30 days: 5

*Ptilinopus regina*/RED-CROWNED PIGEON/

CURRUMBIN 1. 3. 1(1)	HEALESVIL 1. 0. 0(0)	MELBOURNE 1. 1. 0(0)	PERTH 0. 1. 0(0)	SYDNEY 4. 1. 0(0)	TIPP STAT 2. 3. 0(0)
WINNELLIE 5. 2. 3(1)	Region (14.11.4(2))				

Total held: 14.11.4 =29      Number of institutions: 7      Captive Born: 52%      Wild Born: 10%      Captive births last 12 months: 2      Deaths first 30 days: 0

*Ptilinopus roseicapilla*/PINK-CROWNED FRUIT DOVE/

MEMPHIS 3. 1. 0(0)	PHILADELP 1. 1. 0(0)	Region (4.2.0(0))
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Total held: 4.2.0 =6      Number of institutions: 2      Captive Born: 0%      Wild Born: 100%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Ptilinopus superbus* (no sub)/SUPERB FRUIT DOVE/

ALPHEN 2. 2. 0(0)	AMSTERDAM 1. 1. 0(0)	CHESEINGTN 1. 1. 0(0)	CHESTER 2. 2. 3(2)	DUISBURG 2. 2. 2(0)	FRANKFURT 3. 2. 1(3)
LONDON RP 1. 1. 0(0)	Region (12.11.6(5))	FRANKLINP 0. 1. 0(1)	FT WAYNE 0. 0. 1(0)	LOUISVILL 1. 0. 0(0)	MEMPHIS 2. 2. 1(7)
METROZOO 1. 0. 0(0)	MILWAUKEE 1. 1. 0(0)	NY BRONX 1. 0. 0(0)	PITTS CA 1. 1. 0(0)	S BARBARA 1. 1. 0(0)	SAN ANTON 3. 1. 0(0)
SANDIEGOZ 3. 2. 1(2)	SD-WAP 1. 1. 0(2)	SYRACUSE 0. 0. 0(2)	TORONTO 1. 1. 1(3)	TUCSON 1. 1. 0(0)	Region (17.12.4(17))
SYDNEY 1. 2. 0(0)	Region (1.2.0(0))				

Total held: 30.25.10 =65      Number of institutions: 23      Captive Born: 58%      Wild Born: 22%      Captive births last 12 months: 22      Deaths first 30 days: 10

*Ptilinopus superbus superbus*/SUPERB FRUIT DOVE/

PHILADELP 1. 1. 1(2)	SYRACUSE 2. 2. 0(1)	Region (3.3.1(3))	CURRUMBIN 2. 1. 1(0)	Region (2.1.1(0))
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Total held: 5.4.2 =11      Number of institutions: 3      Captive Born: 27%      Wild Born: 36%      Captive births last 12 months: 3      Deaths first 30 days: 1

*Ptilinopus superbus temminckii*/PURPLE-CAPPED FRUIT DOVE/

FRANKLINP 3. 1. 0(0)	PHILADELP 1. 0. 0(0)	SANDIEGOZ 0. 0. 3(4)	Region (4.1.3(4))
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Total held: 4.1.3 =8      Number of institutions: 3      Captive Born: 75%      Wild Born: 25%      Captive births last 12 months: 4      Deaths first 30 days: 1

*Ptilinopus superbus superbus*/SUPERB FRUIT DOVE/

PHILADELP 1. 1. 1(2)	SYRACUSE 2. 2. 0(1)	Region (3.3.1(3))	CURRUMBIN 2. 1. 1(0)	Region (2.1.1(0))
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Total held: 5.4.2 =11      Number of institutions: 3      Captive Born: 27%      Wild Born: 36%      Captive births last 12 months: 3      Deaths first 30 days: 1

*Ptilinopus superbus temminckii*/PURPLE-CAPPED FRUIT DOVE/

FRANKLINP 3. 1. 0(0)	PHILADELP 1. 0. 0(0)	SANDIEGOZ 0. 0. 3(4)	Region (4.1.3(4))
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Total held: 4.1.3 =8      Number of institutions: 3      Captive Born: 75%      Wild Born: 25%      Captive births last 12 months: 4      Deaths first 30 days: 1

*Reinwardtoena reinwardtsi*/GREAT CUCKOO-DOVE/

LOSANGELE 1. 1. 0(0) SANDIEGOZ 2. 1. 0(0) Region (3.2.0(0))

Total held: 3.2.0 =5 Number of institutions: 2 Captive Born: 0% Wild Born: 60% Captive births last 12 months: 0 Deaths first 30 days: 0

*Scardafella inca*/INCA DOVE/

ASHEBORO 0. 0. 1(0) BROWNSVIL 0. 0. 17(0) FRANKLINP 0. 0. 1(0) HOGLE 2. 4. 0(0) TULSA 0. 0. 3(0) Region (2.4.22(0))

Total held: 2.4.22 =28 Number of institutions: 5 Captive Born: 4% Wild Born: 14% Captive births last 12 months: 0 Deaths first 30 days: 0

*Streptopelia*/DOVE, TURTLE/

DENVER 2. 2. 3(3) Region (2.2.3(3))

Total held: 2.2.3 =7 Number of institutions: 1 Captive Born: 100% Wild Born: 0% Captive births last 12 months: 3 Deaths first 30 days: 0

*Streptopelia (unk sp)*/TURTLE DOVE/

HOUSTON 0. 1. 0(0) MOOSE JAW 10. 10. 0(0) Region (10.11.0(0))

Total held: 10.11.0 =21 Number of institutions: 2 Captive Born: 95% Wild Born: 5% Captive births last 12 months: 0 Deaths first 30 days: 0

*Streptopelia bitorquata*/JAVANESE TURTLE DOVE/

SANDIEGOZ 0. 2. 0(0) Region (0.2.0(0))

Total held: 0.2.0 =2 Number of institutions: 1 Captive Born: 100% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Streptopelia capicola*/RING-NECKED DOVE/PRET POT 0. 0. 1(0) PRETORIA 2. 2. 1(0) Region (2.2.2(0)) CHATTANOG 1. 0. 0(0) DICKERSON 0. 0. 1(0) GRASSMERE 0. 1. 3(0)  
HOUSTON 0. 0. 3(0) JACKSONVL 1. 1. 4(0) KANSASCTY 0. 0. 1(0) LM NEWARK 0. 0. 1(0) MEMPHIS 1. 1. 0(0) QUEBEC 0. 1. 3(0)  
SANDIEGOZ 0. 0. 3(0) Region (3.4.19(0))

Total held: 5.6.21 =32 Number of institutions: 12 Captive Born: 44% Wild Born: 16% Captive births last 12 months: 0 Deaths first 30 days: 0

*Streptopelia chinensis (no subsp)*/SPOTTED DOVE/ANTWERP 0. 0. 2(0) MAGDEBURG 1. 0. 0(0) Region (1.0.2(0)) PRETORIA 4. 4. 0(0) Region (4.4.0(0)) CALGARY 0. 0. 1(0)  
HOGLE 1. 2. 0(0) HOUSTON 1. 0. 0(0) RIO GRAND 1. 1. 4(0) SANDIEGOZ 0. 1. 0(0) WILLOW PK 1. 1. 0(0) Region (4.5.5(0))  
KHAOKHEOW 84. 62. 0(0) Region (84.62.0(0))

Total held: 93.71.7 =171 Number of institutions: 10 Captive Born: 12% Wild Born: 38% Captive births last 12 months: 0 Deaths first 30 days: 0

*Streptopelia decaocto*/COLLARED DOVE/ANTWERP 0. 0. 14(0) DE CAMPO 0. 1. 4(0) LISBON 0. 0. 6(0) Region (0.1.24(0)) HOGLE 4. 4. 0(0) JACKSONVL 1. 1. 0(0)  
Region (5.5.0(0)) KHAOKHEOW 35. 26. 0(0) RIYADH 3. 3. 0(0) TOKYOTAMA 1. 1. 5(2) Region (39.30.5(2))

Total held: 44.36.29 =109 Number of institutions: 8 Captive Born: 28% Wild Born: 61% Captive births last 12 months: 2 Deaths first 30 days: 0

*Streptopelia decipiens*/AFRICAN MOURNING DOVE/

PRET POT 0. 0. 2(0) PRETORIA 8. 7. 5(3) Region (8.7.7(3))

Total held: 8.7.7 =22 Number of institutions: 2 Captive Born: 77% Wild Born: 18% Captive births last 12 months: 3 Deaths first 30 days: 0

*Streptopelia orientalis*/ORIENTAL TURTLE DOVE/

KHAOKHEOW 8. 9. 0(0) MOSCOW 2. 1. 0(0) Region (10.10.0(0))

Total held: 10.10.0 =20 Number of institutions: 2 Captive Born: 15% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Streptopelia risoria*/RINGED TURTLE DOVE/

BURFORD	0.	0.	0(5)	Region {0.0.0(5)}	PRETORIA	7.	7.	4(4)	Region {7.7.4(4)}	BATTLE CR	1.	1.	0(0)	BIRMINGHM	0.	0.	1(0)						
BLOOMINGT	3.	0.	0(0)	CALDWELL	2.	3.	10(3)	CHICAGOLP	1.	0.	0(0)	DENVER	0.	1.	0(0)	EUREKA	1.	1.	0(0)	FORTWORTH	0.	0.	0(2)
GARDENCTY	1.	3.	2(8)	HONOLULU	1.	3.	2(3)	JOHN BALL	1.	0.	0(0)	LAKEBUENA	0.	0.	1(0)	LINCOLN C	1.	2.	0(0)	MANHATTAN	0.	0.	2(0)
NY BRONX	3.	3.	0(0)	SAN ANTON	10.	8.	5(6)	SAN FRAN	1.	0.	1(0)	W ORANGE	1.	1.	2(0)	WILLOW PK	8.	3.	0(0)	Region {35.29.26(22)}			
MOSCOW	0.	2.	0(0)	Region {0.2.0(0)}	MELBOURNE	0.	0.	9(0)	SYDNEY	2.	2.	0(0)	Region {2.2.9(0)}										

Total held: 44.40.39 =123      Number of institutions: 24      Captive Born: 67%      Wild Born: 4%      Captive births last 12 months: 31      Deaths first 30 days: 7

*Streptopelia roseogrisea*/PINK-HEADED TURTLE DOVE/

ANTWERP	0.	0.	1(0)	Region {0.0.1(0)}	HOUSTON	5.	5.	3(4)	Region {5.5.3(4)}
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Total held: 5.5.4 =14      Number of institutions: 2      Captive Born: 93%      Wild Born: 0%      Captive births last 12 months: 4      Deaths first 30 days: 0

*Streptopelia semitorquata*/RED-EYED DOVE/

PRET POT	1.	0.	1(0)	PRETORIA	1.	4.	5(0)	Region {2.4.6(0)}	SANDIEGOZ	0.	0.	15(2)	SD-WAP	0.	1.	6(0)	Region {0.1.21(2)}
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Total held: 2.5.27 =34      Number of institutions: 4      Captive Born: 94%      Wild Born: 6%      Captive births last 12 months: 2      Deaths first 30 days: 0

*Streptopelia senegalensis*/LAUGHING DOVE/

ALPHEN	0.	0.	18(2)	ANTWERP	1.	1.	6(0)	CHESTER	0.	0.	9(2)	CLERES	2.	2.	11(2)	GIVSKUD	1.	0.	0(0)	HAYLE	2.	0.	0(0)
LISBON	0.	0.	15(2)	PAIGNTON	0.	0.	7(0)	ROTTERDAM	2.	2.	0(0)	Region {8.5.66(8)}	PRETORIA	1.	1.	2(1)	Region {1.1.2(1)}						
SANDIEGOZ	2.	1.	8(0)	SD-WAP	0.	1.	0(0)	TORONTO	1.	0.	0(0)	Region {3.2.8(0)}	RIYADH	3.	4.	0(0)	TOKYOTAMA	0.	0.	4(0)			
Region {3.4.4(0)}	MELBOURNE	2.	2.	0(0)	Region {2.2.0(0)}																		

Total held: 17.14.80 =111      Number of institutions: 16      Captive Born: 64%      Wild Born: 23%      Captive births last 12 months: 9      Deaths first 30 days: 0

*Streptopelia tranquebarica* (no sbp)/RED TURTLE DOVE/

SD-WAP	3.	1.	0(0)	Region {3.1.0(0)}	SYDNEY	3.	0.	0(0)	Region {3.0.0(0)}
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Total held: 6.1.0 =7      Number of institutions: 2      Captive Born: 14%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Streptopelia turtur* (unk sp)/TURTLE DOVE/

ANTWERP	0.	1.	0(0)	BARCELONA	0.	2.	0(0)	LISBON	0.	0.	21(0)	PAIGNTON	1.	1.	6(0)	Region {1.4.27(0)}	REDWOOD	1.	1.	0(0)
Region {1.1.0(0)}																				

Total held: 2.5.27 =34      Number of institutions: 5      Captive Born: 85%      Wild Born: 3%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Streptopelia turtur turtur*/TURTLE DOVE/

CLERES	2.	3.	0(0)	Region {2.3.0(0)}
--------	----	----	------	-------------------

Total held: 2.3.0 =5      Number of institutions: 1      Captive Born: 100%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Streptopelia vinacea*/VINAVEOUS DOVE/

HOUSTON	1.	1.	0(0)	SANDIEGOZ	0.	2.	0(0)	Region {1.3.0(0)}
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Total held: 1.3.0 =4      Number of institutions: 2      Captive Born: 100%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Treron bicincta*/ORANGE-BREASTED PIGEON/

BRISTOL	0.	0.	1(0)	Region {0.0.1(0)}	FT WAYNE	1.	1.	0(0)	Region {1.1.0(0)}
---------	----	----	------	-------------------	----------	----	----	------	-------------------

Total held: 1.1.1 =3      Number of institutions: 2      Captive Born: 100%      Wild Born: 0%      Captive births last 12 months: 0      Deaths first 30 days: 0

*Treron calva* (no subsp)/REICHENOW'S PIGEON/

CLERES	1.	0.	0(0)	Region {1.0.0(0)}	PRETORIA	0.	0.	3(0)	Region {0.0.3(0)}	ATLANTA	2.	0.	1(0)	DALLAS	0.	0.	4(0)
FRANKLINP	1.	1.	0(1)	MILWAUKEE	0.	1.	0(0)	SANDIEGOZ	0.	3.	0(0)	SD-WAP	1.	1.	0(0)	Region {4.6.5(1)}	

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Total held: 5.6.8 =19      Number of institutions: 8    Captive Born: 11%    Wild Born: 68%    Captive births last 12 months: 1    Deaths first 30 days: 1  
*Treron curvirostra*/THICK-BILLED PIGEON/  
KHAOKHEOW 18. 15. 0(0)      Region (18.15.0(0))  
Total held: 18.15.0 =33      Number of institutions: 1    Captive Born: 0%    Wild Born: 0%    Captive births last 12 months: 0    Deaths first 30 days: 0  
*Treron fulvicollis*/CINNAMON-HEADED PIGEON/  
LOUISVILL 1. 0. 0(0)    MEMPHIS 1. 1. 0(0)      Region (2.1.0(0))  
Total held: 2.1.0 =3      Number of institutions: 2    Captive Born: 0%    Wild Born: 67%    Captive births last 12 months: 0    Deaths first 30 days: 0  
*Treron pompadora*/POMPADOUR PIGEON/  
SAN DIEGOZ 0. 0. 1(0)      Region (0.0.1(0))  
Total held: 0.0.1 =1      Number of institutions: 1    Captive Born:100%    Wild Born: 0%    Captive births last 12 months: 0    Deaths first 30 days: 0  
*Treron sieboldii*/WHITE-BELLIED PIGEON/  
SAN DIEGOZ 1. 1. 1(2)      Region (1.1.1(2))  
Total held: 1.1.1 =3      Number of institutions: 1    Captive Born:100%    Wild Born: 0%    Captive births last 12 months: 2    Deaths first 30 days: 0  
*Treron sphenura*/WEDGE-TAILED PIGEON/  
ROTTERDAM 0. 0. 1(0)      Region (0.0.1(0))  
Total held: 0.0.1 =1      Number of institutions: 1    Captive Born:100%    Wild Born: 0%    Captive births last 12 months: 0    Deaths first 30 days: 0  
*Treron vernans*/PINK-NECKED PIGEON/  
BRISTOL 1. 3. 0(0)    CHESTER 0. 1. 0(0)      Region (1.4.0(0))      LOSANGELE 2. 1. 1(0)      SANDIEGOZ 0. 0. 1(0)      SD-WAP 2. 1. 1(0)  
Region (4.2.3(0))  
Total held: 5.6.3 =14      Number of institutions: 5    Captive Born: 14%    Wild Born: 29%    Captive births last 12 months: 0    Deaths first 30 days: 0  
*Treron waalia*/BRUCES GREEN PIGEON/  
TOLEDO 0. 0. 1(0)      Region (0.0.1(0))  
Total held: 0.0.1 =1      Number of institutions: 1    Captive Born: 0%    Wild Born:100%    Captive births last 12 months: 0    Deaths first 30 days: 0  
*Trugon terrestris*/THICK-BILLED GROUND DOVE/  
SD-WAP 1. 1. 0(0)      Region (1.1.0(0))  
Total held: 1.1.0 =2      Number of institutions: 1    Captive Born: 0%    Wild Born: 50%    Captive births last 12 months: 0    Deaths first 30 days: 0  
*Turacoena manadensis*/CELEBES PIGEON/  
SAN DIEGOZ 2. 2. 1(0)      Region (2.2.1(0))  
Total held: 2.2.1 =5      Number of institutions: 1    Captive Born: 60%    Wild Born: 40%    Captive births last 12 months: 0    Deaths first 30 days: 0  
*Turtur abyssinicus*/BLACK-BILLED WOOD DOVE/  
CLERES 1. 0. 0(0)      Region (1.0.0(0))      SANDIEGOZ 1. 0. 0(0)      SD-WAP 2. 0. 2(0)      Region (3.0.2(0))  
Total held: 4.0.2 =6      Number of institutions: 3    Captive Born:100%    Wild Born: 0%    Captive births last 12 months: 0    Deaths first 30 days: 0  
*Turtur chalcospilos*/EMERALD-SPOTTED WOOD DOVE/  
PRETORIA 0. 0. 4(0)      Region (0.0.4(0))      FORTWORTH 2. 2. 0(0)      SANDIEGOZ 0. 0. 1(0)      SD-WAP 1. 1. 0(0)      Region (3.3.1(0))  
Total held: 3.3.5 =11      Number of institutions: 4    Captive Born: 45%    Wild Born: 18%    Captive births last 12 months: 0    Deaths first 30 days: 0

*Turtur tympanistria*/TAMBOURINE DOVE/

PRETORIA 6. 2. 1(0) Region (6.2.1(0)) HOUSTON 1. 1. 0(0) SANDIEGOZ 1. 1. 0(0) SD-WAP 2. 1. 0(0) Region (4.3.0(0))

Total held: 10.5.1 =16 Number of institutions: 4 Captive Born: 94% Wild Born: 6% Captive births last 12 months: 0 Deaths first 30 days: 0

*Zenaida asiatica*/WHITE-WINGED DOVE/

ARNHEM 3. 1. 1(0) Region (3.1.1(0)) ASHEBORO 0. 0. 4(0) BROWNSVIL 0. 0. 1(0) FLAMINGO 0. 0. 1(0) HOGLE 1. 1. 0(0)  
LOSANGELE 0. 0. 4(0) MONTGOMRY 0. 0. 1(0) PALM DES 2. 2. 0(0) PHOENIX 0. 5. 0(0) TULSA 0. 0. 5(0) Region (3.8.16(0))

Total held: 6.9.17 =32 Number of institutions: 10 Captive Born: 19% Wild Born: 44% Captive births last 12 months: 0 Deaths first 30 days: 0

*Zenaida auriculata*/EARED DOVE/

ROTTERDAM 0. 0. 1(0) Region (0.0.1(0))

Total held: 0.0.1 =1 Number of institutions: 1 Captive Born: 100% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Zenaida galapagoensis*/GALAPAGOS DOVE/

FORTWORTH 0. 0. 0(1) LOSANGELE 0. 0. 2(0) PITTS CA 1. 0. 0(0) SANDIEGOZ 2. 1. 0(0) Region (3.1.2(1))

Total held: 3.1.2 =6 Number of institutions: 4 Captive Born: 83% Wild Born: 0% Captive births last 12 months: 1 Deaths first 30 days: 1

*Zenaida macroura* (no subsp)/MOURNING DOVE/

ASDM TUSC 0. 0. 2(0) AUDUBON 0. 0. 1(0) BUFFALO 0. 0. 2(0) CHATTANOO 1. 1. 0(0) CINCINNAT 0. 0. 1(0) FLAMINGO 0. 0. 2(0)  
GRASSMERE 0. 0. 1(0) HOGLE 1. 2. 0(0) LOUISVILL 0. 0. 1(0) LOWRY 0. 0. 3(0) METROZOO 0. 0. 1(0) MINNESOTA 0. 1. 0(0)  
NY BRONX 0. 1. 0(0) PALM DES 0. 0. 7(0) PHOENIX 0. 5. 0(0) QUEBEC 0. 0. 6(0) ROCHESTER 0. 0. 1(0) W ORANGE 0. 0. 2(0)  
WILD WRLD 1. 1. 2(0) WILLOW PK 0. 0. 2(0) Region (3.11.34(0))

Total held: 3.11.34 =48 Number of institutions: 20 Captive Born: 17% Wild Born: 75% Captive births last 12 months: 0 Deaths first 30 days: 0

*Zenaida macroura graysoni*/MOURNING DOVE/

FRANKFURT 2. 1. 3(0) KOLN 2. 1. 10(2) Region (4.2.13(2))

Total held: 4.2.13 =19 Number of institutions: 2 Captive Born: 100% Wild Born: 0% Captive births last 12 months: 2 Deaths first 30 days: 0

Family Totals: 1768.1610.1675 =5053 Captive Born: 64% Wild Born: 18% Captive births last 12 months: 870 Deaths first 30 days (of captive birth): 246

## Family - Loriidae/LORIES/

*Chalcopsitta atra atra*/BLACK LORY/

COAL VAL 1. 1. 0(0) GOOD DAY 1. 1. 0(0) REDWOOD 0. 0. 1(0) SD-WAP 0. 1. 0(0) Region (2.3.1(0))

Total held: 2.3.1 =6 Number of institutions: 4 Captive Born: 50% Wild Born: 17% Captive births last 12 months: 0 Deaths first 30 days: 0

*Chalcopsitta cardinalis*/CARDINAL LORY/

SANDIEGOZ 1. 1. 0(0) Region (1.1.0(0))

Total held: 1.1.0 =2 Number of institutions: 1 Captive Born: 0% Wild Born: 0% Captive births last 12 months: 0 Deaths first 30 days: 0

*Chalcopsitta duivenbodei* (no subsp)/LORY/

AMSTERDAM 0. 1. 0(0) PENSCYNOR 1. 2. 1(0) Region (1.3.1(0))

Total held: 1.3.1 =5 Number of institutions: 2 Captive Born: 40% Wild Born: 20% Captive births last 12 months: 0 Deaths first 30 days: 0

**CONSERVATION ASSESSMENT  
AND MANAGEMENT PLAN  
FOR PIGEONS AND DOVES**

**Report from a Workshop  
held 10-13 March 1993  
San Diego, CA**

**SECTION 4  
REFERENCE MATERIAL**



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**Appendix I**

**PIGEON CAMP PARTICIPANTS  
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# Assessing Extinction Threats: Toward a Reevaluation of IUCN Threatened Species Categories

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**Abstract:** *IUCN categories of threat (Endangered, Vulnerable, Rare, Indeterminate, and others) are widely used in 'Red lists' of endangered species and have become an important tool in conservation action at international, national, regional, and thematic levels. The existing definitions are largely subjective, and as a result, categorizations made by different authorities differ and may not accurately reflect actual extinction risks. We present proposals to redefine categories in terms of the probability of extinction within a specific time period, based on the theory of extinction times for single populations and on meaningful time scales for conservation action. Three categories are proposed (CRITICAL, ENDANGERED, VULNERABLE) with decreasing levels of threat over increasing time scales for species estimated to have at least a 10% probability of extinction within 100 years. The process of assigning species to categories may need to vary among different taxonomic groups, but we present some simple qualitative criteria based on population biology theory, which we suggest are appropriate at least for most large vertebrates. The process of assessing threat is clearly distinguished from that of setting priorities for conservation action, and only the former is discussed here.*

**Resumen:** *La categorización de la Unión Internacional para la Conservación de la Naturaleza (UICN) de las especies amenazadas (en peligro, vulnerables, raras, indeterminadas y otras) son ampliamente utilizadas en las Listas Rojas de especies en peligro y se han convertido en una herramienta importante para las acciones de conservación al nivel internacional, nacional, regional y temático. Las definiciones de las categorías existentes son muy subjetivas y, como resultado, las categorizaciones hechas por diferentes autores difieren y quizás no reflejen con certeza el riesgo real de extinción. Presentamos propuestas para re-definir las categorías en términos de la probabilidad de extinción dentro de un período de tiempo específico. Las propuestas están basadas en la teoría del tiempo de extinción para poblaciones individuales y en escalas de tiempo que tengan significado para las acciones de conservación. Se proponen tres categorías (CRITICA, EN PELIGRO, VULNERABLE) con niveles decrecientes de amenaza sobre escalas de tiempo en aumento para especies que se estima tengan cuando menos un 10% de probabilidad de extinción en 100 años. El proceso de asignar especies a categorías puede que necesite variar dentro de los diferentes grupos taxonómicos pero nosotros presentamos algunos criterios cualitativos simples basados en la teoría de la biología de las poblaciones, las cuales sugerimos son apropiadas para cuando menos la mayoría de los grandes vertebrados. El proceso de evaluar la amenaza se distingue claramente del de definir las prioridades para las acciones de conservación, solamente el primero se discute aquí.*

## Introduction

### Background

The Steering Committee of the Species Survival Commission (SSC) of the IUCN has initiated a review of the overall functioning of the Red Data Books. The review will cover three elements: (1) the form, format, content, and publication of Red Data Books; (2) the categories of threat used in Red Data Books and the IUCN Red List (Extinct, Endangered, Vulnerable, Rare, and Indeterminate); and (3) the system for assigning species to categories. This paper is concerned with the second element and includes proposals to improve the objectivity and scientific basis for the threatened species categories currently used in Red Data Books (see IUCN 1988 for current definitions).

There are at least three reasons why a review of the categorization system is now appropriate: (1) the existing system is somewhat circular in nature and excessively subjective. When practiced by a few people who are experienced with its use in a variety of contexts it can be a robust and workable system, but increasingly, different groups with particular regional or taxonomic interests are using the Red Data Book format to develop local or specific publications. Although this is generally of great benefit, the interpretation and use of the present threatened species categories are now diverging widely. This leads to disputes and uncertainties over particular species that are not easily resolved and that ultimately may negatively affect species conservation. (2) Increasingly, the categories of threat are being used in setting priorities for action, for example, through specialist group action plans (e.g., Oates 1986; Eudey 1988; East 1988, 1989; Schreiber et al. 1989). If the categories are to be used for planning then it is essential that the system used to establish the level of threat be consistent and clearly understood, which at present it does not seem to be. (3) A variety of recent developments in the study of population viability have resulted in techniques that can be helpful in assessing extinction risks.

### Assessing Threats Versus Setting Priorities

In the first place it is important to distinguish systems for assessing threats of extinction from systems designed to help set priorities for action. The categories of threat should simply provide an assessment of the likelihood that if current circumstances prevail the species will go extinct within a given period of time. This should be a scientific assessment, which ideally should be completely objective. In contrast, a system for setting priorities for action will include the likelihood of extinction, but will also embrace numerous other factors, such as the likelihood that restorative action will be successful; economic, political, and logistical considerations; and perhaps the taxonomic distinctiveness of the

species under review. Various categorization systems used in the past, and proposed more recently, have confounded these two processes (see Fitter & Fitter 1987; Munton 1987). To devise a general system for setting priorities is not useful because different concerns predominate within different taxonomic, ecological, geographical, and political units. The process of setting priorities is therefore best left to specific plans developed by specialist bodies such as the national and international agencies, the specialist groups, and other regional bodies that can devise priority assessments in the appropriate regional or taxonomic context. An objective assessment of extinction risk may also then contribute to the decisions taken by governments on which among a variety of recommendations to implement. The present paper is therefore confined to a discussion of assessing threats.

## Aims of the System of Categorization

### For Whom?

Holt (1987) identifies three different groups whose needs from Red Data Books (and therefore categories of threat) may not be mutually compatible: the lay public, national and international legislators, and conservation professionals. In each case the purpose is to highlight taxa with a high extinction risk, but there are differences in the quality and quantity of information needed to support the assessment. Scott et al. (1987) make the point that in many cases simple inclusion in a Red Data Book has had as much effect on raising awareness as any of the supporting data (see also Fitter 1974). Legislators need a simple, but objective and soundly based system because this is most easily incorporated into legislation (Bean 1987). Legislators frequently require some statement about status for every case they consider, however weak the available information might be. Inevitably, therefore, there is a conflict between expediency and the desire for scientific credibility and objectivity. Conservationists generally require more precision, particularly if they are involved in planning conservation programs that aim to make maximal use of limited resources.

### Characteristics of an Ideal System

With this multiplicity of purposes in mind it is appropriate to consider various characteristics of an ideal system:

(1) The system should be essentially simple, providing easily assimilated data on the risk of extinction. In terms of assessing risk, there seems to be little virtue in developing numerous categories, or in categorizing risk on the basis of a range of different parameters (e.g., abundance, nature of threat, likelihood of persistence of threat, etc.). The categories should be few in number,

should have a clear relationship to one another (Holt 1987; Munton 1987), and should be based around a probabilistic assessment of extinction risk.

(2) The system for categorization has to be flexible in terms of data required. The nature and amount of data available to assess extinction risks varies widely from almost none (in the vast majority of species) to highly detailed population data (in a very few cases). The categorization system should make maximum use of whatever data are available. One beneficial consequence of this process would be to identify key population data for field workers to collect that would be useful in assessing extinction risk.

(3) The categorization system also needs to be flexible in terms of the population unit to which it applies. Throughout this discussion, it is assumed that the system being developed will apply to any species, subspecies, or geographically separate population. The categorization system therefore needs to be equally applicable to limited lower taxonomic levels and to more limited geographical scope. Action planning will need to be focused on particular taxonomic groups or geographical areas, and can then incorporate an additional system for setting priorities that reflect taxonomic distinctiveness and extinction risks outside the local area (e.g., see East 1988, 1989; Schreiber et al. 1989).

(4) The terminology used in categorization should be appropriate, and the various terms used should have a clear relationship to each other. For example, among the current terms both 'endangered' and 'vulnerable' are readily comprehended, but 'rare' is confusing. It can be interpreted as a statement about distribution status, level of threat, or local population size, and the relationships between these factors are complex (Rabinowitz et al. 1986). Rare (i.e., low-density) species are not always at risk and many species at risk are not numerically rare (King 1987; Munton 1987; Heywood 1988). The relationship of 'rare' to 'endangered' and 'vulnerable' is also unclear.

(5) If the system is to be objectively based upon sound scientific principles, it should include some assessment of uncertainty. This might be in terms of confidence levels, sensitivity analyses, or, most simply, on an ordinal scale reflecting the adequacy of the data and models in any particular case.

(6) The categories should incorporate a time scale. On a geological time scale all species are doomed to extinction, so terms such as "in danger of extinction" are rather meaningless. The concern we are addressing here is the high background level of the current rates of extinction, and one aim is therefore preservation over the upcoming centuries (Soulé & Simberloff 1986). Therefore, the probability of extinction should be expressed in terms of a finite time scale, for example, 100 years. Munton (1987) suggests using a measure of number of years until extinction. However, since most mod-

els of population extinction times result in approximately exponential distributions, as in Goodman's (1987) model of density-dependent population growth in a fluctuating environment, mean extinction time may not accurately reflect the high probability that the species will go extinct within a time period considerably shorter than the mean (see Fig. 1). More useful are measures such as "95% likelihood of persistence for 100 years."

### Population Viability Analysis and Extinction Factors

Various approaches to defining viable populations have been taken recently (Shaffer 1981, 1990; Gilpin & Soulé, 1986; Soulé 1987). These have emphasized that there is no simple solution to the question of what constitutes a viable population. Rather, through an analysis of extinction factors and their interactions it is possible to assess probabilities and time scales for population persistence for a particular taxon at a particular time and place. The development of population viability analyses has led to the definition of intrinsic and extrinsic factors that determine extinction risks (see Soulé 1983; Soulé 1987; Gilpin & Soulé 1986; see also King 1987). Briefly these can be summarized as population dynamics (number of individuals, life history and age or stage distribution, geographic structure, growth rate, variation in demographic parameters), population characteristics (morphology, physiology, genetic variation, behavior and dispersal patterns), and environmental effects (habitat quality and quantity, patterns and rates of environmental disturbance and change, interactions with other species including man).

Preliminary models are available to assess a population's expected persistence under various extinction pressures, for example, demographic variation (Goodman 1987*a, b*; Belovsky 1987; CBSG 1989), catastrophes (Shaffer 1987), inbreeding and loss of genetic diversity (Lande & Barrowclough 1987; Lacy 1987), metapopulation structure (Gilpin 1987; Quinn & Hastings 1987; Murphy et al. 1990). In addition, various approaches have been made to modeling extinction in populations threatened by habitat loss (e.g., Gutiérrez & Carey 1985; Maguire et al. 1987; Lande 1988), disease (e.g., Anderson & May 1979; Dobson & May 1986; Seal et al. 1989), parasites (e.g., May & Anderson 1979; May & Robinson 1985; Dobson & May 1986), competitors, poaching (e.g., Caughley 1988), and harvesting or hunting (e.g., Holt 1987).

So far, the development of these models has been rather limited, and in particular they often fail to successfully incorporate several different extinction factors and their interactions (Lande 1988). Nevertheless the approach has been applied in particular cases even with

existing models (e.g., grizzly bear: Shaffer 1983; spotted owl: Gutiérrez & Carey 1985; Florida panther: CBSG 1989), and there is much potential for further development.

Although different extinction factors may be critical for different species, other, noncritical factors cannot be ignored. For example, it seems likely that for many species, habitat loss constitutes the most immediate threat. However, simply preserving habitats may not be sufficient to permit long term persistence if surviving populations are small and subdivided and therefore have a high probability of extinction from demographic or genetic causes. Extinction factors may also have cumulative or synergistic effects; for example, the hunting of a species may not have been a problem before the population was fragmented by habitat loss. In every case, therefore, all the various extinction factors and their interactions need to be considered. To this end more attention needs to be directed toward development of models that reflect the random influences that are significant to most populations, that incorporate the effects of many different factors, and that relate to the many plant, invertebrate, and lower vertebrate species whose population biology has only rarely been considered so far by these methods.

Viability analysis should suggest the appropriate kind of data for assigning extinction risks to species, though much additional effort will be needed to develop appropriate models and collect appropriate field data.

## Proposal

### Three Categories and Their Justification

We propose the recognition of three categories of threat (plus EXTINCT), defined as follows:

- CRITICAL:** 50% probability of extinction within 5 years or 2 generations, whichever is longer.
- ENDANGERED:** 20% probability of extinction within 20 years or 10 generations, whichever is longer.
- VULNERABLE:** 10% probability of extinction within 100 years.

These definitions are based on a consideration of the theory of extinction times for single populations as well as on meaningful time scales for conservation action. If biological diversity is to be maintained for the foreseeable future at anywhere near recent levels occurring in natural ecosystems, fairly stringent criteria must be adopted for the lowest level of extinction risk, which we call VULNERABLE. A 10% probability of extinction within 100 years has been suggested as the highest level of risk that is biologically acceptable (Shaffer 1981) and seems appropriate for this category. Furthermore,

events more than about 100 years in the future are hard to foresee, and this may be the longest duration that legislative systems are capable of dealing with effectively.

It seems desirable to establish a CRITICAL category to emphasize that some species or populations have a very high risk of extinction in the immediate future. We propose that this category include species or populations with a 50% chance of extinction within 5 years or two generations, and which are clearly at very high risk.

An intermediate category, ENDANGERED, seems desirable to focus attention on species or populations that are in substantial danger of extinction within our lifetimes. A 20% chance of extinction within 20 years or 10 generations seems to be appropriate in this context.

For increasing levels of risk represented by the categories VULNERABLE, ENDANGERED, and CRITICAL, it is necessary to increase the probability of extinction or to decrease the time scale, or both. We have chosen to do both for the following reasons. First, as already mentioned, decreasing the time scale emphasizes the immediacy of the situation. Ideally, the time scale should be expressed in natural biological units of generation time of the species or population (Leslie 1966), but there is also a natural time scale for human activities such as conservation efforts, so we have given time scales in years and in generations for the CRITICAL and ENDANGERED categories.

Second, the uncertainty of estimates of extinction probabilities decreases with increasing risk levels. In population models incorporating fluctuating environments and catastrophes, the probability distribution of extinction times is approximately exponential (Nobile et al. 1985; Goodman 1987). In a fluctuating environment where a population can become extinct only through a series of unfavorable events, there is an initial, relatively brief period in which the chance of extinction is near zero, as in the inverse Gaussian distribution of extinction times for density-independent fluctuations (Ginzburg et al. 1982; Lande & Orzack 1988). If catastrophes that can extinguish the population occur with probability  $p$  per unit time, and are much more important than normal environmental fluctuations, the probability distribution of extinction times is approximately exponential,  $pe^{-pt}$ , and the cumulative probability of extinction up to time  $t$  is approximately  $1 - e^{-pt}$ . Thus, typical probability distributions of extinction times look like the curves in Figures 1A and 1B, and the cumulative probabilities of extinction up to any given time look like the curves in Figures 1C and 1D. Dashed curves represent different distributions of extinction times and cumulative extinction probabilities obtained by changing the model parameters in a formal population viability analysis (e.g., different amounts of environmental variation in demographic parameters). The uncertainty in an

estimate of cumulative extinction probability up to a certain time can be measured by its coefficient of variation, that is, the standard deviation among different estimates of the cumulative extinction probability with respect to reasonable variation in model parameters, divided by the best estimate. It is apparent from Figures 1C and 1D that at least for small variations in the parameters (if the parameters are reasonably well known), the uncertainty of estimates of cumulative extinction probability at particular times decreases as the level of risk increases. Thus at times,  $t_1$ ,  $t_2$ , and  $t_3$  when the best estimates of the cumulative extinction probabilities are 10%, 20%, and 50% respectively, the corresponding ranges of extinction probabilities in Figure 1C are 6.5%–14.8%, 13.2%–28.6%, and 35.1%–65.0%, and in Figure 1D are 6.8%–13.1%, 13.9%–25.7%, and 37.2%–60.2%. Taking half the range as a rough approximation of the standard deviation in this simple illustration gives uncertainty measures of 0.41, 0.38, and 0.30 in Figure 1C, and 0.31, 0.29, and 0.23 in Figure 1D, corresponding to the three levels of risk. Given that for practical reasons we have chosen to shorten the time scales for the more threatened categories, these results suggest that to maintain low levels of uncertainty, we should also increase the probabilities of extinction in the definition of the ENDANGERED and CRITICAL categories.

These definitions are based on general principles of population biology with broad applicability, and we believe them to be appropriate across a wide range of life forms. Although we expect the process of assigning species to categories (see below) to be an evolving (though closely controlled and monitored) process, and one that might vary across broad taxonomic groups, we recommend that the definitions be constant both across taxonomic groups and over time.

### Assigning Species or Populations to Categories

We recognize that in most cases, there are insufficient data and imperfect models on which to base a formal probabilistic analysis. Even when considerable information does exist there may be substantial uncertainties in the extinction risks obtained from population models containing many parameters that are difficult to estimate accurately. Parameters such as environmental stochasticity (temporal fluctuations in demographic parameters such as age- or developmental stage-specific mortality and fertility rates), rare catastrophic events, as well as inbreeding depression and genetic variability in particular characters required for adaptation are all difficult to estimate accurately. Therefore it may not be possible to do an accurate probabilistic viability analysis even for some very well studied species. We suggest

that the categorization of many species should be based on more qualitative criteria derived from the same body of theory as the definitions above, which will broaden the scope and applicability of the categorization system. In these more qualitative criteria we use measures of effective population size ( $N_e$ ) and give approximate equivalents in actual population size ( $N$ ). It is important to recognize that the relationship between  $N_e$  and  $N$  depends upon a variety of interacting factors. Estimating  $N_e$  for a particular population will require quite extensive information on breeding structure and life history characteristics of the population and may then produce only an approximate figure (Lande & Barrowclough 1987). In addition, different methods of estimating  $N_e$  will give variable results (Harris & Allendorf 1989).  $N_e/N$  ratios vary widely across species, but are typically in the range 0.2 to 0.5. In the criteria below we give a value for  $N_e$  as well as an approximate value of  $N$  assuming that the  $N_e/N$  ratio is 0.2.

We suggest the following criteria for the three categories:

- CRITICAL: 50% probability of extinction within 5 years or 2 generations, whichever is longer, or
- (1) Any two of the following criteria:
    - (a) Total population  $N_e < 50$  (corresponding to actual  $N < 250$ ).
    - (b) Population fragmented:  $\leq 2$  subpopulations with  $N_e > 25$  ( $N > 125$ ) with immigration rates  $< 1$  per generation.
    - (c) Census data of  $> 20\%$  annual decline in numbers over the past 2 years, or  $> 50\%$  decline in the last generation, or equivalent projected declines based on demographic projections after allowing for known cycles.
    - (d) Population subject to catastrophic crashes ( $> 50\%$  reduction) per 5 to 10 years, or 2 to 4 generations, with subpopulations highly correlated in their fluctuations.
  - or (2) Observed, inferred, or projected habitat alteration (i.e., degradation, loss, or fragmentation) resulting in characteristics of (1).
  - or (3) Observed, inferred, or projected commercial exploitation or ecological interactions with introduced species (predators, competitors, pathogens, or parasites) resulting in characteristics of (1).

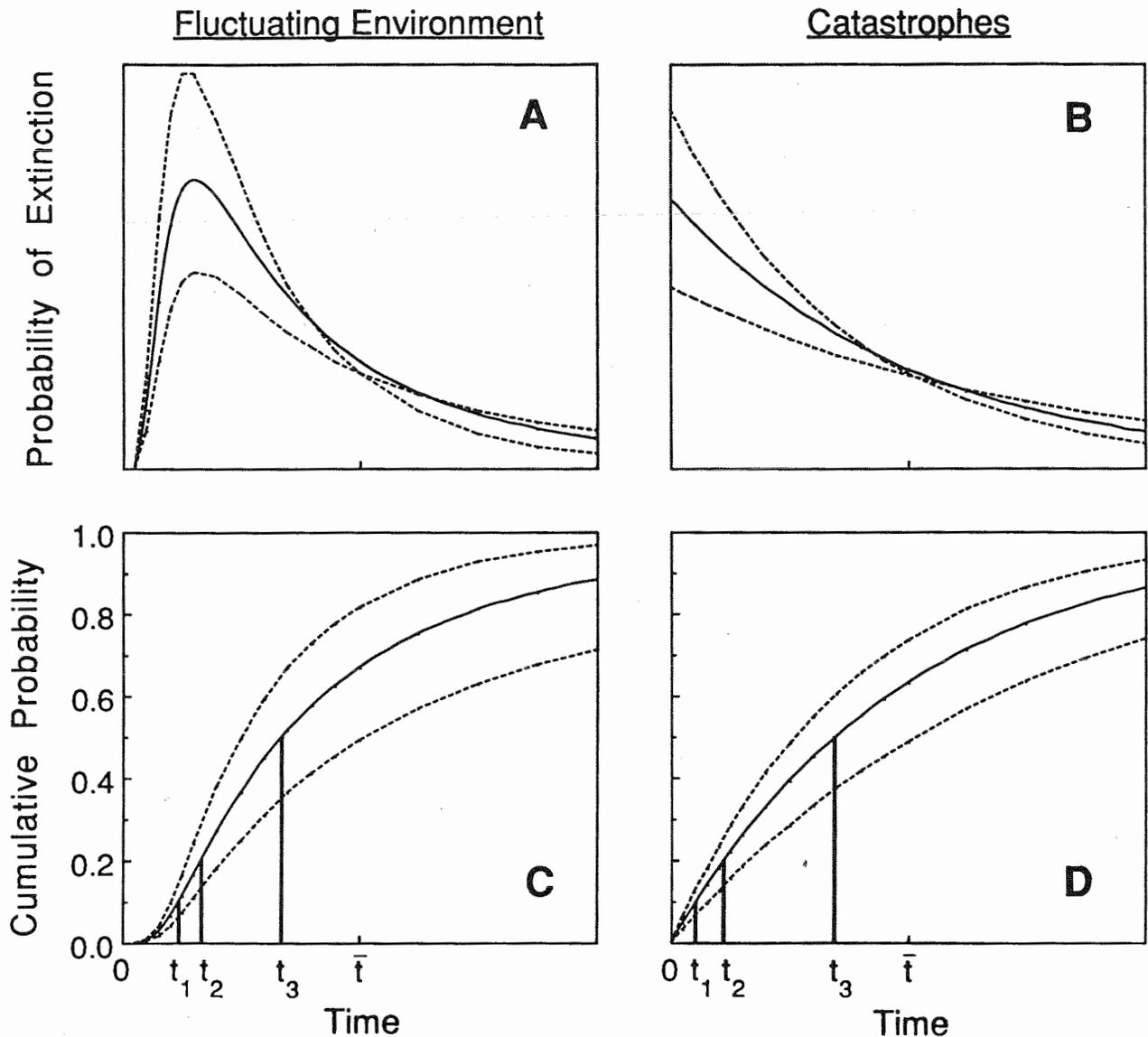


Figure 1. Probability distributions of time to extinction in a fluctuating environment, inverse Gaussian distributions (A), or with catastrophes, exponential distributions (B). Corresponding cumulative extinction probabilities of extinction up to any given time are shown below (C and D). Solid curves represent the best estimates from available data and dashed curves represent different estimates based upon the likely range of variation in the parameters.  $t_1$ ,  $t_2$ , and  $t_3$  are times at which the best estimates of cumulative extinction probabilities are 10%, 20%, and 50%.  $\bar{t}$  is the expected time to extinction in the solid curves.

**ENDANGERED:**

20% probability of extinction within 20 years or 10 generations, whichever is longer, or

- (1) Any **two** of the following or any **one** criterion under

**CRITICAL**

- (a) Total population  $N_e < 500$  (corresponding to actual  $N < 2,500$ ).  
 (b) Population fragmented:  
 (i)  $\leq 5$  subpopulations with  $N_e >$

100 ( $N > 500$ ) with immigration rates  $< 1$  per generation, or  
 (ii)  $\leq 2$  subpopulations with  $N_e > 250$  ( $N > 1,250$ ) with immigration rates  $< 1$  per generation.

- (c) Census data of  $> 5\%$  annual decline in numbers over past 5 years, or  $> 10\%$  decline per generation over past 2 generations, or equivalent projected declines based on demographic data after

- allowing for known cycles.
- (d) Population subject to catastrophic crashes: an average of >20% reduction per 5 to 10 years or 2 to 4 generations, or >50% reduction per 10 to 20 years or 5 to 10 generations, with subpopulations strongly correlated in their fluctuations.
- or (2) Observed, inferred, or projected habitat alteration (i.e., degradation, loss, or fragmentation) resulting in characteristics of (1).
- or (3) Observed, inferred, or projected commercial exploitation or ecological interactions with introduced species (predators, competitors, pathogens, or parasites) resulting in characteristics of (1).

**VULNERABLE:**

- 10% probability of extinction within 100 years, or
- (1) Any **two** of the following criteria or any **one** criterion under ENDANGERED.
- (a) Total population  $N_e < 2,000$  (corresponding to actual  $N < 10,000$ ).
- (b) Population fragmented:
- (i)  $\leq 5$  subpopulations with  $N_e > 500$  ( $N > 2,500$ ) with immigration rates  $< 1$  per generation, or
- (ii)  $\leq 2$  subpopulations with  $N_e > 1,000$  ( $N > 5,000$ ) with immigration rates  $< 1$  per generation.
- (c) Census data of  $> 1\%$  annual decline in numbers over past 10 years, or equivalent projected declines based on demographic data after allowing for known cycles.
- (d) Population subject to catastrophic crashes: an average of  $> 10\%$  reduction per 5 to 10 years,  $> 20\%$  reduction per 10 to 20 years, or  $> 50\%$  reduction per 50 years, with subpopulations strongly correlated in their fluctuations.
- or (2) Observed, inferred, or projected habitat alteration (i.e., degradation, loss, or fragmentation) resulting in characteristics of (1).
- or (3) Observed, inferred, or projected commercial exploitation or ecological in-

teractions with introduced species (predators, competitors, pathogens, or parasites) resulting in characteristics of (1).

Prior to any general acceptance, we recommend that these criteria be assessed by comparison of the categorizations they lead to in particular cases with the results of formal viability analyses, and categorizations based on existing methods. This process should help to resolve uncertainties about both the practice of, and results from, our proposals. We expect a system such as this to be relatively robust and of widespread applicability, at the very least for most higher vertebrates. For some invertebrate and plant taxa, different kinds of criteria will need to be developed within the framework of the definitions above. For example, many of these species have very high rates of population growth, short generation times, marked or episodic fluctuations in population size, and high habitat specificity. Under these circumstances, it will be more important to incorporate metapopulation characteristics such as subpopulation persistence times, colonization rates, and the distribution and persistence of suitable habitats into the analysis, which are less significant for most large vertebrate populations (Murphy et al. 1990; Menges 1990).

**Change of Status**

The status of a population or species with respect to risk of extinction should be up-listed (from unlisted to VULNERABLE, from VULNERABLE to ENDANGERED, or from ENDANGERED to CRITICAL) as soon as current information suggests that the criteria are met. The status of a population or species with respect to risk of extinction should be down-listed (from CRITICAL to ENDANGERED, from ENDANGERED to VULNERABLE, or from VULNERABLE to unlisted) only when the criteria of the lower risk category have been satisfied for a time period equal to that spent in the original category, or if it is shown that past data were inaccurate.

For example, if an isolated population is discovered consisting of 500 individuals and no other information is available on its demography, ecology, or the history of the population or its habitat, this population would initially be classified as ENDANGERED. If management efforts, natural events, or both caused the population to increase so that 10 years later it satisfied the criteria of the VULNERABLE category, the population would not be removed from the ENDANGERED category for a further period of 10 years. This time lag in down-listing prevents frequent up-listing and down-listing of a population or species.

**Uncertain or Conflicting Results**

Because of uncertainties in parameter estimates, especially those dealing with genetics and environmental

variability and catastrophes, substantial differences may arise in the results from analyses of equal validity performed by different parties. In such cases, we recommend that the criteria for categorizing a species or population should revert to the more qualitative ones outlined above.

### Reporting Categories of Threat

To objectively compare categorizations made by different investigators and at different times, we recommend that any published categorization also cite the method used, the source of the data, a date when the data were accurate, and the name of the investigator who made the categorization. If the method was by a formal viability model, then the name and version of the model used should also be included.

### Conclusion

Any system of categorizing degrees of threat of extinction inevitably contains arbitrary elements. No single system can adequately cover every possibility for all species. The system we describe here has the advantage of being based on general principles from population biology and can be used to categorize species for which either very little or a great deal of information is available. Although this system may be improved in the future, we feel that its use will help to promote a more uniform recognition of species and populations at risk of premature extinction, and should thereby aid in setting priorities for conservation efforts.

### Summary

1. Threatened species categories should highlight species vulnerable to extinction and focus appropriate reaction. They should therefore aim to provide objective, scientifically based assessments of extinction risks.
2. The audience for Red Data Books is diverse. Positive steps to raise public awareness and implement national and international legislation benefit from simple but soundly based categorization systems. More precise information is needed for planning by conservation bodies.
3. An ideal system needs to be simple but flexible in terms of data required. The category definitions should be based on a probabilistic assessment of extinction risk over a specified time interval, including an estimate of error.
4. Definitions of categories are appropriately based on extinction probabilities such as those arising from population viability analysis methods.
5. We recommend three categories, CRITICAL, EN-

DANGERED, and VULNERABLE, with decreasing probabilities of extinction risk over increasing time periods.

6. For most cases, we recommend development of more qualitative criteria for allocation to categories based on basic principles of population biology. We present some criteria that we believe to be appropriate for many taxa, but are appropriate at least for higher vertebrates.

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