

# Determining the Status of the Seram (Salmon-crested) and the Sumba (Citron-crested) Cockatoo: Practice and Pitfalls

by Stewart Metz

Many of the Indonesian and Philippine white cockatoos are in BIG trouble. The combined influences of logging (often illegal), which destroys their nesting habitat, and trapping for the companion bird trade, probably are synergistic in bringing about rapid declines. Added to these factors are the slow reproduction, weaning and fledging rates of these "k-selected species" birds. One could liken the situation to trying to fill a glass of water which has two large holes in its sides, using a tiny thimble.

Unfortunately, very little is known about these birds in the wild which can be employed to help their plight. Arndt, Juniper and Parr, and Coates and Bishop together provide in their texts only a few lines on the ecology of the wild Seram cockatoo (S2). To my knowledge, there are no extant photographs of the S2 in the wild, until 1996 when Isabel Isherwood, leading the Edinburgh expedition which was studying the indigenous fauna of Seram, took several pictures of the S2 which she has kindly shared with me.

So what have we learned lately, and how was this information generated? Can we trust it? As Jepson notes, "The knowledge base for setting parrot conservation priorities in Indonesia was derived from the largely anecdotal, qualitative, and sometimes prejudiced reports of short-term visitors." The Goffin's cockatoo (sometimes called the "Tanimbar corella"), which was inappropriately placed on CITES Appendix I, is a case in point. However, recently, Jepson points out, "systematic surveys have clarified the conservation of some of Indonesia's parrots."

## The Moluccan (Seram) Cockatoo

The Moluccan cockatoo (See photo at left of Sydney-Marie, a captive Moluccan cockatoo; photo by author) is known to be found in the wild only on Seram; it is extinct on Saparua and Haruka, despite what many books still say. Several people have observed S2 on Ambon; these sightings have occurred at least as recently as 1995. These birds may be offspring of escapees or (as suggested by Poulsen and Jepson) true endemics.

Fortunately, Drs. Margaret Kinnaird and Tim O'Brien, of the Wildlife Conservation Society (WCS), became involved by initiating a survey of the census of S2 on Seram, in collaboration with BirdLife International (BLI). Thus, the participation of the best organization of field workers and involvement of some of the most respected experts working with Indonesian wildlife was assured. (Margaret's and Tim's specialty is the hornbills of Sulawesi. However even this is relevant to the S2, since the Blythe's hornbill on Seram appears sometimes takes over the nest holes of S2 and may destroy their eggs).

In May of 1998, a survey of cockatoo populations was begun in Western Seram by a primary team of four people working in collaboration with the Indonesian Ministry of Forestry (then called PHPA) and Pattimura University. Six transects of 2 km each were established at seven sites, at 250-500 m. intervals. GPS locations were recorded for the beginning and end points. Nine VCP stations were established on each transect (VCP=variable circular plot). Unlike the line transect approach, VCP observations exclude birds seen in flight and cover a smaller area; therefore, it sometimes yields smaller numbers of observed birds. Each transect was walked twice. Data were collected simultaneously by 2-3 teams of observers twice daily between and 6 and 10 am. At VCP points, each bird contact was listened to and recorded for 10 mins; playback of the contacts was begun at 8.5 min and responses were noted.

The average density by the LT method was 7.87 birds per square km. The LT method was chosen because, using model fitting with the DISTANCE program, it yielded the lowest variance. When these data were analyzed ( assuming both that all lowland forest provides adequate habitat and that densities remain constant across the island ), they yielded minimum, conservative estimates of 70-100,000 cockatoos remaining on Seram. (This estimate might have been even higher if VCP data were to be used). Therefore, they suggested that "Moluccan cockatoos are still widely distributed in lowland habitats in the Western portion of Seram."

Can we believe these figures? There are some issues which one might question. Recording repetitive contacts with the same birds can never be totally excluded but is minimized by 1) eliminating all flying birds in VCR; 2) keeping sampling points far enough apart in VCR; 3) never counting birds to the rear of you in LTs; and 4) never counting birds that fly from behind and perch in front of you during LTs.

Second, note that survey sites were each ca. 6 sq. km large and only 7 areas on Western Seram were assessed. Since Seram is ~ 17,000 sq. km, one can calculate that only about one quarter of one percent of the total island was surveyed! However, there is no reason to believe a priori that this sample was not a satisfactory representation of the entire island.

In contradistinction , several facts ( in addition to the experience of the investigators) suggest that we can believe these estimates: First, this is the first study to assess density of these cockatoos using two independent methods and employing new-age technologies such as GIS (Geographic Information System for data analysis), digital compasses and rangefinders, and Global Positioning System (GPS).

If the results were accurate, one would expect that the VCP method and LT methods would agree closely. Lack of agreement would suggest a systemic error in at least one method. When I carried out a correlation analysis of the findings at each site by each technique, I found that there was nearly a linear relationship ( $r=0.84$ )-that is the two methods appeared to agree closely.

Do these findings concur with earlier studies? In older studies, the number of uncontrollable variables was even greater. However, there are some interesting ways in one might "massage" the published data:

The VCP numbers of the current study (10.28-18.19 birds/sq. km., depending whether audio contacts are included) are NOT less than those of Stuart Marsden (9.1-9.8 birds/sq. km in primary forest), accrued in 1990 and published in 1992. Marsden's was the first quantitative study of cockatoo populations on Seram and also used the VCP technique. This study lasted only 5 weeks and did not apply the Line Transect method ;thus, the studies are not strictly comparable. Nonetheless, it leads to the encouraging (and perhaps surprising) suggestion that a detectible and sustained population decline might NOT have occurred after 1990 (ie, around the time that the S2 was placed on Appendix I of CITES)!

Are these figures in general congruous with the loss of lowland forest during that period? After all, at the time of the WCS survey, 44% of the island was under logging concession; logging generally destroys about 70% of the forest canopy and a similar percentage of the cockatoo population, according to Marsden's data! The estimates of Kinnaird et al. suggest that lowland forest habitat has been reduced by 1200 sq. km. over the past decade. However, Seram is a very large island of approximately 17000 sq. km., of which about 85% (or 14500 sq. km.) is lowland forest. Therefore, one can calculate that "only" about 8% of preferred habitat (under 600 m. altitude) has been cleared.

Over time, there has been an increase in value to trappers of each Moluccan cockatoo. The selling price has risen from about \$5 to about \$25 over the past two years, as it has become harder to find and trap the birds (Personal communication; Buce Makatita; ex-trapper, Seram Island). Similar comments were made to Dr. Kinnaird and co-workers in interviews carried out during the Seram census: 60 of 70 respondents answered in the affirmative when questioned whether they find that "the cockatoo is becoming rare." However, other interpretations are possible. For example, it is not clear whether these observations relate to a collapse of the wild population only in certain favored hunting spots with preservation of others and/or the presence of the civil war, during which soldiers frequently removed birds as oleh-oleh (souvenirs).

Several people have asked whether the cockatoo should not be frequently seen soaring over the forest if there are 100,000 or so left. The first, most obvious answer is that Seram is a HUGE island; sightings are expected to be uncommon at any location, especially for such a shy bird. Another reason may lie in the fact that this cockatoo prefers lowland forest, not montane forest. However, Seram rapidly rises from its lowland forest into mist-covered, tall peaks ; these may tend to shroud the presence of cockatoos from sight at lower elevations. Coates and Bishop, in fact, note that while the birds are easiest to spot just above the canopy, they mostly fly below the canopy (and rarely in the open). To my knowledge, no survey has yet included studies from the canopy, or aerial surveys. Thus, densities may be fairly low, whereas total bird populations on such a large island might be substantial.

Are the published data compatible with our (admittedly short-term) sightings on Seram during one week in October of 2001? We had about 10 cockatoo sightings in about 5 attempts to see them, covering perhaps 20 hrs of observation, or roughly 0.5/hr.. In Bowler and Taylor's studies (1989), the cockatoo was sighted 0.3 times/hr (in lowland forest) ; in Marsden's study, encounter rates of 1.0-2.5 birds/hr. were recorded in lowland forest (but these figures include audio contacts). Thus, our crude figures may not be grossly discordant with published studies. However, we note that we were mostly observing from the canopy of lowland forest, where, as

indicated above, the chance of sightings may increase. Our observations are admittedly random and short-term but nonetheless, not incompatible with the encouraging estimates of 70-100,000 cockatoos on Seram.

Still, logging, wet rice cultivation and potentially, continued trapping, continue to pose real threats, such that the continued safety of the Seram cockatoo can NOT be taken for granted. One hundred thousand birds is not a lot! Indeed, nearly 70,000 cockatoos were LEGALLY exported between 1983 and 1990. And even presidential decrees will not help these birds-both Soeharto and Habibie issued proclamations protecting the Seram cockatoo, but they then promptly lost power! For these reasons, it is still listed as "vulnerable" in the IUCN Red Book.

## **The Citron-crested (Sumba) Cockatoo (C2) and other Yellow-Crested Cockatoos**

The Citron-crested cockatoo (*C.s. citronocristata*) (See photo at left of Daisy, a captive Citron-crested cockatoo; photo by author) is found only on Sumba, just as the Moluccan cockatoo is found essentially on only one island. Despite this similarity, there are significant differences in their numbers, rates of decline, and level of (legal) protection compared to the Seram cockatoo. Likewise, the approach to obtaining more information about their biology/ecology has differed between Seram and Sumba.

The Citron-crested cockatoo (C2) is a member of *Cacatua sulfurea*. *Parvula* ["Timor"]; *jampea*; *occidentalis*; and *abbotti* are other *C.sulfurea* sub-species. The Citron-crested cockatoo is often discussed separately due to its recognizably different appearance. The International Union for the Conservation of Nature and Natural Resources (IUCN) declared the lesser sulfurs as a group to be "rare to very rare throughout its range" years ago. In one survey of *C.s. parvula*, only 8 specimens were observed! But ironically although they are listed in the Report of the IUCN/Species Survival Commission) as "Endangered" (ie, at greater risk than the S2), LSC and their cousins have very limited legal protection from trade, having been granted only status on Appendix II of CITES .

In 1986, a survey carried out by 'BKSDA' (the Indonesian nature conservation authorities) , using the LT technique , concluded that only about 12,000 C2 (or 8 /sq. km. in adequate habitat) remained on Sumba. But by 1990, less than 20% of the island remained forest-covered. The birds received no sympathy from the populace since, as Rosemary Low points out, the C2 were locally considered to be pests of cultivated crops. Three years later, bird densities had fallen to 1.8 birds/sq. km., according to The Manchester Polytechnic Expedition which estimated that only a total of only about 2500 birds remained on Sumba! (Note the close parallel between extent of deforestation and loss of bird populations).

Drs. Kinnaird, O'Brien and two postdoctoral scientists- Drs. Alexis Cahill and Jon Walker-are currently working (again with WCS and BLI ) to assess the status of the C2 on Sumba. They are focusing on the ability of re-introduced birds to repopulate the forest , using smuggled birds which have been confiscated. Their primary research tool is to radiocollar cockatoos, release them, and follow their locations by radiotelemetry. Hendra Kurniawan, MSc, has made a major

contribution to this aspect of the work. Of the initial group of radiocollared birds, one bird was lost to a civit (a mammal introduced to Sumba), but the others remain alive and dispersed across increasing areas of the island, suggesting that confiscated birds can successfully repopulate areas of forest. They seem to prefer elevations of about 300 m. and locations near water sources.

Other good news includes the fact that that, at least in one study site (Maurpeu), the two major cockatoo trappers are now working with Drs. Walker and Cahill instead, to protect the bird. The Regents of Sumba have declared the cockatoo to be the "district faunal symbol" of East Sumba and have "issued a decree forbidding all capture and trade" of this bird. Pride in the presence of the bird only on Sumba has greatly increased awareness with school children. And two new national parks have been established, at least on paper, to help preserve habitat.

Furthermore, Dr. Stuart Mardsen is investigating the possibility of using artificial nest boxes for population enhancement; surveying new parks on Sumba; and planning to re-census 9 parks previously assessed on the 1990 Manchester Polytechnic Expedition (IUCN Conservation Action Plan; M. Kinnaird; personal communication).

Lastly, the Yellow Cockatoo Recovery Plan is being formulated by BLI in conjunction with Indonesian authorities. Already, pending surveys, there is a moratorium on exports, although smuggling remains a problem. A major goal will be to have *C. sulfurea* reclassified onto Appendix 1 of CITES. There are hopes to establish the Selalu Legini Nature Reserve as well as to implement field surveys on Sulawesi and Sumbawa.

Ecotourism remains an exciting possibility on Sumba since the island boasts several activities available to visitors including world-class fishing and surfing. Recently, the owner of Nihiwatu, an upscale resort on Sumba, has expressed interest in nurturing birdwatching on Sumba and has found a large percentage of endemics on or near the resort property.

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