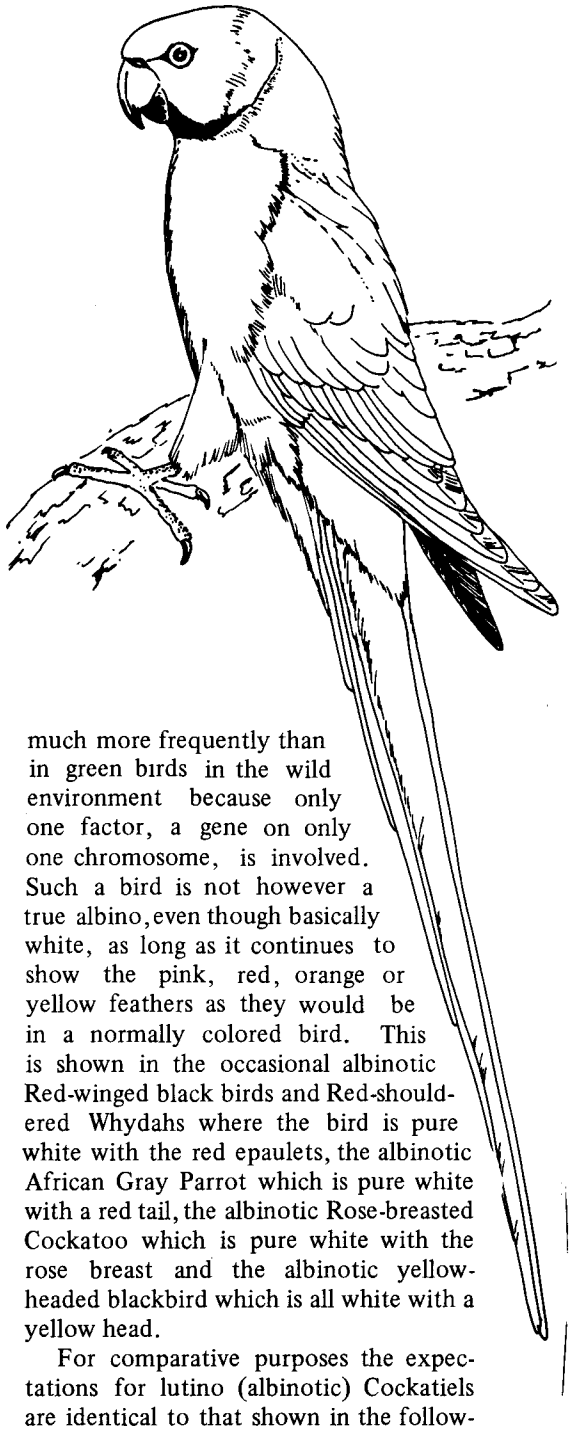
Indian Ringnecked Parakeet

by Rae V. Anderson

(Psittacula krameri manillensis)



LUTINO, BLUE AND ALBINO BREEDING EXPECTATIONS

Because of the relatively large proportion of aviculturists who keep Indian Ringnecked Parakeets, the relative ease with which they breed, and the fact that color mutations have occurred, I receive an endless stream of questions regarding the expectations of various combinations of mutant breeding.

There are now at least six and possibly eight color variations of this species. These are lutino or pink-eyed yellow *(Xanthochromic[1])* resulting from a complete blockage of melanin deposit, blue which results from blockage of capability of conversion of carotenoids to lipochromes, albino which results from simultaneous occurance of both of the preceeding factors, dark-eyed yellow and pied (both resulting from partial blockage of melanin deposit), blue-green, cinnamon, and some rather persistent claims or rumors of a black (melanistic) phase.

Since I have not had an opportunity to study the heredity characteristics of the latter five mutations I will limit my comments to the lutino, blue, albino and normal green.

When relating to visual yellow and white, with pink eyes, I will refer to lutino and albino respectively. When indicating a "split"* to the pink-eyed factor or melanin block, i.e., a bird which possesses genes for this factor but is of a different visual color I will use the term "ino". This is because the albino is a bird which contains the factors which result in both the pink-eyed and the blue birds, whereas the lutino is simply the pink-eyed factor. Therefore such a term as "split to albino" would be misleading because this would have to mean that a male was split to both the factors which produce the lutino and the blue, and yet, while the females can be split to blue, no female can be split to lutino (the pink-eyed factor).

An albino results when the mutant genes occur in a bird so that the bird would be a lutino and would at the same time be a blue. A genetic blockage of both the melanin deposition and carotenoid conversion is created which produces a white bird. It is the necessity for this simultaneous existence of two completely distinct hereditary recessive factors on a different chromosomes in the same bird that causes the improbability of occurrence of complete albinism of normally green birds in the wild environment to be absolutely astronomical. It is in fact very time consuming to create an albino, even under controlled aviary conditions.

The pink-eyed factor, "ino", is sex linked, i.e., occurs on a sex chromosome. Consequently green or blue males can carry this factor but this cannot be determined visually. In order to determine if a green or blue male is in fact split to "ino" test breeding must be resorted to, unless it is known that one of the parents of the bird in question was visually pink eyed. Females on the other hand must either be the pink-eyed factor (lutino or albino) visually, or else be normal green or blue. Females cannot carry the "ino" gene masked by a different visual color.

The blue factor is a simple recessive, i.e., both male and female can carry the factor even though visually another color. That is to say that green or lutino males and females can all be "split" to blue.

Because of the blockages of the two color factors which results in albinism, I am quite certain that the neck ring of the adult albino male is white on a white bird.

The pink, red, orange, or yellow coloration could continue on an albinotic (actually lutino) phase or phenotype of a species which is normally black, gray, brown, beige, or even blue, where that basic color is caused by the existence of melanin pigments in the feathers. "Albinism" in these color type birds occurs much more frequently than in green birds in the wild environment because only one factor, a gene on only one chromosome, is involved. Such a bird is not however a true albino, even though basically white, as long as it continues to show the pink, red, orange or yellow feathers as they would be in a normally colored bird. This is shown in the occasional albinotic Red-winged black birds and Red-shouldered Whydahs where the bird is pure white with the red epaulets, the albinotic African Gray Parrot which is pure white with a red tail, the albinotic Rose-breasted Cockatoo which is pure white with the rose breast and the albinotic yellow-headed blackbird which is all white with a yellow head.

For comparative purposes the expectations for lutino (albinotic) Cockatiels are identical to that shown in the following tables for the lutino Ringnecks.

With a carotenoid blocking factor similar to that which produces the blue Ringnecked Parakeet, the orange cheek patches and yellow crest and body coloration of the Cockatiel would be lost. The combining of the two factors should produce a pure white Cockatiel – a true albino. This can only be accomplished after an otherwise normal appearing Cockatiel that has no yellow or orange in its plumage (the genetic equivalent to the blue Indian Ringnecked Parakeet), appears in someone's aviary or is captured in the wild and that bird is then bred with the lutino and proper subsequent combinations in order to combine the two factors to form the totally visually white bird.

*The term "split" indicates a bird of one visual color carrying genes which are capable of producing offspring of a different visual color or phenotype.

MUTANT BREEDING COMBINATIONS AND THEORETICAL EXPECTATIONS*
INDIAN RINGNECKED PARAKEETS
NORMAL GREEN, LUTINO, BLUE AND ALBINO

1. M Green split to Ino
F Green (normal)

Produces:
M Green 25%
M Green split to Ino. 25%
F Lutino 25%
F Green 25%

2. M Green (normal)
F Lutino

Products:
M Green split to Ino. 50%
F Green 50%

3. M Green split to Ino
F Lutino

Produces:
M Lutino 25%
M Green split to Ino. 25%
F Lutino 25%
F Green 25%

4. M Lutino
F Green (normal)

Produces:
M Green split to Ino. 50%
F Lutino 50%

5. M Lutino
F Lutino

Produces:
M Lutino 50%
F Lutino 50%

6. M Green split to blue
F Green (normal)

Produces:
M Green split to blue 25%
M Green 25%
F Green split to blue 25%
F Green 25%

7. M Green (normal)
F Green split to blue

Same as in 6.

8. M Green split to blue
F Green split to blue

Produces:
M Blue 12½%
M Green split to blue 25%
M Green 12½%
F Blue 12½%
F Green split to blue 25%
F Green 12½%

9. M Blue
F Green (normal)

Produces:
M Green split to blue 50%
F Green split to blue 50%

10. M Green (normal)
F Blue

Same as in 9.

11. M Blue
F Green split to blue

Produces:
M Blue 25%
M Green split to blue 25%
F Blue 25%
F Green split to blue 25%

12. M Green split to blue
F Blue

Same as in 11.

13. M Blue
F Blue

Produces:
M Blue 50%
F Blue 50%

14. M Lutino
F Blue

Produces:
M Green split to Ino and blue . . . 50%
F Lutino split to blue. 50%

15. M Blue
F Lutino

Produces:
M Green split to Ino and blue . . . 50%
F Green split to blue 50%

16. M Green split to Ino and blue
F Lutino split to blue

Produces:
M Blue split to Ino. 6.25%
M Lutino 6.25%
M Lutino split to blue 12.5%
M Green split to Ino. 6.25%
M Green split to Ino and blue . 12.5%
M Albino 6.25%
F Lutino 6.25%
F Lutino split to blue. 12.5%
F Blue 6.25%
F Green split to blue 12.5%
F Normal green 6.25%
F Albino 6.25%

17. M Blue
F Lutino split to blue

Produces:
M Blue split to Ino. 25%
M Green split to Ino and blue . . . 25%
F Blue 25%
F Green split to blue 25%

18. M Blue split to Ino
F Lutino split to blue

Produces:
M Lutino split to blue 12½%
M Blue split to Ino. 12½%
M Green split to Ino and blue . 12½%
M Albino 12½%
F Blue 12½%
F Lutino split to blue. 12½%
F Green split to blue 12½%
F Albino 12½%

19. M Green split to Ino and blue
F Blue

Produces:
M Blue split to Ino. 12½%
M Blue 12½%
M Green split to Ino and blue . 12½%
M Green split to blue 12½%
F Lutino split to blue. 12½%
F Blue 12½%
F Green split to blue 12½%
F Albino 12½%

20. M Lutino split to blue
F Blue

Produces:
M Blue split to Ino. 25%
M Green split to Ino and blue . . . 25%
F Albino 25%
F Lutino split to blue. 25%

21. M Lutino split to blue
F Lutino split to blue

Produces:
M Albino 12½%
M Lutino 12½%
M Lutino split to blue 25%
F Albino 12½%
F Lutino 12½%
F Lutino split to blue 25%

22. M Blue split to Ino
F Blue

Produces:
M Blue split to Ino. 25%
M Blue 25%
F Blue 25%
F Albino 25%

23. M Lutino split to blue
F Green split to blue

Produces:
M Blue split to Ino. 12½%
M Green split to Ino and blue . . . 25%
M Green split to Ino. 12½%
F Lutino split to blue. 25%
F Lutino 12½%
F Albino 12½%

24. M Green split to Ino
F Lutino split to blue

Produces:
M Lutino 12½%
M Lutino split to blue 12½%
M Green split to Ino. 12½%
M Green split to Ino and blue . 12½%
F Lutino 12½%
F Lutino split to blue. 12½%
F Green 12½%
F Green split to blue 12½%

25. M Albino
F Albino

Produces:
M Albino 50%
F Albino 50%

26. M Albino
F Green (normal)

Produces:
M Green split to Ino and blue . . 50%
F Lutino split to blue. 50%

27. M Albino
F Blue

Produces:
M Blue split to Ino. 50%
F Albino 50%

28. M Albino
F Lutino

Produces:
M Lutino split to blue 50%
F Lutino split to blue 50%

29. M Albino
F Lutino split to blue

Produces:
M Lutino split to blue 25%
M Albino 25%
F Lutino split to blue. 25%
F Albino 25%

30. M Lutino
F Albino

Produces:
M Lutino split to blue 50%
F Lutino split to blue. 50%

31. M Lutino split to blue
F Albino

Produces:
M Lutino split to blue 25%
M Albino 25%
F Lutino split to blue. 25%
F Albino 25%

32. M Blue
F Albino

Produces:
M Blue split to Ino. 50%
F Blue 50%

33. M Blue split to Ino
F Albino

Produces:
M Blue split to Ino. 25%
M Albino 25%
F Blue 25%
F Albino 25%

34. M Blue split to Ino
F Lutino

Produces:
M Lutino split to blue 25%
M Green split to blue and Ino . . . 25%
F Lutino split to blue. 25%
F Green split to blue 25%

35. M Albino
F Green split to blue

Produces:
M Green split to blue, Ino 25%
M Blue split to Ino. 25%
F Lutino split to blue. 25%
F Albino 25%

36. M Green (normal)
F Albino

Produces:
M Green split to blue, Ino 50%
F Green split to blue 50%

37. M Green split to Ino
F Albino

Produces:
M Green split to blue, Ino 25%
M Lutino split to blue 25%
F Green split to blue 25%
F Lutino split to blue. 25%

38. M Green split to blue
F Albino

Produces:
M Green split to blue, Ino 25%
M Blue split to Ino. 25%
F Green split to blue 25%
F Blue 25%

39. M Green split to blue, Ino
F Albino

Produces:
M Green split to blue, Ino 12½%
M Lutino split to blue 12½%
M Blue split to Ino. 12½%
M Albino 12½%
F Green split to blue 12½%
F Lutino split to blue. 12½%
F Blue 12½%
F Albino 12½%

*The above theoretical expectations are based on an infinite statistical universe and assume that all eggs laid are hatched and successfully raised.

Expectation as a Percent of 100		Expected		Total Offspring
50%	=	1	in	2
25%	=	1	in	4
12½%	=	1	in	8
6¼%	=	1	in	16

1. The Auk, Vol. 83, 1966, ppg. 667-668, Schnell and Caldwell. ■