

# WINTERING POPULATIONS OF PAINTED BUNTINGS IN SOUTHERN FLORIDA

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In nine winter seasons 30 miles south of Miami, in the Homestead area of Florida, 1,665 Painted Buntings (*Passerina ciris*) were banded. In subsequent seasons 230 returned, a foreign recovery from Georgia was taken, and two birds were recovered in South Carolina. Plumage variations, molt, sex, and age characteristics were noted.

Data contrary to previous published information were collected. Five birds continued to return eight years after banding. Numbers of new birds taken in fall migration have steadily declined from .038 per net hour in 1968 to .001 in 1973.

## HABITAT AND CAPTURE

Painted Buntings are birds of weedy fields and scrub growth. In winter near Homestead they are common garden birds coming readily to feeders where the protection of shrubs is available. My station has scrubby second growth, weedy fields, a pond, some garden, pine and hardwood hammock. From 16 December 1965 to 17 March 1974, buntings were caught at my station run daily from late September to November, then irregularly to May. The majority of birds were taken in Potter traps on raised feeders, others in mist nets. They repeated frequently. In some years a few days' banding was also done within a two-mile radius. Some of these birds repeated or returned in several of the locations. Net hours were kept for fall migration only.

## POPULATION

The eastern race, *Passerina ciris ciris*, breeds on the Atlantic coastal plain from Vero Beach, Florida to Beaufort, North Carolina. The western *P. c. pallidior* breeds west and north from southern Alabama (Storer, 1951). There is a 400-mile gap between the races. A small pocket of six birds, with young being fed, was found in Appalachicola in 1966 by Ogden and Chapman (1967). Because the eastern race winters in southern Florida, the Bahamas, Cuba, and the Yucatan Peninsula (Storer, 1951; Bent, 1968), presumably the Homestead population derives from the coastal plain and includes both migrants and winter residents. Two recoveries in South Carolina of Homestead-banded birds, and the occurrence of a juvenile banded at Savannah, Georgia at my station for four years tend to corroborate this idea.

## MIGRATION

Bond (1961) gives West Indian wintering dates as 22 July - 15 April. Sprunt and Chamberlain (1949) list the species as a common summer resident in South Carolina, with extreme dates of 21 March - 5 September. In recent years the bird has been reported from Charleston, South Carolina for every month of the year, with

recent increases of winter residents at feeding stations (T. A. Beckett, III, pers. comm.). In the Homestead area the birds start filtering in, or through, in September, with a few August records. In this study a few birds were banded annually the last days of September but the majority did not arrive until mid-October, peaking from 28-31 October. Males migrated early, twice as many being taken before 15 October as after, whereas the number of females increased by 2.5 after mid-month. One-third of the birds had fat. Although most years showed peaks of arrival, there was no strong or definite correlation between arrival peaks and cold fronts, or peak arrivals of other species. Decline of birds per net hour in fall migration was:

1968	—	.038	birds taken per net hour
1969	—	.021	
1970	—	.022	
1971	—	.016	
1972	—	.013	
1973	—	.001	

Because the station closes in May and does not reopen until 22 September, there are no accurate departure or arrival dates. The birds are singing by mid-March and leave late in March-May. The last banding date is 22 May. There appears to be no spring migration because almost no new birds are taken in spring.

Winter residents return year after year and are handled repeatedly, often on a daily basis.

#### PLUMAGES

Yearly and constant handling of individuals gave the opportunity to establish plumage changes. My data agree with Storer (1951), differ with Coues (1884) and with Dwight (1900), from whom Bent's information (1968) is largely taken, and with various personal communications. Observations were reinforced by the study in three successive years of an August juvenile banded and color-banded in Georgia. This was taken in its first winter and handled 11 times thereafter.

#### *Immature, male and female:*

Immature birds of both sexes resemble the adult female, oil green above, dull yellow below except in late winter-early spring when the underparts molt into clear light yellow. Their distinguishing characteristic is the plain brown primary coverts, retained from the juvenal plumage (rarely green will show in 1-3 of these feathers). Immatures can often be sexed by wing length. The chord of the male is 69 mm or more, that of the female 66 or less. In the overlap group of 66-69 mm the males tend to be more brightly colored than females, but this is an unsafe distinction.

#### *Adult females:*

The normal plumage of the adult female is green above, yellow below, with the primary coverts edged green. However, as early

as the second winter some females show ventral variations of a peach, rose and apricot, and/or a few scattered blue feathers in the head. This coloration appears to remain constant over the years, and may be due to a hormone factor (Storer, 1951). Sample sizes of this ventral color were 8 out of 15 birds banded as immature females and retaken their second winter: 11 adult females of 364 fall females, and 26 birds from a total of 230 returns over the years. Ogden and Chapman (1967) describe the presumed female feeding the young of their *Appalachicola* group as "showing faintly reddish on its underparts." Out of 230 returns 21 had a few blue feathers in the head (rarely in shoulder or mantle). One female banded as an immature in the normal green and yellow plumage returned the third winter with red feathers in the face, chin and throat, some chestnut dorsally, and some rose ventrally. It then returned for three subsequent seasons as a normal female, ventrally peach-colored. A similar female, showing some male characters the second winter, lost them. Variant-colored females are probably the "changing males" referred to in the literature and in field observations, so reported by those who assume the atypical plumage to indicate a male in transition plumage. Wing measurements, examination of primary coverts and color, lack of other male coloration, and repeated returns over the years establish them as females. Two, first taken as immatures, were bluish gray rather than green or yellow and could easily be identified at feeders. Storer feels this latter coloration is due to fading and wear, but these birds were well past the fall molt and returned a second winter in the same plumage.

*Adult male:*

All of the 29 immature males, banded in their first winter and returned the next, returned in the adult male, multi-colored plumage. No second-year males returned in the green-and-yellow plumage. This observation is contrary to opinions repeated from Coues and Dwight (1900), which are doubtless due to the failure of studying the birds on their wintering grounds. The adult male plumage shows much variation. Mantles range from pure gold to the most glittering of chartreuse or emerald; rumps vary in subtle hues of rose, lavender, maroon, and chestnut. The carmine eye-ring may be complete or incomplete. Underparts may be marked irregularly with patches of yellow, or yellow-green, which may or may not be present in different years (sample size 36 of 230 returns). Tertiary patterns also vary.

Dwight (1900) reports, "It is probable that all birds with stray green remiges are birds of the second nuptial stage, those with all of the remiges tinged claret of the third nuptial." No males of *any* age were found with all primaries and primary coverts claret-tinged. The inner primaries and their coverts were always green-edged, with the usual number two plus the distal half of the next, or three plus one-half of the fourth. Four and five were uncommon. This appears to be a constant characteristic.

Of a total of 183 fall males, three immatures were atypical. Two of them showed chestnut (not blue) feathers in the head, and had

mixed coral and yellow underparts. One had the adult red eye-ring, a few blue head feathers and was mixed coral and yellow below.

#### REPLACED RECTRICES

The normal rectrices of an adult male are edged chestnut, of the female green. A male rectrix lost at any age was replaced with the green-edged one typical of the immature plumage, returning to normal at the next molt (sample size 33 of 230 returns). The same replacement by immature color is present but less obvious due to coloration, on the female. Average replacement time was four weeks, with a range from 3-7 weeks.

#### MOLTS

*Juvenal:* Parmelee (1964) records extremely rapid feathering of the juvenile bird, a nestling still largely naked on the body until day 7. It was sufficiently feathered to be capable of short flights on day 8 and well feathered although still with conspicuous "naked areas" on day 9.

*Prenuptial: Partial.* Contrary to Dwight and Bent, the breeding plumage is not acquired by wear. Both first-year and adult birds had a partial spring molt, replacing the abdominal, at least some breast feathers, and at least some feathers in the orbital region, lores, and chin. This molt is rapid, the short facial and chin quills exploding in a day or two. The fresh, straw yellow abdominal feathers of the immature bird, or of the adult female, are partially grown one day and fully grown two days later. Except where a bird is taken daily, the molt can be told only by the fresh, clear color contrasting with the dingier appearance of old feathers, or in comparison with other birds not yet molted. The brilliance of the male makes the abdominal molt harder to detect, but quills were found on the breast of two males and on the heads of almost all spring birds handled. In adult males the fresh feathers of lores and chin are yellow-green, those of green-and-yellow birds are gray, in contrast to the blackish feathers of these areas in winter birds. This prenuptial molt can begin as early as late January, is found often in February, most frequently in March and continues into April. It appears to be partial and irregular in the eye-ring, head and chin, but its rapidity makes this hard to determine. An immature male may acquire a scattering of blue feathers in the head at this time, but except for one bird taken with a few orange feathers below, the ventral parts remain yellow.

*Postnuptial: complete.* Breeding the first year is in immature plumage (Beckett, Newhall, Tipton). Adult plumage is assumed at the first postnuptial molt. The timing of this would be governed by the number of broods, which Bent and Sprunt and Chamberlin give as one to three—one and two in the northern part of the breeding range, often three in the Charleston area. In Homestead 11 birds were taken in molt between 25 September and 27 October. Presumably these would be multi-brooding birds that had not

molted before migration. The most interesting of these were a 26 Sept. bird with head, throat, rump and tail entirely in quill, the other feathers too little grown for flight; a 30 Sept. male with emergent red feathers, still in sheath, among the yellow ventral feathers; a 3 October male known to be in its fourth year, in complete molt, but flying; a 5 October bird with primaries still in sheath; a 27 October bird with the entire head in quill, the other feathers fresh. This molt is also rapid.

#### FEEDING AND BEHAVIOR

Painted Buntings came readily to raised feeders placed in, or close to, protective shrubbery for millet and small grains. They fed on a tray with Cardinals, Rufous-sided Towhees, Indigo Buntings, Rose-breasted Grosbeaks and showed no pugnacity if food was plentiful. They drank occasionally at a ground bird bath, but rarely bathed. They fed at all hours of the day, most avidly in the hour after sunrise and in the hour before sunset. While wary and easily disturbed, they were not at all trap shy. Some were taken several times a day. They learned net locations and avoided capture by flying around, over and even through holes in nets. On the breeding grounds Beckett reports that the males, which arrive first, are tolerant of other males only prior to the arrival of the females, after which they become very pugnacious and that first year males are restricted to the less desirable territories.

#### DISEASES AND ALBINISM

Only one cripple was handled, a male with a badly scarred forehead, overgrown upper mandible and missing left foot; it frequented the feeders for one winter. A bird blind in one eye was not retaken. Two birds had hippoboscoid flies. One had foot-pox, one a deformed bill five years after a first, normal capture. Two birds with large, soft tumors, or infections, below the eye repeated later in normal condition. One unusually small, immature fall female was covered with lice.

Three birds showed white feathers two to three years after a first capture in normal plumages. One male had the right fifth primary covert white, one female had both outer rectrices totally white. A male, banded as normal at another location, returned there (eluding capture) for two years with white patches on the wing similar to those on a female Black-throated Blue Warbler, and the outer rectrices (three or four, each side) largely white.

#### SITE TENACITY

The species has strong site tenacity. The same birds were taken year after year in the same of seven different localities. However, that they also wander was shown by 9 birds recaptured and a 10th found dead, at distances of 1-5 miles from the banding location, after periods varying from 11 days to 4 years. The most mobile of these was taken in three different areas up to 2 miles distant before settling for the banding station. It then returned there four subsequent seasons.

## AGE AND SEX COMPARISONS

Of birds recorded as to sex, 785 were female, 472 male. Of birds recorded as to age, 938 were immature, 718 adult. Fat records were not kept except in fall migration (see above). In winter this factor would have been influenced by the presence of abundant feeder supplies in the neighborhood as occasional birds weighed might show 2 or 3 degrees on a scale of 3. Many late spring birds put on fat, or migrated through with fat, as would be expected, but the catch was too irregular for statistics.

## RECOVERIES

Of 1,665 birds only two were recovered. A first-year female was stunned at a window at Hilton Head, S. C., captured and released. A female banded as immature in October 1970 was found dead on a highway at Adams Run, S. C. in May 1972. James Fleugel, who banded the species for more than 12 years in Fort Lauderdale, Florida, had no recoveries of his birds.

The one foreign recovery was a bird banded as a juvenile near Savannah, Georgia by L. B. Davenport, Jr., on 5 August 1968. It was first trapped in Homestead in green-and-yellow plumage 1 January 1969, retrapped six times in full adult plumage in the winter of 1969-70, three times in the winter of 1970-71 and last handled on 14 March 1972. The number of green-edged primaries remained constant at four. As an adult in December and again in April when presumably it would have gone through the prenuptial molt, it showed yellow feathers on the right breast and a large green-yellow spot on the right flank.

## LONGEVITY

Fleugel (pers. comm.) reported the return of one bird at least 12 years old to his Fort Lauderdale station. Table 1 presents the number of birds returning to Homestead from the 1965-66 winter season to 15 March of the 1973-74 season. These figures are from the Fisk property only, as banding in the other localities was not carried out on an annual basis or in recent years.

TABLE 1.  
Returns of birds banded at, and returning to, the Fisk station by seasons.

Number banded	Number of years returned after banding								
	1	2	3	4	5	6	7	8	
1966, winter	115	51	57	29	16	13	6	8	5
1966-67	118	33	19	8	6	4	3	0	0
1967-68	148	24	27	18	12	10	2	0	0
1968-69	145	18	8	8	3	3	0	0	0
1969-70	166	8	8	7	3	0	0	0	0
1970-71	204	29	22	17	0	0	0	0	0
1971-72	198	18	5	0	0	0	0	0	0
1972-73	183	24	0	0	0	0	0	0	0

## SUMMARY

Painted Buntings were studied in subtropical Florida for nine fall and winter seasons. The peak of passage, or arrival, was the end of October, with males arriving before females. Percentage of birds per net hour in the migration period declined from .038 in 1968 to .001 in 1973. Winter residents were handled repeatedly. First-year males returning in their second year were all in full adult multi-colored plumage. Some adult females, as early as the second year, varied ventrally from peach to rose, a coloration which had been thought to indicate males in transition plumage. A partial prenuptial molt was documented. Lost adult rectrices were replaced in immature coloration. Molts were very rapid. Disease and albinism was slight. Site tenacity was strong, although some birds were taken in several locations. Females and immatures predominated. Two birds were recovered in South Carolina. A bird banded as a summer juvenile in Georgia was taken in Homestead its first winter and handled 10 more times in subsequent years. After eight years, five birds were still returning.

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