

## Ketterson / Nolan Research Group Collection

This document is part of a collection that serves two purposes. First it is a public archive for data and documents resulting from evolutionary, ecological, and behavioral research conducted by the Ketterson-Nolan research group. The focus of the research is an abundant North American songbird, the dark-eyed junco, *Junco hyemalis*, and the primary sources of support have been the National Science Foundation and Indiana University. The research was conducted in collaboration with numerous colleagues and students, and the objective of this site is to preserve not only the published products of the research, but also to document the organization and people that led to the published findings. Second it is a repository for the works of Val Nolan Jr., who studied songbirds in addition to the junco: in particular the prairie warbler, *Dendroica discolor*. This site was originally compiled and organized by Eric Snajdr, Nicole Gerlach, and Ellen Ketterson.

### Context Statement

This document was generated as part of a long-term biological research project on a songbird, the dark-eyed junco, conducted by the Ketterson/Nolan research group at Indiana University. For more information, please see IUScholarWorks (<https://scholarworks.iu.edu/dspace/handle/2022/7911>).

### License/Disclaimer Statement

By downloading this document or using any information contained therein, you agree to the license terms outlined at <https://scholarworks.iu.edu/dspace/handle/2022/8979>, which explain terms governing use, creation of derivative research, and requirements for citing the document.

PRAIRIE WARBLER NOTES

1957

BLOOMINGTON, INDIANA

Volume III

June 27 to end

Val Nolan Jr.

June 27, 1957

A sunny morning, stormy in mid-afternoon. Present from 0900 to 1200, from 1330 to 1430, from 1530 to 1730, and from 1930 to 2030.

T65 - 65F is not at the nest. She never appears during the rest of the day. The male sings loudly all day, stays high. Obviously he hasn't formed a pair with 65F, which must have left or been caught by something.

T61 - 61F is brooding, fully covering the nest. M61 sings. See T64. Y

T64 - M64 sings his peculiar combination step-skid. He is high in the S woods.

To my surprise M61's female B is on her nest. I've visited it once or twice daily since June 23, when incubation should have begun, without seeing her. M61 has evidently paid little or no attention to her since his young hatched; note that he has been a very attentive parent. It will be interesting to see what develops here if M64 remains on the territory.

T66 - 66F is near the big maple. Because of her alarm at my presence it isn't worth staying here.

T68 - At 1000 there are 3 young and 1 egg in the nest.

1030-1120  
T62 - I spend a little over an hour here and see most of the family. M62 sings irregularly with no series, 30 skids in the first 30 minutes I'm present. His rate stays the same thereafter, but he sings some step-buzzes too.

Song note  
kindly

I see 2 young, red and unbanded. 62F is surely feeding the latter, which is 70 yards from the nest and 10 feet high. She may also be feeding the other. It is 50 yards from the nest, 30 from the unbanded one, 5 and then 8 feet high. I watch it (or possibly a third young) for 15 minutes during which an adult feeds it twice. It sits quietly with bent tarsi, inside the leaf layer of a little maple which is near a clump of crataegus but not in it. The bird is silent but quite alert, moving its head around and keeping its eyes open. In the 15 minutes I watch it stretches its legs up to full height once, its wings up once, and wipes each side of its bill once (same time). It moves twice, once each time its fed; feedings are probably the main occasions for moves at this age. The young have body sizes quite near the adult size, perhaps 4/5 of it. The head has taken on nearly adult size and the bill has lengthened and would look adult except for the thickened tomia, which are still noticeable. The principal external difference from the adult's shape, then, is in tail

ugh.  
position  
see



length; the young's tails are no more than 1/2-inch long, probably not quite that.

There is a brief chase, with M62 the pursuer. I'm pretty sure a third adult was the pursued.

T63 - M63 sings a series of chatters on NW IV N.

1200 - I leave.

1300 - I return. It has clouded over and is thundering, with every prospect of a storm.

TD8 - D8F is on the nest. I look at a male singing loud skids in the E woods edge about 30 yards N of the locust tree row (i.e., on TD6 I should think), and he suddenly flies up to about 60 feet and slowly circles W over to the big sycamores in the SW corner of TD8. It is clearly MD8; he goes on singing there. This confirms my feeling that MD8 holds all the way E to the edge of this field.

TD6 - D6F doesn't come to the nest, which has failed. I can't see anything.

1430 - I leave as it begins to rain.

1530 - I return. It still rains a little at first but soon stops.

TD6 - The D6's are together in the field N of the recent nest. They move a good deal, stay low and within

over  
fog after  
failure

10 feet or so of each other. There is no conspicuous behavior. MD6 sings faintly once or twice but most of the time is silent.

TD11 - MD11 has no female, at least none building. He moves over the whole territory but without speed or excitement. He sings in series; except for the fact that his interval is very short near TD7 his songs don't suggest an effort to attract a mate. Near TD7 (the road) he sings in a 10-foot sassafras top; the song is a step-buzz (more usual by far with him than his type-8, during the last 2 days at least--significant on the subject of advertising for a female?), and he utters it as often as 5 seconds apart, averages about 7 a minute. He has an encounter with MD7 here; D7F is near at the time. MD11 flew to her but without display, and MD7 chased him away.

TD7 - I see MD11 fly to a low clump of grape and quickly retreat before the approach of MD7. D7F sits in the grape and for 5 minutes preens while calling "sip" or "tsu" very faintly (probably not at me). MD7, after MD11 leaves, moves about nearby. When D7F quits preening and begins to go through the undergrowth, he flies up near her. Once she sits about 2 feet up in a tree and he sits tensely, looking at her, about 2 feet above her. This persistence of the pair bond is in-

*long type*

*note*

*519*

teresting in view of the probability that she won't breed again.

I don't see the young.

TD4 - MD4 sings loud skids.

TD10 - Two males, I'm pretty sure MD10 and MD13, get into a long loud fight at the N end of the tree row. I think that a young bird is present; perhaps its wandering caused the males to fight. Note the increased number of fights seen lately.

No developments at the nest.

TD13 - See above under TD10.

D13F is near the nest, which contains 3 eggs, a clear 3-egg set.

TD12 - MD12 sings.

TD1 - Egg 1 is present.

TD2 - D2F is on the nest.

TD5 - MD5 gets into a short encounter with a male that must be MD9, but their locations are surprising. MD9 is in the big cherry tree and on W; MD5 ranges up the hill nearly to its top, between TD1 and TD9.

TD9 - See above under TD5.

1730 - I leave.

1930 - I return. It's likely to rain any time.

T61 - 61F isn't going to spend the night on the nest. It's very dark because of the clouds, and her normal activity ends about 2015. I then start to the nest and she begins to call "tsu" from a dogwood near 2, some 40 yards from the nest. This suggests she wasn't going to roost near it. M61 sings loud step-buzzes to 2020.

2030 - I leave.

no brooding

roosting?

late song

June 28, 1957

A morning of steady rain after a rainy night; warm and windless; clearing in the afternoon. Present from 0900 to 1030, from 1330 to 1730, and at 1900.

TD8 - At 0830 there are 2 hatched eggs, 1 unhatched.

*hatch  
or later, find*

T61 - The young are still in the nest and look as if they won't leave today. I see 2. 61F is quick to discover my presence and to call in alarm, so I don't stay.

*N*

T64 - I neither hear nor see M64 during 10 minutes on the territory. Female B isn't on the nest.

T65 - 65F isn't on the nest, which an examination proves to be empty. The male sings loudly and regularly from high perches, so again it's clear he hasn't succeeded in attaching 65F.

T63 - 63F has begun to incubate. M63 is silent.

*Y*

T62 - M62 feeds a fledgling, but I never get to see its bands. After wandering over the territory without learning anything, I give up because of the pouring rain.

1030 - I leave.

1330 - I return. It's still cloudy, but gradually it clears somewhat.

TD6 - MD6 sings in the woods edge and occasionally flies down from the high perches, where he stays, to the field. He seems only to forage on these occasions, and I learn nothing about D6F's whereabouts. His songs are infrequent, almost all very faint, all insipid; once or twice he goes into a short series of them. He is staying in the NE corner of his territory, singing in fact from the big sycamore that MD11 seemed to claim. Once there is a pursuit high in the air, probably with MD11.

Finally I find D6F by watching where MD6 is looking. She is building, evidently gathering her material in the woods and not coming out into the field. The nest is 20 feet high on the end of a chinquapin oak branch; it overhangs the field, is at the very edge. To my surprise it looks complete from the outside, so she must have begun yesterday and continued at a fast rate despite the rain. Note how little rain has affected the birds this year; I've about decided that it makes no impact on any females but those with low-intensity drive, e.g., early in the season.

TD11 - MD11 continues to behave as he has since the nest failed. He covers the whole territory, sings not continually but sometimes very frequently. I'm confident he's lost his mate.



TD4 - MD4 is silent.

TD13 - D13F is on the nest.

TD12 - MD12 skids as usual.

TD10 - D10F hasn't begun to incubate.

TD7 - MD7 is feeding a banded young in the N-S fence row. The young bird is within a day or two of acquiring full immature plumage, lacking it only on the cheeks and perhaps the lores.

TDS - The last egg is still unhatched during the afternoon and I note that it is egg 4. I don't know when the missing egg disappeared, but there's a hole in the nest almost big enough for it to have dropped through.

TD2 - D2F is incubating.

TD1 - Egg 2 is present.

TD9 - I find a nest of this pair, probably an inactive one that followed the last nest I located. It is built in a witch's broom 7 feet up in a 9-foot hackberry sapling; in it are an unincubated PW egg and a Cowbird egg.

MD9 sings near the W ravine, then later engages in an encounter at the path with MD3. A female, possibly D3F, is present, and she stays as near MD9 as she does her mate. For about a minute she sits in the same hawthorn MD9 is in. She calls "check" about twice



every 3 to 5 seconds. MD9 never displays toward her or seems to divert his attention from MD3. The 2 males move back and forth many times in typical fashion but they are more than usually noisy. Once MD3 flies (bouncing) toward MD9, pulls up just before crossing the line they seem to recognize, and flies back to his own side. MD9 I notice is the noisy one on this occasion; he gives a loud burst of excitement calls just as the other reaches his nearest point and turns back. This fight occurred at 1630.

TD3 - See above under TD9. I'd guess this female has a nest with eggs, although she doesn't move as quickly as females usually do under these conditions.

I leave and go to the farm area.

T61 - The young are still in the nest and clearly won't fledge till tomorrow, their eleventh day.

1730 - I leave.

1900 - I return.

TD8 - The fourth egg hasn't hatched yet.

1905 - I leave.

June 29, 1957

A clear dawn with a SW breeze after a cool night; temperature 66°. Present from 0450 to 1200 and from 1400 to 2030; Ryckman present from 0845 to 1700.

TD8 - MD8 sings insipids and gives excitement calls. The last egg is hatched.

TD2 at 0455 - MD2 is singing insipids and calling from 6 to 12 times between songs. The calls are not very vigorous. I count songs from 0458 forward.

(3.5)  
70 ins  
0518 - D2F leaves the nest and flies 35 yards E up the hill. MD2 has sung 70 times to now. He is near the place where she lands; she calls "check" twice, possibly at me. He quits singing for 30 seconds, perhaps by coincidence, then resumes. He still gives excitement calls between songs.

0524½ - D2F goes to the nest tree, perches for 1 second half a foot from the nest, enters and settles S.

40 ins  
0528 - MD2 has sung 106 times in 30 minutes. I heard no calls after 0520. At 0530 he begins to skid after 110 insipids so far. I start a new count.

0530 - It's 67°, cloudless, breezy. The sun has just appeared within the last minute or so.

(Are second brood dates pretty consistent? Perhaps females lay again more with reference to the calendar

than to the dates of first broods.)

700h  
(7.6)  
0557½ - D2F leaves the nest, comes W 30 yards,  
calls twice near me, goes on. The male quits singing.

0600 - It's 58°, unchanged.

1672  
MD2 sang 70 skids.

0605 - D2F returns directly and silently, as  
before, and faces S.

0630 - It's 65°, unchanged.

440h  
L  
MD2 has sung 44 skids, all since 0614. He fell  
silent 1 minute ago, but there have been substantial  
breaks in his song.

13  
17  
0649 - D2F leaves the nest. MD2, which has sung  
17 times since 0643, falls silent.

18  
0658½ - D2F returns, enters after a 2-second  
pause beside the nest.

340h  
0659 - MD2 resumes singing.

0700 - It's 69°, unchanged.

26  
MD2 sang 21 times and is continuing now (stopping  
after 3).

0708 - D2F turns to face N.

0730 - It's 74°, unchanged.

MD2 has sung 14 skids.

8  
0738 - MD2 begins to sing within 25 yards of the  
nest.

0738 - D2F leaves the nest, I think after MD2

2  
sings. He quits.

5  
0743 - D2F goes to the nest and faces S. She called "check" while feeding near me for about a minute beforehand. MD2 resumes singing, but there may not be a connection.

42  
Every indication is that the young of the first brood are not present.

0758 - D2F turns to face NW.

0800 - It's 78°, unchanged.

MD2 has sung 44 times.

0810 - D2F leaves the nest.

15  
0820 - She enters the nest from the N without preliminaries, faces S.

15  
0830 - It's 80°, or more, unchanged.

MD2 sang 15 times.

0845 - Ryckman relieves me. MD2 has sung 17 times.

17  
See below under TD5.

TD1 - The nest has 3 eggs, very lightly marked and uniform looking. *up down N*

TD9 - The hackberry nest I found yesterday still has 1 PW and 1 Cowbird egg and is no longer in use.

TD5 at 0900 - " of the valley that bounds my usual searches, about 200 yards from the current D2 nest, are MD2 and 1 fully immature, unbanded young. They are clearly traveling together, moving around quietly. I'd *feeding?*

say they are at the W end of TD5.

TD8 - MD8 skids out in the field. D8F is brooding. Y

I go to the farm area.

T65 - Silence. (I pass through several times in the morning and afternoon and see and hear nothing.)

T61 - The young are still in the nest at 1000;  
I leave quickly to be sure I don't affect their normal fledging.

T64 - Silence. Female B is not on the nest.

T66 - Both adults are present, 66F displaying her usual quick alarm at me. She is by the big maple, as always. I'll see nothing under these conditions, so I go. M66 sings 3 or 4 times.

T68 - 68F is brooding. M68 is silent. Y

T63 - 63F is incubating. I don't hear M63. Y

9/c  
T62 from 1100 to 1200 - Both adults are feeding, but it's very hard to identify the young they are tending. M62 sings 9 skids in 5 minutes in the NW corner of the territory, 50 yards from the nest. In that period he feeds 62Y about 5 items, then goes away and doesn't return to attend this young for at least 15 minutes, probably more. Meanwhile I watch the fledgling. It sits quietly (I never hear a sound from it) about 6 feet high, tarsi bent. In 10 minutes it gives its wing 1 side-stretch and picks at and seems to eat some invisible *feeding details*

objects about 6 times. Possibly it picks at moisture on the new grape stem it's sitting on. It never sleeps, looks alert. The tail is about 1/2-inch long; I see no bobbing.

M62 begins to sing step-buzzes in the big cherry by the nest and to look down below him a good deal the way males do when a female is near. I find 62F feeding a fledgling, probably 62U (it flies when I try to see it), as it perches 6 inches high 10 yards from the nest.

1200 - I leave.

TD2 at 0845 - I [Ryckman] relieve Nolan.

0900 - It's 75<sup>0</sup>, cloudless.

0907 - D2F leaves N.

0915 - She returns, faces E.

0925 - D2F pays no attention to a man running dogs.

0930 - It's unchanged.

0935 - MD2 sings N 10 times to 0938.

0948 - MD2 sings N 6 times to 0949.

0950 - D2F leaves N, first hopping out of the nest to a branch N of it.

0956 - D2F returns from the N, faces N.



1000 - It's 77<sup>0</sup>, clear, very little breeze.

1003 - MD2 sings S 6 times to 1005.

1008 - MD2 sings N 30 times to 1016.

1030 - It's 78<sup>0</sup>, clear.

1031 - MD2 sings NW 7 times.

1037 - D2F leaves.

1048 - D2F returns directly from the N, faces S.

1100 - It's 78<sup>0</sup>, breezy from the W (which means the nest isn't much affected since it's on the E slope).

1110 - D2F shifts, faces N.

1119 - D2F leaves, goes NE.

1130 - D2F returns from the N, perches below the nest, hops up slowly through the branches, faces S.

It's 81<sup>0</sup>, partly overcast, getting windy.

1136 - MD2 sings SE 20 times to 1140.

1200 - It's 82<sup>0</sup>, fully cleared.

1204 - D2F leaves, goes N.

1216 - D2F returns directly.

1220 - MD2 sings N 16 times to 1224.

1230 - It's unchanged, still windy.

1231 - MD2 sings S 4 times.

1236 - MD2 sings N 15 times to 1241.

1243 - D2F leaves.

1248 - She returns quickly from the N.



1300 - It's 83<sup>o</sup>, unchanged.

19 1301 - MD2 sings N 19 times to 1306.

14 1314 - MD2 sings W 14 times to 1318.

1325 - D2F leaves.

1330 - It's unchanged.

1333 - D2F returns from the NE, hops up to the nest through the branches.

7 1334 - MD2 sings NW 7 times to 1335.

12 1344 - MD2 sings N 12 times to 1346.

1400 - It's 81<sup>o</sup>, clear.

1401 - D2F leaves.

17 1403 - MD2 sings W and NW 17 times to 1407.

1411 - D2F returns directly, faces S.

1430 - It's 80<sup>o</sup>, sunny.

24 1440 - MD2 sings N 24 times to 1450 with occasional minute-long pauses.

1510 - D2F leaves low to the NE.

1525 - D2F returns, hops through the nest tree from branch to branch.

9 1527 - MD2 sings N 51 times to 1545.

42 1530 - It's 79<sup>o</sup>, intermittently sunny, partly overcast.

1539 - MD2 sings N 6 times.

1 1540 - D2F leaves, flies to the ground 30 yards in front of me.

1600 - It's 78<sup>0</sup>, unchanged, very windy.

1603 - D2F returns from the NW, hops up, faces S.

1613 - D2F shifts to face N.

1630 - It's 78<sup>0</sup>, sunny.

1643 - D2F leaves, hopping to a branch above the nest and flying low to the W to the path at the hill-top.

1655 - She returns from the N, hops up, faces S.

1700 - Nolan relieves me.

1400 - I return. It's sunny and very gusty with a strong SW wind.

T61 - The young have fledged and are 10 and 15 yards from the nest, both about 2 feet high. One is in the open sitting on a vine stem, the other equally in the open but hard to see next to a bare pine trunk. I band them 25-66042 and -43, right; green above red and blue, respectively, left. Both adults are very agitated. See T64.

T64 - Female B is not on her nest, which must have failed. M64 hasn't sung today, if he is here.

I go to the Dunn tract.

TD6 - The nest looks complete. I hear nothing, but the wind probably inhibits song.

TD11 - Silence.

TD10 - Silence. D10F isn't on the nest yet.

TD13 - D13F is incubating.

TD12 - Silence.

TD4 - Silence.

TD7 - In the NW corner of his extensive territory, just W of MD12's woods edge, MD7 is feeding 1 or more noisy young. I see one; it is in perfect immature plumage.

TD1 - D1F is on her nest at 1420 and 1445.

TD9 - I see D9F moving along without the nervousness I'd expect if she were incubating. The male seems to nest-shape in a grape-covered tree, so perhaps a recent nest has failed.

45  
TD2 at 1700 - I relieve Ryckman. D2F is on the nest facing NW and MD2 is skidding regularly 40 yards NW of the nest near or in the big elm. It's 90% clear, but the E horizon is dark and it's thundering. The wind is very strong from the SW.

1730 - It's 76°, not shining at the moment, very windy.

MD2 sang 18 times in 8 minutes, quit at 1720. His series was about 20 minutes long at about that rate.

1736 - D2F leaves and flies W up the hill. In 1 minute MD2 begins to sing within 30 yards of the nest.

He's been near it a lot today.

1748 - D2F returns, sits for 10 seconds about a foot from the nest, enters S.

1757 - She turns and faces NW.

1800 - It's 77°, the sky very changeable but mostly sunny.

MD2 sang 10 skids and 28 insipids; he's continuing the latter now.

1807 - D2F leaves and MD2, about 30 yards away, quits singing.

1818 - D2F returns, faces SE. She sat 20 feet high 15 yards from the nest and called "check" twice, in 15 seconds went to the N side of the nest tree, in 3 more seconds entered.

1825 - D2F turns to face N (perhaps more NW).

1830 - It's unchanged.

MD2 sang 18 times, mostly skids.

1842 - D2F leaves the nest and flies over the top of the hill past me, going at least 40 yards.

1854 - D2F returns and faces SE. She waited 8 seconds before entering, pausing about 4 inches from the nest. MD2 begins to skid 35 yards or less from the nest just after D2F goes to it.

1900 - It's 74°, unchanged. It has been sunny the

whole period.

30h MD2 has sung 3 loud skids, perhaps other faint skids and insipids (or distant ones).

1906 - D2F turns to face NW, as usual. The regularity of this switch is very interesting.

1927½ - D2F leaves the nest, perches 4 inches from it for 5 seconds, then drops down to the base of the nest tree or near it.

1930 - It's 72°, cloudy in the west. The wind is still very strong.

MD2 sang series of frequent, faint insipids, but I kept no count because the wind drowned out many.

1939½ - D2F returns to the nest. A PW, presumably she, calls "check" 5 or 6 times first. One of her young (blue band) of the first brood flies to the nest tree with or just after her. It hops around below the nest, then up to look at her from 3 inches away, in about 20 seconds (altogether) leaves. D2F did nothing while the other bird looked at her for 5 seconds or so. She faces NW.

102 Ad to 2d Ad nest.

1949 - D2F turns and faces SE.

2000 - It's 70°, clear in the W now, but still changing a good deal; less windy.

MD2 has sung insipids and 1 or 2 skids.

2008 - D2F turns and faces N.

2010 - D2F leaves the nest, comes W to within a few feet of me, calls 2 or 3 times, goes on.

2021 - D2F returns, waits 8 seconds beside the nest, enters and faces SE.

2025 - I leave the territory.

135 m/s  
It's 70°, unchanged. The day has been 90% sunny, without any factors to distort attentive behavior.

MD2 is singing insipids, almost his only song for the last 2 hours or so.

TD1 at 2030 - D1F is on the nest.

2030 - I leave.



June 30, 1957

A partly cloudy windless dawn, clearing as it goes along; temperature 65°. Present from 0510 to 1130 and from 1500 to 2015; Ryckman present from 0850 to 1715. *dawn*

TD1 at 0515 - The male is singing and the female is on the nest.

*can 90*  
0544 - D1F leaves the nest. It still contains only 3 eggs, so I didn't arrive too late for her first inattentive period.

0551½ - D1F returns, faces W.

0600 - It's 65°, clouding over generally but high.

MD1 has sung a good many skids. I haven't counted them because I can't always be sure which are his.

0602 - Evidently D1F is laying: Her tail is moving up and down a little in a rhythmic way. This goes on for a minute, but I may have missed some. She then looks into the nest and probes for a minute, settles deep facing W. *laying*

0630 - It's clearing a little, 67°.

0647 - D1F turns to face E.

0700 - D1F leaves, goes NW. She has been turning her head constantly for 5 minutes, even craning her neck to look below the nest. I inspect; the fourth egg is present.



60  
0700 - It's 68<sup>0</sup>, sunny, clearing. MD1 has sung many skids and chatters.

0709½ - D1F returns, eats a green caterpillar which she reaches up and picks off a leaf 5 inches above the cavity, faces W.

0730 - It's 70<sup>0</sup>, sunny but with a light hazy overcast in places.

30  
20  
MD1 sang loud chatters at about a 3-per-minute rate for 10 minutes, more recently has sung faint short insipids.

0756 - D1F leaves after looking around. Note that her attentive period is shorter than the one during which she laid, which is the rule, I think. MD1 has been singing weak chatters and he goes on doing so during the female's period off.

Ca  
100  
0800 - It's 72<sup>0</sup>, unchanged.

MD1's songs have been weak, short insipids, then weak chatters.

0811 - D1F returns silently, quickly, and directly, faces W.

0830 - It's 74<sup>0</sup>, a little more overcast than it was but still sunny. A mild SW wind has risen.

MD1 has sung insipids a good deal. He seems to spend most of his time well N of this nest, back near the old one.

0847 - DIF leaves the nest. She looked around and below her for 3 minutes, got to the E rim facing E, turned to face N while standing an inch or so above the rim, in 10 seconds climbed down beside it and quickly dropped out of sight.

0850 - Ryckman relieves me.

TD9 - From the NW part of the territory I hear occasional faint songs near the ridge, and I soon find MD9 and MD3 there engaged in a fight. MD3 when pursued back across his line calls loud "sip-sip-sip" notes, the call I've sometimes labeled squeak; both give it at times, but the attacked male seems to use it more in this fight.

A female is near calling "check" about once in 2 seconds. MD9 flutters before her, and she moves along near the ground on his territory. Twice she flies right to him when he flutters, landing on his perch a second before he flutters from it. He then flies 30 yards to the top of a 15-foot tree, skids loudly, comes back, keeps going to tree tops singing loudly.

The female now goes to TD3; MD3 has been silent since the males fought. She's in a thick tangle, I think. MD3 sits 15 feet up and looks down while singing almost soundless skids. (His right foot bothers him; he keeps opening and closing it and finally he

draws it up against his belly. He can use it though; he stands on it to scratch with his left foot). MD3 called "check" a few times during the recent encounter, I think.

The males are out of sight now and I watch the female; she calls "check" in little slow bursts. Surely one or both of these males have mates. Why are their tactics toward the female different, e.g., in volume of song, fluttering?

There is a fight again (about 20 minutes after I got here). MD9 chases MD3 off TD9, and MD3 calls loud "sips" when chased. (This must be a note of great excitement; if a fear note it must be distinguished from the "check" given when young are endangered.) MD9 skids loudly; the female goes on calling.

The female goes from the territory line NW onto what I've thought TD9. In 1 minute the males fight and flutter up 3 or 4 times but without every really breaking off contact; this is at the territory line. MD9 then flies back to his territory and sings loud skids, while MD3 feeds low, hovering and grabbing insects actively while calling very faint "sips" (probably a ~~redirection~~ displacement activity). He then sings medium-loud chatters. I don't see the female. I then hear "checks" and may see MD1 on the scene for a moment.

MD9 is in the center of his territory perching on hawthorn tops, calling faint "sips." MD3 is W of the path at the N end of the ridge; he sings slow chatters. The female is with him. He watches her from haw tops and sings; many songs are sotto voce, which may be the reaction to actual sight of the female as he sings. She calls loud slow "checks." He glides down from a tree once, but not at her. He stays high (10 or 15 feet) most of the time, sings loudly. The female moves from tree to tree. He flutters as he changes perches. In short, both male and female behave as a newly formed pair would except that there are no close pursuits; perhaps I arrived too late to see them. MD3's song behavior is irregular, with series of skids or chatters and long periods of silence.

I leave the scene after 70 minutes.

TD3 - See immediately above.

TD5 - MD5 flies W across the little gulley, but a 15-minute search fails to reveal anything.

TD2 - The nest is empty, undisturbed otherwise at 1100. Note that we didn't go near it yesterday. I hear MD2 but don't try to find him.

TD8 - D8F is brooding. I find conclusive evidence that PW's sometimes remove eggshells: 50 yards from

Y  
egg  
removal

the nest on the bare ground is the large quarter of what is beyond question a hatched egg shell.

MD8 and MD4 have an encounter out in mid-field on TD4. MD4 (a poorly marked male) is hopping around in the field cover just above the ground giving excitement calls so noisily and steadily that I expect to find a brood of grown young instead of 1 adult. He seems to be looking at the ground. MD8 flies out and MD4 pursues him a few yards while they call angrily. There is a 1-minute engagement with MD8 returning to renew it several times in that period. Once they flutter up to 12 feet, kicking. The bird that lets the other get above it has to bend farther and farther back to get its feet into position to kick, so that finally it is bent backward at a  $135^{\circ}$  angle.

51 51  
3 etc call  
J. H. H.

MD4 flies to the tall trees of the fence row and MD8 to his territory. MD4 sings loud skids, MD8 a curious Field Sparrow-like song.

TD4 - See under TD8, above.

TD7 - MD7 and 2 or more young (D7F?) are in the thicket at the W end of the E-W fence row. MD7 sings faint insipids and the young call loudly.

Send

TD11 - I don't hear MD11.

TD10 - D10F has begun to incubate today.

4



TD13 - D13F is incubating.

TD6 - MD6 sings loud type-8's as I pass.

1130 - I leave.

TD1 at 0850 - I [Ryckman] relieve Nolan.

0900 - It's 75°.

0901 - D1F returns, settles S. MD1 sings very  
16 nearby, 16 times to 0905.

0906 - MD1 moves to the E to a dead tree, sings  
23 23 times to 0914.

0925 - A Field Sparrow perches 2 feet above the  
nest; D1F doesn't move. *ign FS*

0930 - It's 78°, sunny, partly cloudy.

0931 - MD1 sings E 27 times to 0939. Another male  
27 sings to the NW.

0940 - A male sings W 15 times to 0945. It may  
15 be MD1.

D1F has been stirring on the nest for 10 minutes.

0950 - D1F leaves.

1000 - It's 80°, increasingly overcast.

1009 - D1F returns, perches below the nest, hops  
up and faces SE.

1030 - It's 81°, nearly completely overcast.

9 MD1 sings E 9 times to 1032.

1045 - D1F leaves.

43 1047 - MD1 (I think) sings SE 43 times to 1102.  
A second male is singing too.

1055 - D1F returns from the E, goes directly,  
faces W.

1100 - It's 82<sup>0</sup>, overcast.

11 1106 - MD1 sings SE 11 times.

10 1112 - MD1 (?) sings SW 10 times.

7 1126 - He sings very nearby 7 times.

1130 - It's 81<sup>0</sup>, clearing, sunny.

26 1133 - MD1 sings SW 26 times to 1144.

1138 - D1F leaves low to the W.

1147 - She returns from the W, perches above the  
nest on a limb for several seconds, settles W.

1200 - It's 84<sup>0</sup>, sunny.

10 1204 - MD1 sings E 10 times to 1206. Another male  
is singing only 50 yards W.

1205 - D1F leaves NW.

1210 - She returns, settles immediately.

I won't count songs any more unless I'm very sure  
it's MD1.

41 1223 - MD1 sings beside me to the E. See 1238.

1230 - It's 85<sup>0</sup>, sunny with some clouds.

1238 - D1F leaves low E.

MD1 quits after 41 songs.

1243 - D1F returns from the SE.



1300 - It's 85<sup>0</sup>, sunny.

1305 - Two immature PW's come into the bushes 10 feet from me, remain 2 minutes; they are calling. I can't see any bands.

1307 - MD1 sings E 3 times.

1315 - MD1 flies from the E and lands near the nest tree. After several minutes he goes to the nest tree and for 30 seconds perches on a high branch of it. I see no food. He goes E.

to tree

1330 - It's unchanged.

1341 - D1F leaves.

1342 - MD1 sings weakly 3 times just N of me.

1350 - D1F returns from the E.

1355 - MD1 sings 5 times, same as at 1342.

1400 - It's 84<sup>0</sup>, almost completely clear.

1415 - D1F leaves W.

1420 - MD1 sings 2 times, in the same dead tree N of me. He has a large green larva. He flies to SE of the nest, sings once.

1422 - MD1 goes to the nest, perches on the rim.

D1F arrives from the W, perches 2 inches above the nest. He hops up beside her and makes motions toward her with his head for 20 seconds. He then flies W with the larva. She settles, facing W.

AFB

1430 - It's 87<sup>0</sup>, sunny, scattered clouds.

The SW male has sung almost continuously.

1454 - DIF leaves.

1500 - She returns, faces SE.

It's 86<sup>0</sup>, sunny.

1530 - It's unchanged, almost cloudless.

1544 - DIF leaves, flies N low right past me,  
forages for several minutes just W of me.

1553 - She returns from the E, settles SE.

1600 - It's 83<sup>0</sup>, cloudless.

1629 - DIF leaves low E.

1630 - It's unchanged.

1636 - DIF returns, faces SW.

1700 - It's 81<sup>0</sup>, sunny.

1704 - DIF leaves.

1711 - She returns from the SE, faces SW.

1715 - Nolan relieves me.

1500 - I return. It's hot, sunny, quite windy and  
hard to see birds.

T63 - 63F is incubating. I don't hear M63 and  
haven't for some 3 days.

T62 - In 30 minutes I see no 62, hear M62 sing about  
6 step-buzzes, and see a strange unbanded male fly from  
the N edge out to the center of the territory without  
meeting any response. He calls very faint "sips" before

he flies out and I immediately lose sight and sound of him.

I go to the Dunn tract.

TD8 - MD8 is at the nest.

TD3 - A female is calling "check" just like the one this morning (it's 1600), but I think she is marked differently. A second PW accompanies the female and though I only hear it I'm pretty sure it's an immature being fed. The female moves with great energy and speed. I'd guess she is D3F, off the nest of her second brood <sup>3 - 3 - 3 Not if with young.</sup> [very probable.] The place is exactly where I've seen her many times before and where I suspect a nest. MD3 sings only 2 or 3 times, flies to tree tops and looks around, then quickly goes on. He looks at the 2 PW's just mentioned but seems excited by something else. Once as he sits I hear him call several "seeps," each about 5 seconds apart. The note is longer than "sip." I see no other female.

*Deep call down*

TD9 - MD9 is fluttering in flight, so he must have attracted this morning's female.

TD1 at 1715 - I relieve Ryckman. D1F is incubating facing E.

1730 - It's 80°, sunny, breezy from the W.

1744 - D1F leaves.

1751 - She returns. She called near me twice, flew to a spot 2 inches from the nest, disappeared low in the tree for 30 seconds, climbed up and entered from the W to face E.

1800 - It's 77<sup>0</sup>, clear, calm, sunny.

MD1 began to sing insipids NE of me about 5 minutes ago after a silence of some 25 minutes.

1818 - D1F leaves, dropping W.

1828 - She flies to the N rim, hops around a supporting branch to get to the E rim, faces W.

1830 - It's 76<sup>0</sup>, unchanged.

MD1 sings weak insipids, but other males do too and I can't count his.

1900 - It's 74<sup>0</sup>, unchanged. The sun has touched the nest ever since my arrival but never much and only a little except on the outside.

1911 - D1F leaves.

1918 - She returns quickly, enters from the E and faces W.

1930 - It's 70<sup>0</sup>, unchanged.

1958 - D1F jumps to the W rim exactly as if she were leaving, but she stands there for 10 seconds, turns and re-enters facing E.

2000 - It's 66<sup>0</sup>, unchanged. It's getting dark as the sun begins to disappear behind the hill.

2001½ - DIF after 1 minute of looking around gets to the E rim and drops E. She always pauses a second or more before actually leaving the rim.

2007½ - DIF returns, hopping up from below to the E and entering immediately to face W.

She won't leave again. It's been 95% sunny, perfect conditions for normal attentive behavior.

2015 - I leave.

July 1, 1957

A clear, mild day. Present from 0730 to 1130  
and from 1700 to 1800.

T63 - M63 is singing loud chatters, so I was  
wrong in thinking he had quit. 63F is incubating.

T62 - 62F is feeding 62U at the N edge of the  
territory as it perches 2 feet up in a little tree  
with some thin field cover around it. 62U has a  
1 1/4-inch tail, looks more developed than the other  
young 62's I've seen. It bobs its tail, stands up,  
is very alert. I don't stay to watch it. About 25  
yards to the E is 62Y, 40 yards from where I last  
saw it. It is perched 8 feet up in a dogwood within  
the leaf layer; the tree is next to the woods. In  
some 3-foot dwarf sumac beside it is a third young, I  
think. M62 is feeding 62Y, singing in the high woods  
trees (step-buzzes) or in the center of the territory,  
then coming to feed 2 or 3 times in quick succession.  
62Y sits very quietly and silently the entire time,  
tarsi bent. I can get to within 15 feet by moving  
up very slowly; a fast move sends the birds flying  
quickly into the woods edge or other thick cover.

*feeding -  
details*

I'd guess the young are almost always silent,  
are separate but not more than 50 yards or so, are fed



about 10 items an hour. They do not call or otherwise react to the male's song. The adults here are by far the least bothered by me of any I've worked with.

I go to Dunn.

TD8 - The young are alive.

TD6 - MD6 sings at the E edge.

Incubation hasn't begun. N

TD7 - MD7 sings in the N-S fence row. I see no sign of the young.

TD10 - D10F is incubating. ✓

TD12 - MD12 sings.

TD13 - The nest has failed without any indication of the predator. I don't wait to find the birds.

TD1 - D1F is on the nest. ✓

TD2 - MD2 sings loud skids while perched high on the E hillside, moving normally and without any attention to the ground or to any particular part of the territory. He keeps this up during 2 hours that I'm in the W field, and I see nothing to suggest that the female is rebuilding (or even present). 57- lots of new + p

TD9 - I see no female here. MD9 sings very little and I don't get much feeling about what's going on. When I do see him he is in the usual area near the zone where he and MD3 have been having their fights. After the activity yesterday today's picture isn't clear. 57 144

TD3 - For 10 minutes MD3 sings loud slow skids or chatters. I hear a female; she is calling a location "check" about every 5 seconds. A fully immature bird is flying along with her calling, so clearly she is D3F. Suddenly MD3, which is at 25 or 30 feet, glides down to about 10 within 3 feet of her. He holds his wings spread almost over his back for 1 second, then flies (fluttering?) away calling "sip" 3 times. The female doesn't react. For a minute he is silent, and for 2 more his songs are faint. When I leave he's singing loudly. I take it yesterday's female is not with him. ♂ 127

1130 - I leave.

1700 - I return. It's clear.

T68 - The nest has failed. M68 sings loud skids from the locust tops, about 5 a minute. No sign of 68F. A second male sings type-8's to the NE, and as I watch him (unbanded) he chases still a third that seems to appear from the W woods edge. I'll check tomorrow. ♂ 151

1800 - I leave.

July 2, 1957

A generally clear hot day with a heavy dew in the morning after a cold night. Present from 0730 to 1200.

T65 - Silence. This seems to have lost its PW's, though a careful search might still turn up the 65's.

T61 - Both adults are evidently tending the young at the S end of 2 and perhaps across in 1. They come up and call in alarm at my arrival, so I go on. *hurry*

T64 - Silence. Female B is not on her nest, and it has surely failed.

T66 - Both adults are near the big tulip poplar, calling "tsu" but keeping some distance in the trees and cover. I hiss and immediately they drop to the ground within 5 feet or so of me and go into the wildest distraction displays. Both call loud "checks" and "tsus" and flutter along through the grass. I don't see the young. *de's de's*

T68 - There is no sign of 68F during an hour or more spent here. M68 sings loud skids in long series, his rate 4 songs a minute and sometimes more. He stays largely in the walnut trees on the E edge, perching high and showing no interest in any particular place or in the ground.

The second male that I found last night has grown

young. I hear one or more following him and being fed at the N end of the field. Once M68 and this male get into a silent fight and a chase, and the second male seems periodically to come to the N walnut trees and sing a few songs as though to claim territory.

I go to the Dunn area.

TD8 - The young are alive.

TD6 - D6F hasn't begun to incubate.

TD11 - MD11 moves low through the field and sings his usual step-buzzes; I see no female.

TD10 - D10F is incubating.

TD12 - MD12 is singing loudly out in the field near his last nest.

TD7 - MD7 sings in the N-S fence row.

TD13 - MD13 is singing loud skids and insipids and moving over the whole territory, going as far as the tall trees at the woods edge to the NE and then all the way W across the field to MD12's woods. He doesn't sing sotto voce or seem to concentrate much on 1 place, but in a spot to which he does return a good deal I find a nest under construction. It is a shallow saddle-shaped base, begun today or late yesterday but still very slight. It is 6 feet up in a fork in the main leader of a 9-foot elm. D13F comes to it once as I watch.

TD4 - MD4 sings a few times.

TD2 - MD2 sings as though no nest building is going on. He moves over the territory, never looks down.

TD1 - DLF is on the nest. U

TD9 - I spend most time here but learn nothing. MD9 scarcely sings, and I don't get an idea of whether he is moving about on the territory or not. A female passes me once near the big sycamore on the W edge of the territory, where I thought I detected developments prior to the arrival of the female on 6/30.

TD3 - MD3 too is nearly silent, and I get no feeling of what's happening.

I see a chipmunk in the very top of one of the thick crataegus trees here. The tree contains no nest, but I suspect he's hunting. chipm

1200 - I leave.

*much log*

July 3, 1957

A sunny morning with a dew; it is hot and turns hazy and rather threatening in the afternoon, but it never rains. Present from 0800 to 1130 and with Bob Quirk from 1330 to 1700.

T65 - Silence.

T61 - Again I learn nothing here because of the extreme nervousness of 61F. She is feeding a fledgling about 6 feet up in a dogwood S of 2, but it flies quickly into the thick growth at the edge of 2 before I get a chance to see it. M61 is singing insipids (the song he sang yesterday too) in 3 and 4. I try to sneak up on 61F but she detects the motion and comes down into the thicket within 2 or 3 feet of my head to inspect me. She calls "tsu" about once a second, carries food once. *Falcons on 27*

T66 - M66 is here, near the big tulip again. I don't stop.

T68 - M68 is silent during the first half-hour I'm present. He then sings loud skids at 3.5 to 4 a minute from high in the locusts; once he comes down low to forage, still singing. He moves through the locusts and after 10 minutes or so falls silent. I inspect the territory with care; no female is building. My *70104?*



first thought was that M68 had left the territory and returned to sing, but his falling silent again so soon seems to cast doubt on this idea.

The second male sings once or twice to the N.

T62 at 1030 - 62F is feeding 62U and 62B in a patch of dense, low crataegus, and M62 is feeding 62R at the W edge of the S arm of the territory. My first observation is of 62F carrying food into the low edge growth about 30 yards E of the nest. A fledgling flies out as she leaves, following her into the crataegus in the center of the field. This flight has nothing to do with me; I'm at a distance. I sneak up gradually and watch the feedings. For a minute there are 2 young together in the clump, but I glimpse 62B only once. They thus don't seem to be sociable yet, although with the following behavior witnessed it won't be long.

*fledgling  
detected*

*done*

62U is virtually full-sized; it may lack  $\frac{1}{4}$  to  $\frac{1}{2}$  inch in the length of the tail feathers. I watch it for 20 minutes during which it stays within a 3- or 4-foot area in the crataegus but moves about, climbs, hops, flies a few inches, all very freely. It doesn't sit with bent tarsi. When approached by 62F the young bird calls moderately loud food calls; they are brief, but the period of silence seems to be ending.

62F gathers her food either near 62U or, for a time, about 30 yards away. On the latter occasions she gets the food in the woods edge and starts directly toward 62U, uttering 2 or 3 faint "sip" notes (I guess the same thing as the "contact 'tsu'"), clearly audible to me and to the young bird. During the feeding similar notes are sometimes heard. She then flies straight away. I see some 6 feedings in 20 minutes, 3 of the sort just described, with the foraging spot the same in each case.

*coll notes*

This all occurs some 40 or more yards from the last place I saw 62U. The scene is moving from the N end of the territory to the S. 62U stays from 2 to 3 feet high.

M62 is feeding 62R as it perches quietly and silently, tarsi always bent, 8 feet up in a sassafras. There is none of the adult-like competence shown by 62U; this bird is silent, rather docile, easy to approach. I see 1 feeding in 10 minutes. M62 sings a few step-buzzes.

*details*

Note that so far I've seen 62R and Y fed only by M62, 62U and B only by 62F. I think this is getting to the point where it can't be mere chance, especially in view of the fact that the young birds move about a good deal from day to day.

T63 - M63 is singing loud chatters near the pines

and 63F is moving quietly through the trees in the woods there. She preens and then goes down out of sight to a little trickle of water that flows in a bed. I can see the vegetation shaking. She then flies up to a branch 6 feet high; she is soaking wet, and for about 3 minutes she preens and shakes and wipes her bill. Preening of the wings consists of very rapid running of the open bill from the base of a primary toward its end; i.e., she puts the bill down into the wing and quickly raises her head so that the feather slides through the commissure. She shakes about once every 2 or 3 seconds for 1 second, the wings fluttering and the tail moving extremely rapidly from side to side. The motion is the one I first saw last year and have described several times since. Bill-wiping I note involves scraping from the base to the tip; sometimes she begins behind the bill as though really scratching her face.

After this she returns to the stream. I move in enough to get a little view; she is in  $\frac{1}{2}$ -inch of water, about 6 inches wide, and she is going through the typical avian splashing motion, pretty much the same as the lateral wing and tail shaking already described. She then returns, after  $1\frac{1}{2}$  minutes of bathing, to a perch

*bathing*

*preening  
descri*

*bathing*

where she repeats the shaking and preening for 3 or 4 minutes. She goes again to the stream but quickly leaves, perhaps because I've crowded in too much (15 feet). This bathing, the first of the sort that I've seen, lasted 10 minutes. M63 sang the whole time.

The nest has failed. I watch it for 15 minutes, during which a Goldfinch once pulls some fibers from it. 63F has been off for 35 or 40 minutes that I know of.

*63F dis on  
PW nest*

When I leave M63 is singing loudly up the hill near the first and fourth nests.

1130 - I leave.

1330 - Bob Quirk and I return. It's getting slightly cloudy and oppressive.

TD8 - The young have been taken without any trace of the predator. I make no search for the adults, but a male, probably MD8, is singing loud skids from the E edge of the field.

*MD8 failure*

TD6 - D6F hasn't begun to incubate. A male, either MD6 or MD11 is singing loud type-8's from the big sycamore and N of it. I think this was MD11.

*N*

TD10 - MD10 sings from the shallow sink hole and W of it. D10F is on the nest.

*Y*

TD13 - The nest is now well-shaped and complete

except for the final lining. MD13 sings a lot, flying around the field near the nest and W to the woods edge. His songs are full volume.

TD1 - D1F is incubating.

TD2- MD2 flutters a little in flight and clearly is interested in a female. We see her shortly as she preens at length, about 1½ feet up in a bush. MD2 flies rapidly to the bush and hops down toward her, stopping an inch or two away; but she doesn't react. He then flies around near her, singing irregularly. She finishes preening and moves about the E hillside with him near. I'd guess she isn't D2F but a female wandering in.

TD9 - MD9 is singing loud skids and moving a good deal from tree top to tree top, often returning to the same one. The location is near where he and MD3 fought over the female on June 30, and we find a new nest being built there. It is 2 days old, just right for the female of June 30. It's 6 feet up in the center of a 7-foot hawthorn.

TD3 - MD3 is largely silent, but we see and hear him a few times.

1700 - We leave.



July 4, 1957

A sunny morning and a hot, windy day; it becomes humid and sultry in the afternoon and storms violently (but without strong winds) at 1700 and periodically during the early part of the night. Present from 0730 to 1230 and from 1645 to 1700.

15  
T63 - M63 is silent for 15 minutes, begins to chatter weakly just as I see 63F go to a new nest. 67 204  
However, she carries material only 1 more time in 25 minutes of watching, and it may not be continued. The nest is 20 feet up in a 25-foot cherry, placed largely in a grape vine that spreads through the tree. It is a very loose and unshaped beginning, almost certainly not begun today. M63 is singing as I leave; he has moved away from the nest area.

T62 - 62F is feeding 62U and M62 is feeding 62Y, facts which have surely passed beyond the possibility of coincidence. Both young have moved appreciably: feeding details  
62U is 8 feet up in a dogwood just W of the nest tree, about 35 yards from its location of yesterday. 62Y is 3 feet up in a low grove of crataegus, 75 yards from where I last saw it. 62U isn't noisy, but I can hear calls when it's fed. As usual it is alert, and today seems at last to be about full-grown, possibly  $\frac{1}{4}$  inch



short. 62Y looks full-sized too.

62F shows more alarm than usual at my presence, but I'm very close to the fledgling. There are many little "sip" calls while she's near it. M62 sings a few step-buzzes.

At my arrival a poorly marked male is present. He is in the same tree as 62F once, about 20 yards from 62U. He behaves normally except that one time he holds a piece of food in his bill for 5 or 6 seconds before eating it. He could be helping feed the young. I see him for about 1 minute.

I go to Dunn.

TD8 - A male is singing in the locust tree row, high up on the E side, when I arrive. He catches and holds a green caterpillar for 10 or 15 seconds, clearly just carrying it for that period and then eating it. Many minutes spent following a male that I know is MD8 convince me that these are the same bird. Once he is singing in the big S maples and flies far E low, well into the little wooded field. Other evidence is the fact that I hear a male at one side of the field or the other all morning but never at both simultaneously; and that I now recall that I have never heard a male sing in the wooded field in the early morning, when MD8 would be expected to be farther W on his more

old B by  
sang it  
high

feeding B

normal territory. Note then that the male on the Dunn tract that is not circumscribed by neighbors is a great wanderer and ranges over as big a territory as M61.

MD8 spends about equal parts of his time at the E, W, and center points, sings a lot at a 4 per minute rate, never acts as though he has a female. I see no sign of one.

TD6 - The nest has probably failed; D6F should be on it by this time. MD6 sings along the E edge, but I don't attempt to find D6F.

TD10 - D10F is incubating.

TD7 - MD7 sings in the N-S tree row. Indications are that the young have gone; D7F may possibly be nesting.

TD12 - MD12 sings many skids, once goes out to mid-field near his last nest and preens for 4 minutes about 2 feet up in a dense thicket.

TD13 - The nest looks finished. MD13 sings near it and as far W as the W edge of the field.

TD4 - Silence.

TD1 - D1F is incubating.

TD2 - A long search here indicates that yesterday's female is gone. MD2 sings loud regular skids, 34 in 10 minutes, moving normally through the trees over the

80709  
Significant

whole territory. He tends to stay 30 feet or so up in the few big trees, near the tops of the smaller ones, and he behaves like a mateless male or one whose mate is incubating. This reversion to normal early-season behavior is interesting in a male which has raised a brood, and probably it could happen only in the case of a very early successful nesting, such as MD2's.

TD9 - The nest looks complete. MD9 sings near it.

TD3 - I see D3F, first hearing her call "check." I'm sure she still has a young bird with her. MD3 has a brief encounter with MD9, otherwise seems to be moving around on his territory and singing infrequently.

1230 - I leave.

1645 - I return, just before the rain.

T63 - 63F hasn't worked on the nest I found. M63 is singing loud chatters on the hillside, in the big cherries at the top and near them.

1700 - I leave.

July 5, 1957

A perfectly clear day, fresh and with a strong breeze; temperatures in the high 70's. Present from 0715 to 0945, from 1030 to 1130, from 1400 to 1600, and from 1630 to 1800.

T63 - M63 sings in the big cherry near the hill-top, goes S to the edge trees along the ravine. There he sings frequently. His chatters are occasionally sotto voce, and for 10 minutes he sings the chickadee-like song so weakly that often only its initial 3 squeaky notes are audible. I finally find 63F building quite fast in the center of the area M63 sings in. The nest is about 9½ feet up in a brushy sassafras fork, a typical site, in a tree in a stand of sassafras. I don't go near for fear of scaring her, but I'd judge she began to build yesterday. This is the first female that has ever built 7 nests.

51649

T62 - I cover the territory for 45 minutes at an ideal time, 0845-0930, and feel sure that the 62's aren't present [?]. The young must have come together and begun to move around. The family isn't in the remnant of habitat 100 yards N along the fairway, and I don't hear or see them to the S.

0945 - I leave.

1030 - I return.

TD6 - This nest has failed. I can't find a trace of MD6 except that a well-marked male is with a female all the way over on the W edge of the field along the fence row, and he gives many indications that he is MD6. Once he flies out to the middle of the field to the little trees by the D6's first nest, and he continually sings type-8 songs. He is more strongly marked than MD4 (which may skid once or twice to the N). This male and MD8 have several encounters in the edge growth a few yards N of the path. There is little excitement, no posturing, but there are bouncing flight and nervous movements. MD6 (?) seems to hold ground here and drives MD8 to the S several times. The cause of the fight may be a female. She calls "check" and a note I haven't heard, under these circumstances at least, a high "seet." I suppose the latter is a variation on the "sip" or contact note. She is quiet, preens a lot, moves slowly through the low trees and edge. (I'll add now that a good search during the afternoon didn't turn up either male or female here.)

TDS - MD8 sings in the center of the field and at the W edge. See above.

58

seet call



TD11 - A male sings loud type-8's in the W part of TD11, well beyond TD6. I suppose this is MD11.

1130 - I leave.

1400- I return.

TD6 - I can find nothing. See above.

TD8 - MD8 sings all over the S end of the field and far into the E wooded field. He never gives any sign that a female might be here.

TD10 - D10F is incubating.

TD12 - MD12 sings and forages in the trees along the W edge and on into the woods. He preens at about 4 feet there. A few minutes later an unbanded male and an unseen male have a fight about 25 yards to the S, calling 1 or 2 short bursts of excitement notes. The unseen male is probably MD12. I'd guess there is a nest in the woods near here. Error; probably no female.]

TD13 - The nest contains no eggs.

TD7 - I don't see any D7.

TD4 - Silence. It's possible that I heard 2 or 3 skids from the N part of this territory during the morning.

TD1 - D1F is incubating.

TD2 - I follow MD2 for 25 minutes. He behaves



just as he did yesterday; no female is building here.

TD9 - The nest has its first egg, scantily marked and without a wreath. It is much different from the heavily wreathed egg in the hackberry nest found last week on TD9. (I break this latter egg and find it is very recent.) Evidently the female with the new nest is a successor to D9F or is a polygynous mate; either possibility is consistent with the events of June 30.

[There is no other female here.]

TD3 - MD3 sings a little. I learn nothing.

1600 - I leave.

1630 - I return to the university farm.

T68 - M68 is singing regular chatters while foraging near the locusts in edge-type vegetation. He stays between 3 and 8 feet high and gives mild excitement calls from time to time for no apparent reason and without any accompanying behavior of note. This male has begun to molt on the nape, perhaps on the back. The nape feathers are quite thin when he cranes his neck while preening, and the area looks gray as the result of loss of a number of yellow-tipped feathers.

M68 responds when I hiss, flying out to look and momentarily raising his crown feathers (very unusual).

N

look a real  
paw

of up call

hiss

NB

T66 - M66 sings 2 or 3 faint type-8's near the big tulip, and 66F comes up and calls mildly ("tsu") but gives a few "checks" when I hiss.

T65 - Silence.

T61 - M61 sings insipids in the S part of the pine field. 61F appears nearby carrying food. She shows less alarm than usual and M61 shows none.

T64 - Silence.

1800 - I leave.

*Long normal*

*feeding*

*dis*

July 6, 1957

A cool, dewy, cloudless dawn with a S breeze coming up as it gets light; temperature about 60°. Present from 0500 to 1145 and from 1540 to 2015; Ryckman present from 0845 to 1715. *down*

TD8 at 0500 - MD8 calls excitement notes and sings insipids.

In the W field other males call and sing as usual, so evidently this behavior continues through the whole vocal season. *NB*

TD9 at 0510 - MD9 is singing and calling.

0516 - D9F (as I'll call her unless I learn that another female is here) goes to the nest quietly and alone.

0530 - MD9 quits his calling at about this time. His song is still an insipid. I'm trying to count, but I can't be sure that I don't count some of MD3's insipids too. Both males' vocal behavior has been the same so far. *call for*

0537 - D9F leaves the nest, feeds near me and calls "check."

0540 - I've counted 109 songs for MD9 in 30 minutes, but I quit because I'm not confident of my accuracy. *ins 3.6*

0549 - D9F returns to the nest.

85  
0600 - It's about 64<sup>0</sup>, sunny.

MD9 has begun to sing skids recently.

0610½ - D9F leaves the nest.

0633½ - She returns. MD9 is singing loud skids near the nest in a long series.

65  
0700 - It's about 68<sup>0</sup>. MD9 has sung consistently, fully as often as a male would sing in May or early June if his female were incubating. He also seems to stay near the nest, i.e., on this part of the hill.

MD3 has sung much less frequently than MD9 since his early morning singing. Most often his song is a slow skid or a chatter.

65  
0711 - D9F leaves the nest.

0730 - She returns. MD9 is singing in the way described above.

0750 - D9F leaves the nest.

50  
0800 - It's 71<sup>0</sup>, cloudless, breezy. MD9's song rate has declined a little from the 3.5 counted earlier. His series are fewer too.

0812 - D9F returns. I wonder now if she's begun to incubate a 2-egg set.

70  
0830 - It's 70<sup>0</sup>. MD9 has been silent for 15 minutes but is singing a few insipids now.

0838 - D9F leaves the nest. She may call low "checks" a few times near me.

There are 2 eggs.

0845 - Ryckman relieves me.

TD3 - MD3 has sung only occasionally during the morning. I detect nothing to show that there are developments here.

TD2 - MD2 sings loud skids, behaves as I have described for the last 2 days.

TD1 - D1F is incubating.

TD8 - MD8 sings about 40 feet up in a hackberry at the S edge of the field in the center, in 10 minutes flies E into the wooded field. He skids there. This removes all doubt on the size of TD8 and the identity of the male in the wooded field.

TD4 - A male skids a few times in the W trees.

TD6 - MD6 sings type-8's in mid-field, then flies E to the S end of the woods, just N of where the locust tree row begins. Here he begins to sing sotto voce and I hear a "check" and contact "tsu" notes. MD6 dives down on a female and flutters away singing a loud type-8 in flight. I think he called "check" just before he reached her; she is 4 or 5 feet high (and possibly in or at the nest I later find). In about a minute I see a pursuit low along the woods edge. The female flies quickly from place to place in the field cover and I lose her. She then flies out of the woods with

519  
644

519  
7

nest material, the male flying 15 or 20 feet behind for a few yards. She goes to a perch 25 feet high and I lose her.

For 30 minutes the male sings sotto voce, and from high perches in the edge trees watches the female. She doesn't gather in the field. I finally see her building; she's 5 feet up. (Note the high flight in which she carried material, a fairly characteristic trait in females building in mixed vegetation of all heights). Most peculiarly, she is gathering in the woods, or rather in the edge, and not in the field where I could see her (which is not to suggest that there is cause and effect).

NB (1/4)  
B  
gathering place

The nest is a very slight saddle in an elm fork. Still, it's probably too visible to have been begun this morning.

I think that the male and female seen yesterday over near TD8 were MD6 (sure) and this female; she may be a successor to the original D6F, but I think she's the same.

TD10 - D10F is incubating.

TD13 - The first egg is present.

1100 - I go to the farm.

✓  
N

T63 - The sassafras nest looks as if 63F built at normal speed all day yesterday; it's a well-formed shell.



However, the male is singing from E of the pine trees, in the big sycamore and 63F doesn't seem to be building. I go to watch the male; he's 30 feet up. He sings loud chatters at a 4.5 per minute rate while he preens thoroughly, never seeming to look around him at all. (Every time he scratches his head with his foot over his wing he opens his bill rather wide.) After 5½ minutes he suddenly begins to sing sotto voce and to look down below him; he speeds up his song rate slightly. I see the female fly, almost as though fluttering, from a 20-foot elm fork to the trees immediately below M63's sycamore. He drops straight down, stopping for a second one time, half-way down. As he reaches 63F he sings and I can see a flutter for a second. They disappear and he quits singing after 30 songs in 6½ minutes.

*✓ bldg*  
*scratch*  
*019*

As I leave 5 minutes later, M63 sings faintly in the NW corner of IV S. It looks as though 63F has begun to lose drive.

1145 - I leave.

TD9 at 0845 - I [Ryckman] relieve Nolan.

0855 - D9F returns.

0900 - It's 70°, clear.

0910 - MD9 sings S 8 times.

13 0924 - He sings S 13 times to 0927.

0929 - D9F leaves, hops to the ground to the E.

0930 - It's 71<sup>0</sup>, clear; a SW breeze blows.

0934 - D9F returns and MD9 seems to have come with her. He flies away as I look up.

7 0950 - MD9 sings S 7 times.

1000 - D9F leaves.

It's 76<sup>0</sup>.

1005 - D9F returns.

1007 - She leaves.

1009 - Two PW's (sex not sure, no bands seen) fight a few yards E of the nest, fly W in a second or so.

1010 - D9F returns from the NW.

10 1011 - MD9 sings S 10 times to 1014.

1030 - It's 77<sup>0</sup>, breezy from the SW, clear.

1034 - D9F leaves.

1040 - She returns.

8 1043 - MD9 sings N 8 times to 1045.

1053 - D9F leaves N.

1100 - It's unchanged.

1102 - D9F returns. Shadows make it hard to see how she faces.

1115 - MD9 sings S 5 times.

1120 - D9F leaves.

1128 - She returns from the SE, hops up through the tree from below, settles.

1130 - It's 79°, unchanged.

7 1148 - MD9 sings NW 7 times.

1200 - It's 83°, unchanged.

1203 - D9F leaves N.

3 1217 - MD9 sings S 3 times.

1230 - It's 84°, clear, quite breezy from the SW.

6 6 MD9 has sung 1 or 2 songs at irregular intervals for ½ hour.

34 1236 - MD9 sings N 34 times to 1252.

1244 - D9F returns.

1300 - It's unchanged.

1326 - D9F leaves NE high.

1330 - It's 85°, unchanged.

1340 - D9F returns directly from the E, faces NW.

1400 - D9F leaves, hops to the ground SE of the nest.

It's 86°, clear.

MD9 has been silent for an hour.

1427 - D9F returns from the S.

1430 - It's unchanged.

1445 - D9F leaves SE.

1500 - It's unchanged.

MD9 has sung intermittently this half-hour.

1528 - MD9 begins to sing to the N.

1530 - It's unchanged.

1531 - D9F returns, faces E.

1545 - MD9 quits after 22 songs.

1553 - D9F leaves SE.

1600 - It's unchanged.

1601 - MD9 sings 8 times to 1605.

1610 - MD9 and D9F flying close together arrive at the nest. I lose sight of her. He hops to the rim and remains there 5 seconds. He then flies a few yards SE to a bush and stays there 35 seconds, goes S. I can't see whether or not he has food.

1630 - It's 84<sup>0</sup>, unchanged.

1642 - MD9 sings N 4 times.

1540 - I return. It's hot, perfectly clear, so windy from the SW that observation is hindered.

T63 - In 2 periods of 15 minutes each I see and hear nothing.

T62 - I cover the territory for 30 minutes without finding a sign of the family.

1640 - I go to Dunn.

TD8 - MD8 sings loud frequent skids from the S trees.

TD2 - MD2 skids loudly, infrequently.

TD9 at 1715 - I relieve Ryckman. D9F is not at the nest.

1748 - D9F comes, faces around several times and settles. N.

1800 - It's 82°, cloudless, sunny, breezy from the SW. MD9 has sung a few times since I arrived, mostly insipids. MD3 has sung an occasional chatter or faint insipid.

1801 - D9F leaves the nest.

1830 - It's 80°, unchanged. The 2 males have sung only very occasionally, insipids nearly always. It's possible that MD3 sometimes goes W past my post.

1900 - It's 76°, unchanged. MD9 has sung 2 or 3 regular series of skids, about 60 songs in all.

1911 - D9F returns to the nest, faces NE. MD9 is skidding about 15 or 20 yards from the nest, goes on for 3 more minutes.

1918 - MD9 flies to the nest with a large green larva. Perched so that his head is at nest level he holds it toward the nest for 2 seconds. He then gets to the rim and bends toward the female; after 4 or 5 seconds she eats the food. In 2 seconds the male hops up an inch or two above the nest, in 3 seconds leaves.

late  
He skids 30 seconds later, then switches to insipid steps.

3645  
1930 - It's 75<sup>0</sup>, unchanged. MD9 has sung insipids at about a 3.0 rate since he visited the nest.

1935 - A PW, I'm nearly sure a female, calls "check" about 20 times in the berries near me. D9F is on the nest. The bird flies E.

1935½ - D9F leaves; she may have gone in connection with the PW that called.

1957 - D9F comes to the S side of the nest tree, hops around to the N rim, enters, turns to face N. She sits down very low and is clearly on for the night. Evidently this is going to be a 3-egg set. *big inc*

670  
2000 - It's 70<sup>0</sup>, unchanged. MD9 has sung repeatedly, about half skids and half insipids, some of which are nearly step-buzzes.

Do females get as broody as this one has been in the early part of the season? Cf. 63F this year.

2010 - The sun goes down behind the hill. MD9 is singing skids, insipids, and now, suddenly, type-8's near the nest. I'd say he's sung as often as a male early in the breeding season.

2015 - I leave. It's been 100% sunny and everything has been perfectly natural. This female is fearless.



585  
7/6/57  
VN

The sun has not shone on the nest enough, while I've  
been here, to be a factor in behavior.

July 7, 1957

A cloudless dawn with no wind; temperature 66° or so at 0500. Present from 0450 to 1200 and from 1615 to 2020; Ryckman present from 0845 to 1700. *done*

TD8 - MD8 begins to sing at 0453, I'm pretty sure. It's still quite dark. His song is the usual: insipid steps with excitement calls.

A Great Horned Owl calls a number of times at the S end of the W field. All males are singing insipids and calling, I'd guess.

TD9 - I think I can see D9F on the nest with the aid of my flashlight. MD9 is noisy.

TD1 - D1F is incubating. MD1 is quite silent most of the time. At 0522 he sings some 9 insipids. [Error]

0547 - D1F leaves.

0553 - She returns and almost surely the male accompanies her to within 5 feet of the nest, then quickly goes on. She faces W as she has every time I've seen her since June 30.

0555 - The male begins loud skids near the old nest. [MD1 is no longer here; all references to him today are wrong.]

0556 - A strange female flies into the nest thicket about 25 feet from the nest. She stays low and disappears. I can see D1F moving about a little on the nest, perhaps

no more than usual.

0600 - It's unchanged, in the 60's.

76  
2  
0623 - MD1 quits after 76 skids since 0555.

0629 - MD1 skids twice.

0630 - It's unchanged, a little warmer.

2  
0633 - MD1 skids twice.

0633½ - DIF leaves and goes E.

0649 - A female Goldfinch flies to the nest rim,  
looks in, picks once at the rim and goes on. *♀GF did not*

0652½ - DIF goes to the NE rim, enters W.

0653 - MD1 begins to skid about 30 yards NE of  
the nest.

0700 - It's about 70°, unchanged. MD1's songs  
are shown; he's still skidding.

0705 - The sun strikes the E side of the nest  
directly.

36  
0706 - MD1 quits after 36 songs. I'd say that song  
frequency and distribution during the day are the same  
here and on the farm area, despite the greater density  
of PW's here.

0721 - MD1 begins to skid up the hill to the E.  
The nest is now shaded.

0730 - It's 73°, unchanged.

76  
0744 - MD1 quits after 76 skids in 23 minutes.

19 0747 - MD1 sings 19 skids in 5½ minutes.

The nest has been back in the sun since 0730 or so. This may account for the long attentive period [at this hour?]

0758 - MD1 begins to skid. He has stayed far from the nest for a long time.

0800 - It's 75°, unchanged. The nest is still in the sun. D1F has sat very quietly. I've seen almost no movement (maybe 2) in 40 minutes.

15 0804 - D1F leaves and goes S. At about this time MD1 quits after 15 songs far from the nest. (The male to the SW has sung skids at about the same rate as MD1; this male is quite near.)

0819 - D1F flies straight to the E rim and enters W. MD1 accompanies her, landing 6 feet W of the nest, then hopping up to about 8 feet in height 10 feet away, going SE 10 seconds after D1F begins to incubate. (He is just starting to molt on his nape.) He sings a long series of skids immediately after going.

— new  
for feeding  
male

0821 - D1F has left the nest and is flying and hopping through the cover within 10 or 15 feet of it. She goes to the nest tree and looks around for 5 seconds, re-enters at 0822.

1  
0  
0830 - It's 76°, unchanged. The sun is still on the nest.

35  
MD1 quits a 9-minute series of skids; he sang about 35, all near the nest.

0835 - MD1 begins a long regular series of skids.

40  
0845 - For at least 5 minutes D1F has been sitting high on the nest and probing frequently. Now she settles. The sun is leaving the nest and soon should be off it altogether.

0845 - Ryckman relieves me.

TD9 - The nest contains a third egg. D9F is off but almost surely has begun to incubate. N

TD2 - MD2 sings near the hilltop. I think it's possible that some of the songs I've been ascribing to MD1 were MD2's. [Most were.]

TD6 - D6F is building and the nest looks complete from a distance. MD6 sits at about 25 feet and within 15 yards of the nest; singing loud insipids with a rasping quality. I see D6F at the nest only once, but MD6 sings this way for 10 or 15 minutes. 67 849  
all x

The nest is about 9 feet high, contrary to my first impression. The ground falls away there, so that one standing near can look at the nest at eye level.

TD8 - MD8 skids a few times.

TD11 - A male sings loud type-8's that sound as though they come from TD11.

I go to the university farm.

T63 - M63 is singing chatters; a few of them faint, and 63F is building the nest she began on July 4. It is still only a beginning, but walls have started up and she's clearly been at the job for several hours of full work. The structure she began on the 5th may have had work done on it too. Compare her behavior when she built her sixth nest; it's quite obvious that something of the sort happening now occurred there too.

T62 - After a long search off the territory I find the family on it. This raises questions about my idea that they had left it the other day, especially in view of their behavior today: The young are not together but are strung out along the SE edge, where they seem to be staying concealed in sumac and fairly heavy growth. The adults are feeding them and as usual the young seem to be staying silently in 1 place, calling only when a parent appears and then (I think) when the parent seems not to be going to feed. Occasional calls are heard otherwise. Adults both give the contact "tsu" or "sip" and perhaps a "check" from time to time. M62 is feeding 62Y and at least another; 62F's young I can't identify. 62Y seems to move around a little in his tree.

*Thinking  
details*



He is full grown. His breast may show the slightest trace of yellow toward the middle on each side, but this may just be a light brown. The 2 young I see are 30 or more yards apart, both about 10 feet up. Evidently the fledglings don't associate much yet.

IV N - A male sings type-8's and insipids, all fragments, run together, at the E end near the explosive shed. He is in very peculiar plumage: The head, face, neck, nape, and flanks are molting, so that he looks messy and scrawny. The black marks of the face are clear and well-defined though not sharp or bright; but the yellow of the face is almost absent and looks grayish instead. The bird sings a lot, is unbanded, responds to squeaks. He can't be a young of the year.

*odd plumage*

*- a yearling obviously*

1200 - I leave.

TDI at 0845 - I [Ryckman] relieve Nolan.

0915 - DIF leaves.

0919 - A male sings E 39 skids to 0939.

0929 - DIF returns, perches above the nest 10 seconds, hops to a shrub just N of the nest tree, then to the ground for a few seconds, then to the nest facing E.

0930 - It's 79, clear, calm.

0945 - DIF probes, gets to the rim and moves around on it, settles.

0947 - A sparrow perches just above the nest for 15 seconds, leaves. *Sparrow at nest*

0959 - MD1 sings close to the E 11 times to 1003.

1000 - It's 81°, clear, the nest now in the shade.

1010 - DIF leaves. MD1 sings.

1017 - DIF returns from the SE, quickly faces NW.  
MD1 is still singing.

1030 - It's 83°, unchanged.

I've decided the male singing isn't MD1. I've counted 61 songs, and he is going on; I don't keep on counting.

1057 - DIF leaves, hopping in short hops to the top of the tree and going NW.

1100 - It's 84°. The nest is completely shaded.

1103 - A sparrow comes to a high branch for a few seconds.

1106 - DIF returns, hops through the branches for 10 seconds, faces E.

1115 - DIF is very nervous, probes and resettles constantly.

1130 - It's 87°, unchanged.

1133 - A sparrow perches high in the nest tree to 1136.

1136 - DIF leaves just after the sparrow.

1140 - DIF returns from the SE, passing the nest tree to the NW, perching there in a tree for a few seconds, going to the nest and settling NW. (The W male has sung constantly.)

1200 - It's 90°, unchanged.

1221 - DIF leaves, flies E.

1228 - She returns from the SE, quickly settles NW.

1230 - It's 93°, calm; the nest is shaded.

1300 - It's unchanged.

1307 - DIF leaves low to the E.

1321 - She returns, hops down from a fork above the nest, faces NW.

1330 - It's 92°, the nest now partly in the sun.

1400 - It's 89°, clear. There's a S breeze. The nest is partly in the sun.

1404 - DIF leaves W.

1414 - She returns directly from the W.

1430 - It's 89°, the nest still partly in the sun. I've heard no songs for over an hour.

1447 - DIF leaves. In a minute she forages low in the open area just W of me.

1500 - It's 87°, the sun is on the nest.

1501 - DIF returns directly from the NW.

1530 - It's unchanged.

1536 - MD1 sings S 28 to 1550.

1600 - It's 87<sup>0</sup>, the sun on the nest.

Note D1F's long attentive period. For 30 minutes she has been shifting constantly.

1622 - MD1 sings SE 18 times to 1630.

1630 - It's 86<sup>0</sup>, the sun shining full on the nest.

1700 - It's 85<sup>0</sup>, the nest shaded. Nolan relieves me.

1615 - I return. It's hot, sunny, windy.

TD10 - D1OF doesn't come to the nest in 20 minutes. N

TD7 - MD7 sings regular type-8's, about 2 a minute, in the N-S fence row.

TD13 - Egg 2 is present. On it are a couple of unusual round blackish spots the size of a shot. N egg down

TD1 at 1700 - I relieve Ryckman. D1F is on the nest facing E. Ryckman says her bill has been open the last hour. It's closed now.

1704 - D1F leaves.

1708 - She returns and faces E.

1728 - D1F leaves. At 1731 she flies from near the nest to within 10 feet of me, then goes on in 15 seconds.

1730 - It's 86°, sunny and windy from the SW.

1740 - DLF returns and faces W. She called "check" near me for a minute or so, but the calls were infrequent and she's not alarmed.

1800 - It's 85°, slightly cloudy in the N, less breezy.

MD1 sang a series of 26 skids and is singing now. His total of songs was 32, including the present series.

1805½ - DLF leaves and drops W.

1823 - She returns, faces E.

1830 - It's 80° and for 15 minutes the sun has shown through a cloud coming in from the N and now nearly covering the sky. There is no thunder yet, but it's beginning to get dark in the N. The wind is in light SW gusts.

MD1 sang 12 skids during the period.

1900 - It's 77°, fully clouded over, dark but completely calm. The storm is coming on slowly; it must have been evident in the N before I first noticed it an hour ago.

MD1 sang 6 times, weak chatters and an insipid.

1902 - DLF leaves the nest. She stood up, dropped W, turned and flew right over me and on to a perch about 3 feet high 45 yards from the nest. She flies low and threads her way among the little trees sticking above

the field cover.

1910 - MD1 sings 15 insipids in 4 minutes NE of the nest.

1911½ - D1F returns directly, faces W.

1930 - It's 75°. The sun has just sunk to a point where it shines through a small gap in the clouds, but the sky is very dark, especially in the E.

MD1 sang the 15 songs indicated.

2000 - It's 75°, windless. The sun shone till 1945 and then sank behind a cloud.

MD1 sang 3 insipids.

2006 - D1F leaves and drops low N, turning E before reaching me.

2018 - D1F returns, looks in from 2 inches above the nest for 5 seconds, settles W.

2020 - I leave. It's been 85% sunny, with the hot sun the only unusual factor affecting attentive behavior. It's still likely to storm but there is no turbulence in the weather yet.

[Note: MD1 had died or deserted sometime before today, so all references to him are erroneous. The male seen with D1F was MD2; see the notes for tomorrow. The songs came from MD2, and the more frequent singer was the male to the SW.]

*Song manual*



July 8, 1957

A changeable day with dark clouds at times and a good deal of wind; cool in the early morning but warm and humid by mid-day. Present from 0900 to 1200 and from 1700 to 1800.

TD8 - A female PW is in the central part of the field near the dirt track. She is silent and quiet; I watch her for 15 minutes or so as she moves around under 4 feet in 2 little tangles and preens a lot (once scratching her head, bill closed). Molting doesn't show. During this time MD8 sings elsewhere, and both now and later I see no sign that he is presently solicitous of the female or even aware of her. She is probably a wanderer from a dissolved pair.

TD6 - I see nothing to suggest the stage of the nest. MD6 sings in the top of the nest tree for a minute.

TD7 - MD7 sings loud type-8's in the N-S fence row. I'm beginning to wonder if D7F has built. If not, his behavior (much like MD2's) is very interesting.

TD10 - D10F is incubating.

TD13 - D13F is on the nest, and since her last clutch was of 3 eggs I assume this one is too. [Correct.]

TD2 - MD2 is singing loud skids at the hilltop and he then moves on a little into TD1. As I watch a very active female appears, calling "check" once or twice I think. She must be D1F; her behavior makes it almost sure that she's an incubating bird. MD2 quits singing and clearly is interested in the female. On a hunch I go to D1F's nest to confirm her absence and watch for her return. She's off the nest. In 10 minutes she flies straight to the nest and MD2 accompanies her, landing 5 feet away. He stays for 2 or 3 seconds, flies to a 10-foot perch near me and sings 3 or 4 times, goes back up to the hill top. Later I hear him in the big tree on TD2. This incident is undoubtedly a repetition of several seen at the nest yesterday; the male that came back with D1F was MD2, MD1 has quit for the year and didn't sing yesterday, and this is the beginning of a case of fostering exactly like the one seen in 1953.

*♀ during*  
*was*

*♀ + sing then*  
*to nest*

TD1 - See above under TD2.

TD9 - D9F is off the nest, and there are 3 eggs.

*N*

TD3 - Silence.

I go to the farm area.

T63 - M63 sings at the hilltop between the 2 nests 63F has begun. The first is now so built up that it

*of fly*

looks complete from below, and I suspect she will now finish and use it. The second seems unchanged; it is slightly thin in spots. I never see 63F.

T62 - M62 sings 2 or 3 skids (as he did yesterday) and carries food to an Ostrya, the same tree that 62F seemed to take food to yesterday. In the tree are 2 silent young, within 3 or 4 feet of each other. They are 62U and 62R, so it looks as if the male is feeding both and care of particular young has ended. The young have yellow feathers from the ventral tract showing on each side and their heads are messy looking on the foreheads and crowns. They stay in the same tree, hopping about in it and shifting position but in the main keeping quiet and sitting with bent tarsi.

I don't see 62F.

1200 - I leave.

1700 - I return.

T65 - Silence.

T61 - Silence.

T64 - Silence.

1800 - I leave.

possibly *juv song*

July 9, 1957

A sunny morning after a heavy thunderstorm at 0300; breezy during the day, with high temperatures of about 85°. Present from 0730 to 1130.

T65 - Silence.

T61 - M61 sings normal regular skids, about 4 a minute for 5 minutes or more. When this series ends he sings less regularly and often, skids and a few insipids. He and 61F are together just E of the center of 2, where 61F's mildly nervous behavior indicates the young are. She calls "tsu" and stays near me. M61 shows no concern about me. Much of his series of songs is sung N of 1 in the pine field, but he returns to the place where 61F is before I go. He is staying about 12 to 15 feet up in trees of that height; she is under 10 feet. I don't see the young.

*I think -  
song  
note,  
etc*

T64 - Silence.

T66 - M66 sings 2 or 3 weak type-8's in the N-S fence row by the big maple when I arrive, and he is still there 25 feet up in the trees 20 minutes later. I don't see or hear any signs of the rest of the family.

A male sings near the big tulip tree, a moderately to poorly marked bird. His songs are weak insipids and abortive songs, some of them run together or sung

in rapid succession. My guess is that this is what happens to males that lose their females and then stay on territory for awhile, or to males that desert while the females are incubating; examples are MD4 and MD1. Molting may not have begun (none seen in this male), and song suggests the presence of some slight aggressive drive.

*Do you  
get more  
desertion  
when no ♀  
in area Va  
??*

T63 - M63 is singing normal loud chatters in the sassafras trees near the now-complete nest, staying high. I watch the nest from a distance for a few minutes, then walk up under the tree to look at it. When I get close 63F drops out and flies low to the NE, rising as she gets away and flying very far, perhaps to the extreme E end of the ridge or on across the ravine. The male doesn't follow immediately; he waits about 2 seconds after her emergence from the nest and then flies after her all the way.

*Y*

*17 ♀ (why?)*

When I'm returning from T62, M63 is singing loud frequent chatters on IV N at about the E edge of old T6. He stays some 10 to 15 feet high. I don't see 63F.

T62 - I find the family quickly because the young are now together and calling, flying to a parent when they get too impatient. I see all but 62F and B. M62

*Heidi  
detached*

skids occasionally. The young now show an inverted V of yellow on the breast, and the heads, especially the foreheads are molting. They do a lot of tail-bobbing, hop around in their trees but in general wait to have food brought to them. They still stay in the same kinds of cover (sumac and haw thickets, or within the leaf layer of small trees) and at the same low heights.

1000 - I go to the Dunn area.

TD8 - MD8 is singing skids and an insipid peculiar to him, very like a Field Sparrow's song. He covers the whole territory in time, sings often, gives no sign that yesterday's female is here.

TD6 - Silence. I can't see into the nest.

TD7 - MD7 sings in the tree row, his usual type-8's.

TD10 - D10F is on the nest.

TD13 - D13F is off the nest, which contains 3 eggs.

TD12 - Silence.

TD1 - D1F is incubating.

TD2 - MD2 skids on his territory.

TD9 - D9F is on the nest, and MD9 is skidding regularly and loudly 15 feet up in a tree top only 20 yards away. He is extremely attentive.

1130 - I leave.

page 2/13

FSP Lyon  
long

✓  
N  
✓  
✓

at least 7 or 8 sig



July 10, 1957

A hot, sunny, fairly fresh day with the temperature in the high 80's. Present from 0800 to 1200.

TDS - MDS is singing his skid and at times his Field Sparrow song. Once he goes high into the E locusts to sing. I see no female. *01 020 9*

TD6 - No developments and no sign of either of the birds.

TD11 - A male that must be MD11 is singing insipids in the center of the territory, i.e., in the low growth. He sings a normal, mid-season series; it's possible that he has a mate [no], or perhaps this is a sort of throw-back or recrudescence. *Sing his mate's*

TD10 - MD10 sings 1 or 2 of his long drawn-out skids at the sink hole at the same time MD11 sings. D10F is incubating. *Y*

TD7 - I hear nothing on the territory, but I spend a lot of time in the N field and find MD7 over in the trees on TD12. He is silently moving through them some 25 or 30 feet high. In 2 or 3 minutes he calls "check" a few times, then is silent again. I see him nearly constantly for 10 minutes. A few minutes later a male sings many type-8's in the

middle of the field and over W to the woods but well N of the spot where MD7 was. Since this is exactly TD13, I think the male must be MD13. I never get a good look at him.

TD13 - See just above. D13r is incubating.

TD12 - After I see MD7 and hear MD13, I find MD12 in the trees W of the field. He is silent, and I learn nothing from his behavior.

TD1 - The eggs are gone; the nest is intact. I see nothing of D1F, either on this territory or, in a good search, on TD2.

TD2 - MD2 (I presume) sings 2 or 3 skids when I come into this field. When I learn that D1F's nest has failed I work this territory over from 1100 to 1135 and see and hear nothing.

TD9 - D9F is on the nest and MD9 is singing loud skids within 30 yards.

TD3 - W of the path in the extreme N end of the field a male sings 1 song. I don't see him.

1200 - I leave.

*song seems  
diminished*

July 11, 1957

Another hot sunny day, 90° at the hottest but fresh and cool at night. Present from 1000 to 1200, from 1600 to 1700, and from 1830 to 2030.

TD8 - MD8 sings only a few songs while I'm within earshot, perhaps 20 in 20 minutes, in 2 short series.

TD6 - D6F is not on the nest at 1000 but is at 1200. MD6 never sings.

TD10 - D10F is off the nest when I arrive, brings food and looks into the nest. The young hatched today. I see and hear nothing of MD10.

TD11 - Silence.

TD13 - D13F is incubating. MD13 is silent.

TD12 - Silence.

TD7 - Silence.

TD2 - MD2 sings 2 or 3 skids as I arrive. He preens for 5 or 6 minutes at a height of 7 feet, changing perches once. (Are males preening more as the molt approaches? It almost seems so.) During this time he sings about 2 normal songs a minute. He is beginning to molt a little, I'm pretty sure, on the neck. He then moves on and falls silent. I search the territory for 30 minutes but see him no more. It seems clear that he hasn't formed a pair with D1F.

*preening more*

TD5 - MD5 is foraging at 2 feet about 30 yards NW of D1F's latest nest. He then flies into the big cherry and hops around in its 40-foot top for many minutes till I lose sight of him.

TD9 - D9F is on the nest. MD9 sings on the territory.

TD1 - See above under TD2.

1200 - I leave. Note that there seems to have been a big decline in song today. Although I was present at a poor time I think the silence can't be attributed just to that. Even MD8 and MD2 are scarcely singing. Sing -

1600 - I return.

TD6 - D6F is on the nest. I'm trying to decide if this is the day before incubation or the first day. Y  
MD6 is silent.

T63 at 1620 - 63F is not on the nest when I arrive, but in 10 minutes or so she arrives, silently and alone. Again, the question is the stage of the cycle with her. M63 is silent.

1700 - I leave.

1830 - I return.

TD6 - D6F is not present. I'd guess from all facts that this is the day before she begins to incubate a N

3-egg set.

T63 at 1700 - 63F isn't on the nest. I wait 20 minutes and she doesn't come. I go to T62, returning here at 2030. 63F is not on the nest; it's almost too dark to see, so she won't come. I'd guess she'll lay her third and last egg tomorrow.

T62 - I'm going to try to see if there is a place regularly used as a roost and to which the family returns each night.

All the young are within 20 feet of each other, although I never see the 4 at a time. They are about 2 to 4 feet high, behaving as they have been lately: A bird sits in a fairly well covered spot in a dogwood or in a crataegus thicket. As a parent appears (calling "sip," i.e., a contact "tsu"), the young calls the begging note. If it isn't fed it moves in its tree and may follow the parent. This establishes a new place to which food must be carried, and the young left behind will move to or beyond it, when they get impatient. Thus the family progresses.

The young call "sip" in flight and sometimes call the begging note just before flying (is it, then, a note suggesting loneliness?). There is more pecking than I have seen before in this brood; sometimes a young bird will peck incessantly for 5 or 10 seconds at objects

around it. Once 62R catches a small wooly caterpillar and twice beats it on a limb (a new act for a young bird), but it is not very well done and the caterpillar is dropped. The young have broad yellow V's on the breast, so molt is going on quite fast. The heads are sloppy. NB

I get the strong impression that most of M62's food is delivered to 62R and Y, though I can't tell whether this is chance or, if not, whether the young or the male is responsible. I'm sure feeding isn't confined to any special young bird.

Gradually the family moves NE from 1 tree or thicket to another, and at 1950 activity and noise abate somewhat. All but 1 young seem to be in a sumac stand at the woods edge; they are last seen at 2010 at about 2 to 4 feet high, and I've no doubt they roost here. One of this group comes late to the sumacs. For 2 or 3 minutes it perches 10 yards away in a haw; finally it gives begging notes and flies into the sumacs. The family covered about 60 yards in 30 minutes. Roost

I start to leave and in the NW corner of the territory, over 100 yards from the roost of the others, I scare a young bird from a bushy 7-foot dogwood where it was sitting, probably roosting since it's pretty dark. It calls and flies W toward the woods strip, and



an adult, almost surely 62F, calls "tsu" and seems to stay nearby. I hear a few more notes but lose the birds. This spot is about 100 yards from where the others are, and I'm sure that the fledgling and adult were not going to roost near the rest of the family. My presence has nothing to do with this. Note that all young were within a few yards of each other when I got here; I saw all their bands.

M62 doesn't sing.

2030 - I leave.

*Must decline in song  
since yesterday - but see P 612*

July 12, 1957

A sunny day becoming humid and mildly overcast in the middle of the afternoon; temperature in the low 90's. Present from 0800 to 1200 and from 1930 to 2030.

T63 - 63F is on the nest at 0815 and M63 is silent. I'm beginning to think he has deserted. Note that if I'm correct males don't seem to lose drive slowly but do so rather suddenly; at least the transition doesn't take many days (cf. MD1).

T61 - M61 is singing insipids S of 2 and near 3. He pays no attention to me. Suddenly just S of 2 (and near 1 or more of his young, I soon learn) he begins to call "check." The rate is about 20 times per half-minute, with 1 short burst. He doesn't display, and his calls are of normal volume. In about 1½ minutes I go toward him and see a red Screech Owl sitting 7 feet up in a thick 15-foot dogwood. It is motionless and is clearly roosting. I count 17 calls in 30 seconds, and M61 then goes ~~n~~ into 2 with a young bird and I lose him for good. This mild alarm exhibited at the Screech Owl is just what I've seen when I put up a mounted owl. The PW is aware of it but not much frightened, even when a young bird is

Y  
N13

of which  
it  
Screech  
Owl

near.

I scare the owl and it flies into 2, but I hear no reaction.

T64 - Silence.

T65 - Silence.

T66 - M66 and 66F are both attending young in the fence row just S of the big maple. I get a glimpse of 1 young but can't identify it. It's head gives the impression that molt is still going on. *the song*

I leave the area and go to Dunn.

TD8 - MD8 sings only a few skids during the morning.

TD6 - D6F is on the nest, MD6 not evident. I suspect that he has deserted. *Y*

TD7 - MD7 is singing insipids 6 feet up in the little sassafras and sumac trees at the S end of the fence row. He later seems to move around in this vicinity, his main utilized area lately, but song is frequent for only 3 or 4 minutes.

TD10 - D10F is brooding. I don't hear MD10. *Y*

TD13 - D13F is incubating, MD13 not in evidence.

TD12 - Silence.

TD11 - Silence.

TD2 - In 30 minutes or a little less I don't see or hear a PW. Note MD2's frequent songs on July 7 and

his virtual silence since D1F's nest failed. Is there a connection? All males have become very much less vocal within the last 4 or 5 days. *Sing*

TD9 - D9F is on the nest. MD9 sings 3 or 4 skids.

TD3 - Silence.

1200 - I leave.

1930 - I return. It's cloudy but seems to be clearing.

T62 - On the S arm of the territory, between the 2 nests, I hear a young bird. The first PW I see is a female, unbanded. She disappears; it seems possible that other PW's are attracted by food-calling young. I hiss and 62F flies up with food. She calls 2 or 3 loud "checks" as though in alarm, then goes to a young bird and feeds it. I'm not sure, but I think there may be only 1 young here. I hear it later but never see it. *feeding*

I watch last night's roosting area and no PW's come to it, so it seems unlikely that they return to the same place night after night. I'll check again. I don't see M62 or other young. *roosting*

2030 - I leave.

As a suggestion, can I use male behavior when a female quits after successfully raising a first brood

(the 54's, D2's, D7's, D3's) as likely to be similar or analogous to that of a male that remains after losing a female whose first brood attempts have failed? Since I have few cases of the latter involving banded birds, an analogy, if it exists, would fill a gap.

July 13, 1957

A very wet day with rain during the night and steadily from 0430 to 1200. It clears a little in the afternoon, and the rest of the day is rainless but cloudy and humid. Present with Bruce Moorhead from 0500 to 0700 and from 1300 to 1800.

TD8 - It's raining when we pass at 0530, having waited for 30 minutes till it abated a little. It's unnaturally dark. MD8 is probably singing; I'm pretty sure I hear his Field Sparrow song. I hear no calls.

TD2 - MD2 may sing a few times, again without calls so far as I can tell.

TD9 - D9F is on the nest, and she stays there through 0700 when we leave. MD9 sings 28 insipids in 10 minutes from 0610. I hear no calls, but the hour and the rain make the situation unusual. Only the very weak light makes the circumstances resemble early dawn. At 0700 with no prospect of the rain's ending and therefore none of normal attentive behavior we give up plans to watch all day.

0700 - We leave.

1300 - We return. It's hot and humid but comparatively favorable. The rain quit an hour ago.

TD8 - MD8 sings skids irregularly, at times with



usual frequency, all over the S end of the field.

TD6 - D6F is on the nest. We don't see or hear MD6.

TD7 - A male, surely MD7, sings regular but infrequent type-8's in the S N-S fence row and in the semi-wooded area to the W and N. He stays high. An unbanded male appears here twice and moves through the higher trees; no encounter develops. See below under TD8.

TD13 - D13F is on the nest and MD13 is singing loud type-8's all over the territory, as far W as the woods and N beyond the limits of my exploration of the field. I had thought he might have deserted.

TD10 - D10F is on the nest. MD10 isn't in evidence.

TD11 - Silence.

TD12 - We see and hear nothing during a pretty good search. I've covered the territory well for several days.

We then go N to the end of the N field, seeing and hearing no PW's. We do find a nest though, and I'd guess there were 2 territories here.

TD8 - In the wooded field we see a banded young D7 and a second unbanded bird that is probably its sibling. They are in full immature plumage and behave normally and without doing anything of note. Both are silent. They are about 55 days old.

We go to the old area.

T63 - In 30 minutes from 1555 we see and hear no PW's. 63F doesn't come to the nest, which must have failed.

We go to the Griffey tract.

TG1 - The male, molting a little on the nape and probably the flanks, sings step-buzzes irregularly but throughout our 45 minutes here. We find a female and keep her in sight for over 10 minutes as she makes a big circle through the territory. Her actions aren't fast, and she never carries food, but she keeps moving. The male is singing and doesn't stay near her. This female may be molting a little.

TG2 - There are a few insipids here.

1800 - We leave.

*A little more song today,  
possibly - after rain?*

July 14, 1957

A lightly overcast dawn without wind; 68°. It stays cloudy much of the morning and gets fairly dark at 1000; there is a thundershower at 1400, heavy at home but not at Dunn. Present with Moorhead from 0500 to 1230 and from 1530 to 2030; Ryckman present from 0845 to 1715.

TD8 - We hear nothing when we first listen, then pick up a few of the Field Sparrow -like songs, a variation on the insipid. They are infrequent (2 a minute), and I get no calls.

TD2 - MD2 sings about 2 insipids, gives no calls in the 2 or 3 minutes we listen. I would hear other songs if he were singing, but I hear few or none during the period before 0700. He is here though. Later in the morning when we are causing a lot of disturbance on TD3, MD2 comes over and gets down low (3 feet) and near our net.

TD9 - Bruce watches here and I move around. MD9 doesn't sing as much as usual near the nest, which, it develops, has failed with 1 egg remaining. MD9 sings insipids during the dawn and I can catch some excitement calls, but he's not near enough to tell if he's calling much. I hear 1 normal burst, at least. At

0537 Bruce sees a PW at the nest for a second or two.

*Parent failed  
nest*

We leave the territory when we discover that the nest has failed. At 1100 we return. MD9 has sung an occasional skid for the preceding 15 minutes or more. We find him (well marked) with D9F (showing a little molt on the nape, perhaps the flanks and back). The two engage in a full-scale prenesting performance, possibly the best I've seen. In it MD9 never lets the female get over 10 feet away and 95% of the time is only 2 feet or less from her, down to a minimum of 6 inches. He is always the follower. Both are silent throughout. The action for about 15 minutes takes place in 2 trees with only the briefest interludes in other trees, never over 10 yards from the 2, which are within 3 yards of each other. One is a 13-foot walnut, one an 11-foot hawthorn. The birds move back and forth in these and to and from them, keeping at or very near their tops. Once they are in a little 5-foot spreading haw for a minute. D9F never squats down to nest-shape, but she always looks as if that will be her next move. She goes over branches and forks at a regular, active, calm pace. MD9 moves quickly to follow her at each of her changes of position. He looks alert, sometimes sits with his body horizontal. About 5 different times he flies past her from limbs a few feet away to ones on the other side.

*MD 9*

Each time he passes just an inch or two above her, and at least twice she turns her bill up and toward him as though to resist him. He flies too short a distance on these occasions to let me see if he flutters. Once D9F is flying to change perches, and MD9 dives on her and drives her 10 feet before she lands on a blackberry stem; he passes on.

We withdraw when the action moves away, at least for the moment. I'm anxious not to disturb them, though we didn't seem to be doing so.

TD3 - MD3 is carrying food at 0530 and I soon find the nest, to which D3F comes in a few minutes. It is about 9 feet up in the very center of a 12-foot hawthorn, extremely well hidden.

At 0930 Moorhead and I put up a net. The adults call and respond immediately to hissing, but they see the net and won't hit it. When they go to the nest the young call so loudly that I'm sure they are well grown. We therefore take the nest down, after first shaking the tree with great violence without causing the young to do anything but sit more deeply in the nest. There are 4 young, at least 9 days old, able to flutter their wings and keep airborne for a few seconds when thrown. The adults fly into the net immediately when the young call.

*Reaction to shaking*



D3F I band yellow over silver, right, 25-66044.  
The young are blue with a color above it on the left,  
silver right. They are 25-66045 through -48, yellow,  
red, green, and blue respectively. The male I release.  
Neither adult is molting; they are well marked.

This discovery today, coupled with what I've seen  
on TD3 in the last month, yields interesting informa-  
tion.

TD6 - D6F is incubating at 0845 and 1700. MD6  
wasn't singing in the early morning and has surely  
deserted.

TD10 - For the first time in several days MD10  
is in evidence. He feeds young at the nest in both  
the morning and afternoon, and several times sings  
his long drawn-out skid. The young are in their fourth  
day.

TD11 - MD11 is here, molting on his nape, flanks,  
possibly with a missing primary on 1 or both wings.  
In addition I once get the impression that his center  
rectrices are longest which would mean that he has  
molted his tail and is replacing it (this observation  
is questionable). He sings insipids near the dirt track  
where he used to fight MD7, and, perhaps significantly,  
he gives a little burst of excitement calls here at  
1200.

4  
- 8 of 2 birds  
melt  
is clearly wrong strings.  
note call



TD12 - In a good deal of going and coming and of express searching for the D12's, we find no PW's.

TD7 - MD7 sings loud type-8's and skids along the fence rows and close to them. His songs are usually infrequent, about 2 a minute.

In the wooded field to the SW I again see a young D7 and an unbanded bird, just where they were yesterday. They are silent. The unbanded young, which if not a D7 can't be more than 5 or 10 days older than one, gathers nest material. It is 20 feet up in a dead elm, from the twigs of which hang shreds of bark fibers. It pulls them off with exactly the same head jerking motions used by an adult, at the same time backing up and tugging. Having got a large shred it holds it for 2 or 3 seconds, drops it and pulls off another. This happens about 10 or 12 times during some 2 minutes. I can detect no difference from adult female behavior during gathering.

*ggs  
gathers  
on material*

TD13 - We go to this nest at 0700 and begin an all-day watch. All the notes will follow, at the end of the others. MD13 is singing a good deal today. One of his songs is almost indistinguishable from a Field Sparrow's except for a slight rise in pitch at its end.

*Fdp from song*

1230 - We leave.

1530 - We return and go to the old study area. It rained hard at 1330 but Ryckman reports little fell on the Dunn tract.

T63 - 63F never comes to the nest, which must have failed. I'm sure M63 is gone.

T62 - All 6 birds are on the center of the territory. The young move at times to follow a parent, and, also at times, call "sip" and the begging note. Once the male skids and a young bird seems to react by calling more vociferously. One fledgling is in the E edge growth where the territory turns S, the others in the hawthorn thickets and sassafras stands nearby. Plumage has reached the point where the breast shows only a small line of gray in the center; the head and throat are molting; the belly from the legs back is whitish, with a little yellow on the extreme posterior under tail coverts. *feeding*

62Y picks at things all the time. Twice it tries a green leaf and once a small woody projection from a haw, possibly a broken thorn.

1700 - We go to the Dunn tract. The entire day's TD13 notes follow:

TD13 - Moorhead begins to watch at 0715. The female was on the nest facing N.

0729½ - D13F leaves W.

0745½ - She returns to a small elm just SE of the nest, calls "checks." She goes quickly to the nest, settles SW.

0753 - She is facing NW.

0814 - MD13 approaches from the SW, sings 53 times in the nest area, at 0827 goes SE and disappears.

0830 - D13F resettles.

0840 - D13F faces W.

0844 - D13F leaves SE.

0847 - Ryckman relieves.

TD13 at 0847 - I /Ryckman/ relieve.

0858 - D13F comes to an elm by me, feeds around me to 0900.

0900 - It is 78°.

0900 - D1F goes to the nest tree, perches E of the nest, hops up through the branches to the top, in 60 seconds flies E.

0903 - D13F comes from the E, lands low in the tree, enters the nest from the E, faces NW.

0930 - It's 79°, overcast.

0944 - D13F leaves.

0953 - She comes from the W, perches just below the nest for 10 seconds, flies E.

0955 - D13F returns directly from the E, faces NW.

There is great activity among other species here,  
near the nest tree. A male PW sings faintly to the E.

1000 - It's 79<sup>0</sup>, more overcast.

1030 - It's 78<sup>0</sup>, heavily overcast.

MD13 has sung regularly nearby to the NE. I'll  
start to count.

1033 - D13F leaves, gathers food within 3-4 feet of  
me.

1035 - MD13 has sung 17 times.

1043 - D13F circles me, goes to the nest tree, flies  
E.

1045 - She returns from the E, moves in the nest  
tree for 65 seconds. At 1047 she flies E low.

1048 - D13F returns, settles NW quickly.

1048 - MD13 begins to sing, does so continuously  
to 1100, very near the nest.

1100 - MD13 carries food to the nest tree, perches  
just above the nest. He puts his head into the nest  
several times, also seems to feed the female. After 35  
seconds he flies E.

It's 79<sup>0</sup>, unchanged.

1123 - D13F leaves.

1130 - It's unchanged.

1145 - MD13 begins to sing E; 22 to 1155.

1148 - D13F returns from the E, faces NW.

1200 - It's 81<sup>0</sup>, unchanged.

AFB

1230 - It's 84<sup>0</sup>, sunny, partly overcast.

1250 - D13F leaves low to the E.

1300 - It's 85<sup>0</sup>, sunny, the nest partly shaded.

1305 - D13F returns, perches beside and above the nest, settles NW.

1330 - It's 83<sup>0</sup>, cloudy.

1340 - D13F leaves NE.

1358 - She feeds for 2 minutes in the trees NE of the nest, near it.

1400 - She returns, hops up through the tree, settles NW.

It's 78<sup>0</sup>, heavily overcast.

1415 - It sprinkles lightly for 5 minutes.

1430 - It's 82<sup>0</sup>, sunny, clearing.

1459 - MD13 sings NW 9 times to 1504.

1500 - It's 82<sup>0</sup>, sunny.

1506 - D13F leaves NE.

1526 - She returns from the W, perches below the nest, settles N.

1530 - It's 82<sup>0</sup>, the nest shaded.

1538 - D13F leaves W.

1548 - She returns as at 1526, faces W.

1600 - It's 82<sup>0</sup>, cloudy at the moment.

MD13 has sung irregularly W.

1614 - D13F leaves W.

1630 - It's 81°, clear.

1648 - D13F returns, perches W of the nest for 30 seconds, enters and faces NW.

1700 - It's 80°. The sun is on the nest.

1715 - Nolan relieves me.

1715 - We relieve Ryckman. The female is incubating facing NE. She is quite active, preens her breast constantly while sitting low.

1719½ - D13F drops E.

1730 - It's 80°, sunny with high clouds, very humid and still, the kind of a day that can quickly storm.

1743 - D13F lands 20 feet from the nest, between it and me, 7 feet high. MD13 lands 10 feet high, 10 feet from her. Both are silent and remain so. She moves toward the nest in small hops and flights, and he stays in his original spot and watches. At 1744 she goes to the rim. He flies up to a perch 1½ feet from the nest.

1744 - She enters and faces N. He flies to the nest tree, 6 inches from her, and for 15 seconds watches her. He then leaves in silence.

1755 - D13F sits up a little higher than usual and looks around. Her bill is open 3/16-inch at the tip.

*pn 48*



1800 - It's  $80^{\circ}$ , unchanged. MD13 has not sung.

4 1815 - D13F leaves the nest. A minute later MD13 sings 4 very weak insipid steps to the W and at 1818 he leaves the vicinity (Moorhead sees him go).

1830 - D13F flies in quickly to a perch 5 inches W of and slightly below the nest. She jumps around to the E side, enters immediately and faces S sitting deep. I'm pretty sure now that last time she faced S for about 10 minutes and then turned N.

1830 - It's  $79^{\circ}$ , unchanged but thundering a little on the horizon.

1837 - D13F is facing N. Possibly she always does and I'm misled by the different depths at which she sits into thinking she turns.

10 1847 - MD13 sings 10 of his Field Sparrow-like songs in  $2\frac{1}{2}$  minutes. He's 18 yards from the nest in a little cherry. He then falls silent.

1900 - It's  $79^{\circ}$ , unchanged. MD13 sang as indicated.

1910 - MD13F sings 2 Field Sparrow songs.

1911 - D13F gets to the N rim and flies low N.

1919 - D13F returns and faces S.

1930 - It's  $77^{\circ}$ , cloudy since 1915.

MD13 didn't sing.

1937 - It rains lightly for a few minutes, stops a minute, rains again till 1955.

19 2000 - It's 72°, only lightly clouded. MD13 began an irregular series of faint skids and short chatters 2 minutes ago. He comes near the nest (15 yards) and goes on as he continues to move; 19 songs to 2006.

2002 - D13F leaves, dropping E after looking around.

2020 - D13F returns, accompanied by MD13. He lands for 1 second about a foot from the nest, then leaves. She enters. It's too dark to see any details at all. *together*

2030 - We leave. Despite the rather unpleasant weather I'd say that attentive behavior was not affected today. It's been about 55% sunny.

July 15, 1957

A partly cloudy day, hot and humid but cooling at night. Present from 0900 to 1200.

TD8 - Silence.

TD6 - D6F is absent twice when I visit the nest. N

TD7 - I think I hear MD7 once, a type-8.

TD10 - D10F feeds the young.

TD13 - D13F is on the nest. MD13 is singing skids and type-8's and covering the territory. Once a female hummingbird pesters him. He is 4 feet high and she hovers about 18 inches away and flies back and forth. Each time she passes he turns completely to face her. He moves 10 feet on and she flies right with him but then in a second goes away. *song chase*  
*Y*  
*one hummingbird*

TD3 - I stay away so that I won't disturb the parents so soon after their fright yesterday.

TD9 - MD9 is silent during my first 20 minutes here. He then sings 15 skids while moving slowly in a circle from the W sycamore E and around the territory to the starting point. There he falls silent. I concentrate on the sycamore area and see the female foraging at 20 feet in some edge growth. The male sings 20 times in the first 50 minutes I'm present. Then he begins to skid about 3.3 times a minute and in the next hour is *TD9 - song*  
*Wdy (over)*  
*did*

normally vocal. He moves back and forth from the sycamore southward along the gulley. Once I'm pretty sure I see the female carry material into an ironwood tree, but I never see her again. I'd guess she's building [error].

TD2 - As I'm leaving I find MD2 about 20 yards W of the big cherry at the boundary of TD1 and TD5; note that I once saw him with a young bird at a point W even of this: He is some 20 feet high, singing occasional short skids. Signs of molt are very noticeable on the neck, back, and flanks; and I'm nearly sure he has lost 1 or more pairs of central rectrices. *song* *molt*

1200 - I leave.

Moorhead reported seeing a banded PW tending young N of TD13 yesterday evening. I can find nothing there today. [I never do find a banded bird, although I later discover 2 different broods of young being fed by unbanded parents.]

3-4 ♂ song

July 16, 1957

A sunny morning with high clouds suggesting that it will rain later; dewy and so humid that the dew lasts all morning in the shade. Present from 0900 to 1200.

TD8 - MD8 may be singing occasionally in the wooded field, probably not.

TD6 - D6F is on the nest.

TD7 - Silence.

TD11 - Silence.

TD12 - Silence.

TD13 - D13F is incubating.

TD10 - MD10 brings food to the nest.

TD9 - I spend 2½ hours here, during which MD9 sings possibly 6 times. At the ravine, at a spot about 60 yards S of the sycamore, I see an unbanded fully immature PW. It calls "check" once or twice. In a minute MD2 appears here, and a few seconds later both D9's. MD9 chases the young bird and there are a second's squeaky fight sounds. I don't see MD2 again.

*4*  
*4*  
*sing*  
*Imm calls*  
*of 1/25 - 1/25 in*

I then go W of the ravine, to what I would have thought was TD5, and see D9F 2 more times. She is moving along low, giving no sign that she is building. More interesting, I find D5B here, fully immature and

alone. Its back is clear and unmarked, so I can't tell its sex.

TD2 - See above.

TD5 - See above.

• 1200 - I leave.

It occurs to me that a male's solicitous and sex behavior toward a female at renesting is produced simply by her being off the nest and moving about in a quiet manner, possibly by her exploring. This could explain how polygyny starts too.

77 juvs  
85 TB

Just  
came  
into  
saline?

151 sigs



July 17, 1957

A very wet day with rain from 2000 last night most of the time till noon; cloudy and humid in the afternoon. Present from 0900 to 1200 and from 1500 to 1800.

TD8 - A male sings 2 skids as I pass through. *Song*

TD2 - Nothing seen.

TD9 - Much of the time my activity is hampered by rain. MD9 sings about 7 or 8 high weak skids in 2 hours, usually singing 2 or so at a time. He is at the gully where he was on July 15 and near the big sycamore. *Song*

Once an unbanded immature bird appears and moves around calling "check" 2 or 3 times. MD9 chases it in a close pursuit. At the same time I see D9F, molting noticeably, but can't follow her because the other 2 PW's distract me. MD9 is very nervous and alert after the encounter with the immature; I don't know whether it's because of the presence of the female or the young bird. He flies from the top of 1 hawthorn to another and moves quickly. I leave with the impression that no building is going on. *Stems*

TD3 - I don't go to the territory, but once D3F flies across to near D9F's nest and I see her there.

1200 - I leave.

1500 - I return. It's cloudy but hot.

TD6 - D6F is on the nest. MD6 is now so surely gone that I won't mention it any more. ✓

TD8 - Silence.

TD7 - I hear 2 fragmentary songs at the E-W fence row where MD7 spends his time. song

TD12 - Silence. I search the territory without luck.

TD13 - D13F is incubating. MD13 sings skids and type-8's. ✓ song

TD10 - MD10 brings food both times I pass the nest. I haven't seen D10F for a day or so. MD10 sings a step-buzz. song

I walk through the N end of the N field and see a PW about 15 days old just N of TD13. It has a  $\frac{3}{4}$ -inch tail, is alone. Just W of it an unbanded male is feeding a young bird about 2 days younger than the young 62's. The male has a spot on his breast.

TD9 - I find both D9's at the boundary of their territory with TD3. D3F is there too and in a minute MD3 arrives. The 2 males have a full-fledged fight, lacking only a flutter-up to be like an early season fight. The 2 females stay behind the lines and call, although D3F's calls are probably more related to the presence of her young. 8101 wings

Details of fight behavior: Once the 2 males are

in a short flight, one repelling an encroachment by the other, and both flutter as they fly. Once there are loud fight notes, and frequently there is a burst of squeaks as contact is almost made. During the fight D9F flies across to a tree that MD3 is in, and MD9 follows. There are loud calls. A male flies at D9F, 15 feet up, but instead of yielding ground she turns on him with her bill open. Most male sorties are at about 2 or 3 feet in height. At 1 time MD9 holds a piece of food for 2 or 3 seconds. At the end MD9 begins to sing insipids; MD3 sang repeated Field Sparrow-like insipids during the fight. Both perch in little tree tops to sing at the end.

*♂ attacks*  
*♀*

D3F seems to have young near the territory line and the nest, MD3 to the N of that point.

I'd say from D9F's location and behavior that she isn't building yet.

TD3 - See just above.

I go to the old area.

T63 - Silence.

T62 - In half an hour I can't find the 62's.

1800 - I leave.

*maybe 5 ♂ sing a little*

July 18, 1957

A hot sunny day. Present from 0900 to 1200 and from 1500 to 1800.

T63 - There is no sign of PW life around the nest or the territory.

T62 - I cover the territory and all surrounding bits of habitat, walking slowly and listening for well over an hour. I can't find the 62's.

I go to the Dunn tract.

TD9 - MD9 doesn't sing. After some time I find the D9's near the sycamore, the ravine, and the hornbeam that I thought I saw the female carry to the other day. D9F feeds slowly along at from 3 to 20 feet on the outer branches of woods edge trees, MD9 keeping in the same general area (within 15 yards) and often following immediately behind her when she moves a few yards.

She is clearly molting, and nothing in her leisurely manner during the 30 minutes I see her suggests that she will reneest. I doubt if she's reneested without my seeing it, but her behavior is much more consistent with that; it's nearly impossible, however.

D5B is present and once it is within 6 inches of D9F without evoking any special response from her. D5B seems possibly to be staying near the female, but MD9 chases it 2 or 3 times and it disappears. The

19  
pre 62

harry

D5B

6 am

pursuits are silent, close, rather long. Consider the implications of MD9's aggressive behavior to D5B, for to the question of sex recognition.

D3F appears near the big sycamore once too, perhaps 80 or 100 yards from her territory. She is silent and I soon lose her for good here. Note that she seems unafraid of me when her young aren't about.

TD5 - See above under TD9.

TD3 - See above under TD9. I never go to the territory.

1200 - I leave.

Are females less attached to a spot than males, more likely to leave it after nest failure or after raising young? See the 54's last year, and try to follow the 61's, 62's, 66's, D7's, D3's this year.

1500 - I return. It is hot and sunny.

TD6 - D6F is on the nest. Y

TD10 - MD10 comes to the nest as I pass.

TD13 - D13F is incubating. I think I hear MD13. Y

I walk N of TD13, but see no males or young where I saw them yesterday, on the W side of the field. On the E side, just where Moorhead thought he saw a banded male, I see an unbanded male and possibly a second. I watch one, which seems to be on territory.

638  
7/18/57  
VN

TD3 - D3F is where she was yesterday, just up the hill from her nest about 35 yards. Clearly there are young here (she carried food yesterday), but her alarm at me makes it impossible to find them. She won't go to them, they are silent, and the haw trees are very hard to see into. MD3 is not in evidence; he seems to have separated off, presumably to tend other young.

I leave Dunn.

T65 - Silence.

T61 - I find no PW's on v in 30 minutes.

T64 - Silence.

1800 - I leave.

no song



639  
7/19/57  
VN

July 19, 1957

A clear dawn with considerable mist in some places; windless and very dewy; 64°. Present from 0450 to 1200 and from 1600 to 2030; Ryckman present from 0835 to 1740.

As I walk back to TD13 through the S field and then the N one, stopping often to listen, I hear only 1 male sing. It is MD10 or 11, probably 11. He sings 4 or 5 insipids in about 3 minutes at 0505. I hear no excitement calls.

TD13 at 0510 - D13F is on the nest, MD13 silent. She is facing N.

0539 - D13F leaves. The nest contains 1 young and egg 3.

0541 - D13F returns, feeds, in 30 seconds leaves to the N. On her first departure she flew right straight at and over me.

0545 - She returns, feeds, broods SW in 10 seconds.

0548 - A male sings a step-buzz. The location makes it probable it's MD13. He moves S and by 0556 has sung 14 times, the last songs near TD12.

0600 - It's still cloudless and calm, a little misty. It's about 68°.

A male sang 14 weak step-buzzes, as indicated.

0601 - D13F leaves.

*See  
8:40  
re birds  
etc  
641 - feed  
649 -  
L  
song*

0605 - She returns with a small green object,  
broods SW in 5 seconds.

0615 - D13F leaves and drops SW.

0619 - She feeds a small object, in 5 seconds  
drops SW.

6  
0621 - A male sings 6 Field Sparrow-like insipids  
in 2 minutes.

3  
0623 - D13F feeds a small green object, broods  
SW in 5 seconds. So far today she has always landed  
at nest level on the N side of the tree and fed from the  
E rim. Unless she does otherwise, I won't mention these  
points in my notes. N13

0630 - It's unchanged. The male has sung 3 more  
Field Sparrow songs, 9 in all.

0635 - D13F leaves to the S. In 2 minutes, I see  
her 20 yards S of the nest with food. Her delay in  
bringing it may be due to me; she calls "check" mildly  
but doesn't seem alarmed.

0639 - D13F feeds 1 item, in 5 seconds broods SW.

0649 - D13F leaves.

0  
0652 - She feeds 1 object, in 5 seconds broods SW.

0700 - It's 64°, unchanged. The sunlight is still  
filtered through a haze. I've heard no songs.

0704½ - D13F leaves to the E. Egg 3 is intact.

0710 - She returns, feeds, broods SW in 10 seconds.

The sun has been on the nest tree for 20 minutes or so, but it doesn't hit the nest.

3 0724 - A male begins short, weak insipids to the W, 3 in all. 4902

0724 - D13F drops SW. The male sings once more (3). She has been opening and closing her bill very rapidly and very slightly off and on during the last 10 minutes.

6 0728½ - D13F feeds 1 small object (as always so far), broods SW in 20 seconds. The male's insipids began about when she returned. N 13

0730 - It's 68°, unchanged. The male has sung 6 more times, 9 in all in the period, and is continuing.

25 0740 - D13F leaves. The male is still singing weakly, now close by (20 yards?). He quits after 1 more song, making 31 in the series, 25 this period.

0757 - D13F feeds 1 item, probes for 20 seconds, broods SW.

0800 - It's 70°, unchanged. The male sang 25 insipids.

D13F is beginning to molt on the nape, I'm pretty sure. She faces more W than S, and from now on I'll call it W; this won't indicate any change in her position.

0830 - It's 72°, clear; for 15 minutes there's been

a SE breeze. MD13 didn't sing.

Since 0815 D13F has been probing more than before. She also tugs very hard at times, almost stands on her head.

0832 - D13F leaves.

0834 - She returns, feeds 1, broods W.

0835 - Ryckman relieves me.

TD10 - I can see 1 young bird in the nest.

TD6 - D6F is incubating.

I go to the old area.

T65 - Silence. I look pretty carefully as I go through.

T61 - M61 is calling in the S end of 5, and since I later find him with the young birds, I think they must have been in or near 5 too. I move through 4 and 3 and finally find 61R in the W edge of 2, 6 feet high. 61R has a small wedge of juvenile gray on the breast, most of which is now yellow. The head is very ragged. It calls and moves a great deal, following M61 up into the tree tops of 2 and then from place to place there. When not moving it preens, an activity that must occupy a very large share of a young bird's time. 61R's notes are typical, but I'm impressed with the fact that it utters many little "sip" calls when the male is near (perhaps 2 a second) and that the call when the bird

*feeding details*

*calls*

643  
7/19/57  
VN  
BR

is being fed becomes much harsher and only then sounds like a very young bird's begging. I think this is usual and that I've not noted it before.

61F is present too, feeding an unbanded young; I thought the brood contained 3. I don't see the other banded bird.

Once during the feeding and noise (M61 skids some 5 times and both parents call "sip") an unbanded male flies into the top of a tree in S2. He is poorly marked. He sits very alertly, tense and horizontal, for 6 seconds, looking around, and then he seems to fly out to the S. *song -*

T66 - I cover the territory very slowly and carefully, see nothing.

1200 - I leave.

TD13 at 0835 - I [Ryckman] relieve Nolan.

0858 - D13F leaves.

0900 - It's 75°, clear.

0906 - D13F returns from the W without food, perches nearby a moment, settles W.

0920 - D13F is very restless, constantly looks into the nest.

MD13 sings faintly E 3 times.

0930 - It's 76°, sunny, the nest shaded.

0940 - D13F leaves S. The last egg isn't hatched.

0948 - She feeds from the E rim, settles W.

1000 - It's 77°, clear.

1019 - D13F leaves S.

1030 - It's 79°, unchanged. The nest will be shaded unless I say otherwise.

1031 - D1F returns from the NW, feeds (assumed) for 30 seconds from the E, settles W.

1055 - D13F leaves. The egg is unhatched.

1100 - It's 82°, unchanged.

1101 - D13F comes with food from the SE, feeds for 60 seconds, E rim, settles W.

MD13 sings far E 5 times.

1104 - D13F leaves.

1106 - She returns from the E, feeds as at 1101, in 3 minutes broods.

1113 - D13F leaves NE.

1125 - She feeds after perching 15 yards from me for 15 seconds.

1130 - It's 85°, unchanged.

1150 - D13F leaves.

1200 - It's 87°, unchanged.

1211 - D13F comes from the W, feeds.

1222 - D13F leaves.

1230 - It's 87°, unchanged.



1231 - She brings food from the W, perches 35 seconds on a branch below the nest, feeds.

1240 - D13F leaves. Since 1125 she hasn't brooded much while at the nest. She probes from the rim a lot.

1252 - She comes from the W, feeds.

1259 - D13F leaves.

1300 - It's 89°, unchanged.

1311 - D13F feeds.

1321 - D13F leaves.

1330 - It's 89°, sunny with some clouds.

1336 - D13F feeds. /I assume she stays on the rim whenever Ryckman doesn't say she broods./

1400 - It's 90°, sunny.

1411 - D13F leaves. The egg is unhatched.

1427 - D13F feeds.

1430 - It's 90°, sunny.

1431 - MD13 begins songs near the nest, sings 50 to 1508. These are the first songs from near at hand since I arrived.

1436 - D13F leaves low N.

1438 - She feeds.

1500 - It's 88°, unchanged. So far the nest has been shaded.

1504 - MD13 is singing. He is in a tree to the E,

has a larva. He flies to an elm E of the nest.

1508 - MD13 takes the food to the nest tree,  
perches on a lower branch, flies to a branch just above  
the nest. He gives the larva to D13F [which feeds].

1510 - MD13 brings food, passes it to D13F, in 10  
seconds goes E.

1516 - A chat perches 35 seconds high in the nest  
tree.

1530 - It's 87°, unchanged.

1542 - D13F leaves. MD13 begins to sing to the S;  
5 songs.

1545 - MD13 flies to the nest tree with a larva,  
perches below the nest, then hops up just above it.  
After 45 seconds in the tree he flies E with the larva.

1551 - MD13 comes and feeds, stays 45 seconds.

1554 - D13F comes from the W, feeds, in 70 seconds  
broods W.

1600 - It's 85°, unchanged.

1609 - MD13 perches above the nest, passes food to  
D13F, goes low E in 50 seconds.

D13F is very restless, perches on the rim, seems  
to eat something.

1629 - D13F leaves.

1629 - MD13 arrives from the W the instant the fe-  
male leaves. He feeds for 15 seconds.

I check. The last egg has hatched.

1630 - It's 83<sup>0</sup>, unchanged.

1644 - D13F feeds, settles.

1654 - MD13 sings E 9 times to 1657.

1657 - MD13 flies to the nest as usual, but I see no food or feeding. He goes E low in 15 seconds.

1700 - It's 82<sup>0</sup>, sunny, the nest now partly exposed to the sun.

1723 - D13F leaves.

1723 - MD13 arrives immediately, feeds, goes E low.

1729 - D13F feeds, settles.

1730 - It's 81<sup>0</sup>, unchanged.

1737 - D13F leaves.

1740 - Nolan relieves me.

1600 - I return. It's hot, humid, sunny with a few hot-weather clouds.

TD9 - I hear 3 or 4 faint insipids on the N end of TD3, later see MD9 near there at about the territory line. He sings a song like those I just heard. In a cursory search I don't find D9F.

*sing*

TD3 - I can't find either D3. Presumably D3F has moved, and I've never been sure where the male's

young are.

TD10 - The young are in the nest. I can see only 1, but there may be another, I think no more.

TD13 at 1740 - I relieve Ryckman.

3 1742 - MD13 sings 3 insipids.

F 1743 - He feeds from the E rim, leaves in 20 seconds.

1743½ - D13F arrives as MD13 leaves. She feeds 1 item from her usual perch on the E rim, in 30 seconds broods W.

1747 - MD13 begins insipids.

1753 - D13F leaves W.

10 F 1753½ - MD13 after 10 songs brings 2 items. I can't see how many birds he feeds. He stays 20 seconds.

1757 - D13F feeds. For 2 minutes she stands on the W rim and probes, once tugs. Then she broods W.

1800 - It's 81<sup>0</sup>, nearly clear, very slightly breezy on occasions. All the male's songs are mentioned.

1815 - D13F leaves and goes W.

10 F 1818 - MD13 (10 insipids, 3 minutes) feeds, perching an inch or two above and reaching down. He looks in 15 seconds, hops up and sits for 4 more, goes W. There he continues to sing, moves around near the nest, goes 16 E of it. He stops at 1822½ after 16 more insipids.

1827 - D13F feeds 1 object, probes indefinitely

from the E rim.

1830 - It's 79<sup>0</sup>, unchanged.

1840 - D13F leaves; she never brooded during her stay.

1840½ - MD13 (13 insipids since 1837) feeds, stays 10 seconds.

1846 - D13F feeds, probes, broods W at 1848. I haven't seen the number of food items except where I've said so.

1858 - A very dull unbanded female forages at nest level, 10 yards from the nest. If D13F sees, she gives no indication.

1900 - It's 78<sup>0</sup>, unchanged. MD13 may have sung 1 or 2 single extremely faint insipids not recorded above.

1902 - MD13 sings 3 insipids.

1907 - D13F leaves.

1912 - She feeds 1 oblong hard looking object, probes for 3 minutes, broods W. I think she chased another bird away from the foot of the nest tree on her return. At 1918 she seems to be facing N.

1924 - D13F leaves and goes W.

1930 - It's 76<sup>0</sup>, unchanged. The sun is going behind a sort of evening haze on the horizon.

MD13 may have sung 8 insipids at 1925, but I think

it was MD10.

1931 - MD13 begins to sing insipids within 30 yards or less of the nest.

1936½ - D13F feeds, in 1 minute broods W.

29  
F 1939½ - MD13 (29 insipids since 1931) goes, gives food to the female, himself reaches down with his bill, in 10 seconds seems to eat something, in a total of 20 seconds goes. As usual he leaned way down from a perch 2 inches above the nest.

1946 - D13F settles very deep, facing NE.

1957 - D13F leaves and flies N.

2000 - It's 72°, unchanged.

2002 - MD13 begins weak insipids a few yards from the nest.

5 F 2004 - After 5 songs MD13 takes a big caterpillar and feeds it.

2004 - D13F gives a loud "check" near me and flies fast to the nest. The male goes. I think she was frightened at the sight of him there, the reason for the call. She feeds, in 10 seconds broods E.

2012 - MD13 begins insipids nearby.

8 F 2014 - He goes, after 8, to the nest with a caterpillar. D13F rises slowly and takes it, presumably feeds it. He leaves immediately. She broods E. This is very unusual; it's quite dusky, almost too much for me to see.



2020 - I leave TD13. It's been 100% sunny, ideal for attentive behavior.

TD10 at 2030 - The female is not spending the night on the nest, an interesting indication that mere crowding of the nest is not the sole factor in determining whether she broods the last few nights.

not brooding

2030 - I leave.

There was a noisy Worm-eating Warbler in 2 on V today. It sang many loud, sputtering chickadee-like songs. It was clean and freshly molted with what seemed like a slightly short tail.

Worm eating

3 or 4 sing a little all day on MD13

July 20, 1957

A sunny morning after a night of temperatures in the 70's; breezy during the morning but calm later, hot (90°), humid. Present from 0830 to 1130.

TD8 - Silence, as always now.

TD6 - D6F is incubating.

TD10 - The young has fledged at 0845; I'm convinced there was only 1. I find it about 30 yards from the nest, a distance probably in part to be explained by the height of the nest from which it took off. It is in the N field among the very thick high weeds, about 10 inches lower than the top of the field cover. MD10 sings a step-buzz and carries food, or I'd never have found it.

*passing*

*Song*

I catch the bird and band it red right, silver over yellow left, 25-66049. It is very noisy and vigorous but neither adult is attracted by its calls, and this despite my having caught it immediately after the male fed it. I then carry it all around the territory while it calls loudly. Finally I leave it in a cage by the net. When I return 30 minutes later the female is present, and I soon catch her. I band her with silver on each leg, 25-66050 and -51.

*molt*

BD10F is molting and already lacks the white rectrices

on the left side. Contour feathers come out in my hand. She is very bold and returns to call and display as soon as I free her. I wait for 15 more minutes, hoping that the male will be attracted by the loud calling, but he never appears. DIOF calls 35 to 40 times in 15 seconds when she is not at her most excited; when really agitated she calls so rapidly that the notes run together and can't be counted. She goes into distraction display near me, especially when I move.

I then carry the cage around the territory, trying without success to get MDLO's attention. (I can only suppose he isn't here at the time.) DIOF follows me in an interesting way: She keeps to cover, moving along the fence row calling and displaying when I walk parallel to it, but staying well behind as I diverge into the open and then flying a good distance to new cover when I get near it.

Note that here in a 1-bird brood the nestling left after 10 days in the nest. Cf. cases of 2 birds leaving in 10 days. I think that 2 factors are among those affecting the nestling period, crowding in the nest and vigor of the young. When there is only 1 bird the nest isn't crowded, but the young is especially vigorous because it has monopolized the food. At a certain point

note

call take

dis dis

interesting

9 to 10

always

dis dis

Why white?

this rate of growth factor will yield in importance to that of space, which will control.

TD13 - D13F is brooding. Y

TD9 - In a rather cursory search I find nothing.

TD3 - D3F calls her usual "chick" just after I turn N along the ridge, i.e., S of the cherry tree by D2F's last nest. She has moved 150 yards, and it's clear her young are here too. MD3 is not around. All this is significant for the separate matters of division of care of certain definite fledglings, female wandering off the territory, dissolution of territory (TD2) or tolerance of invasion by females and young. [N.B. the last.] T

D3F seems no more willing to have me near.

1130 - I leave.

1.8 sing's

655  
7/21/57  
VN

July 21, 1957

A calm, cloudless dawn with the usual heavy dew;  
72°. Present from 0450 to 1100 and from 1600 to 2025;  
Ryckman present from 0845 to 1740.

As I walk very slowly to TD13 I hear no PW songs.

TD13 at 0510 - D13F is on the nest.

0520 - MD13 sings a faint insipid, repeats very  
occasionally.

0525 - D13F leaves.

0526 - She returns, feeds, broods in 10 seconds.

0528½ - D13F leaves.

0528½ - MD13 arrives 2 seconds behind the female,  
feeds, stays 10 seconds.

0533 - D13F returns, feeds, broods in 8 seconds.

0540 - MD13 arrives, and D13F leaves as he lands.  
MD13 feeds, stays 5 seconds.

0543½ - D13F returns, feeds, looks in for 15 seconds,  
broods.

0553½ - MD13 arrives and D13F leaves instantly.  
He hops up 6 inches to his feeding perch, stays 15  
seconds.

0558 - D13F feeds, probes for 1 minute, broods. SW  
(the first time I've been able to see the direction  
clearly, though I've thought it's been SW).

0600 - It's unchanged. I've heard 21 widely

P613 m  
m-d-m

dawn

long

or

or

or

21  
15

spaced insipids since I arrived; some I'm pretty sure are MD10's.

0606 - D13F leaves.

0617 - She returns, feeds, in 15 seconds broods W.

0619 - MD13 arrives without preliminary songs; he's omitted them so far today. D13F rises but stays and I think takes the food and delivers it. MD13 leaves in 20 seconds.

0630 - It's about 74°, unchanged. The sun began to shine on the nest tree at nest level 5 minutes ago.

I've heard 4 songs, 2 insipids and 2 step-buzzes, but I doubt if MD13 was the singer of all of them.

0638 - D13F leaves and flies N. She's been facing S.

0650½ - D13F feeds, broods W after probing for 1 minute.

0700 - It's 75°, unchanged.

I heard 3 insipids during the half-hour.

0707 - MD13 comes without song, gives his food to D13F and watches for 1 minute while she feeds and probes. She settles W 5 seconds after he leaves.

0720½ - D13F leaves and flies N.

0730 - It's 76°; for 20 minutes scattered high white clouds in the E have obscured the sun.



I've heard no songs.

0740 - D13F feeds 1, broods W in 1 minute.

0800 - It's 77°, sunny but with a few clouds.

I've heard no songs.

0805 - MD13 without song brings a large green caterpillar and passes it to D13F. It takes 1½ minutes to get it down a nestling, and during that period both parents reach in and deliver the food several times. MD13 then leaves, and in 20 seconds D13F broods W.

0820 - D13F leaves to the N, just as she has the last 2 times.

0830 - It's 78°, unchanged.

I've heard no songs.

0838 - D13F returns, feeds, broods W. She always lands about a foot W of the nest, a few inches below it. She probed for 1 minute before entering. So far she has sat very low. The sun has hit the nest tree nearly since its rising, but it doesn't get through to the nest in any significant degree, at least yet.

0845 - Ryckman relieves me.

TD6 - D6F isn't on the nest.

I go to the old area.

T63 - I take the nest down. It's empty.

T62 - During an hour of careful searching I see and hear no PW's.

1100 - I leave.

TD13 at 0845 - I [Ryckman] relieve Nolan. D13F  
is present.

0900 - It's 75<sup>0</sup>, sunny. Unless I say otherwise  
the nest is shaded.

0924 - MD13 arrives from the E, leaves immediately.

D13F leaves 20 seconds later.

MD13 arrives the instant she leaves, feeds for 45  
seconds, goes W.

0930 - It's 75<sup>0</sup>, unchanged.

0941 - D13F returns, hops up and feeds, remains on  
the rim.

0946 - MD13 arrives, perches above and reaches down  
and feeds the young himself, goes E in 60 seconds.

0951 - D13F settles on the nest.

0958 - D13F leaves.

1000 - It's 77<sup>0</sup>, sunny.

1017 - D13F returns from the E, feeds, stays on the  
E rim.

1023 - She settles W.

1030 - It's 79<sup>0</sup>, unchanged.

1037 - MD13 arrives, passes food to D13F (which  
feeds), goes E.

1048 - D13F leaves W.

1057 - She returns from the W, feeds, in 2 minutes broods.

1100 - It's 80°, unchanged.

1130 - It's unchanged.

1136 - D13F leaves W.

1200 - It's 83°, sunny but with the sky partly clouded.

1204 - D13F feeds, broods at 1208.

1226 - D13F leaves W.

1230 - It's 87°, sunny.

1244 - D13F feeds, settles and broods at 1253.

1256 - A chat is in the nest tree for 10 seconds.

1300 - It's unchanged.

1301 - MD13 passes food to D13F to be fed, goes immediately.

1305 - D13F leaves.

1317 - She feeds, in 3 minutes broods.

1330 - It's 89°, unchanged.

1342 - D13F leaves.

1355 - She comes from the E, feeds, settles immediately.

1359 - MD13 passes a caterpillar to D13F, flies S low.

1400 - It's unchanged.

1427 - D13F leaves.

1430 - It's 87°, with scattered clouds.

1433 - D13F feeds, stays on the rim.

2 ✓ 1445 - MD13 sings twice very weakly 15 yards from me, in 65 seconds goes and passes a larva to D13F, hops down to a branch below the nest. In 30 seconds he hops to the rim, perches beside the female.

1449 - D13F flies W low, and MD13 immediately follows.

1 ✓ 1454 - MD13 (1 song, W) perches above the nest for 5 seconds, feeds a larva, goes S immediately.

1457 - D13F feeds, stays on the rim.

1500 - It's 85°, sunny.

2 ✓ 1530 - MD13 (2 songs, 30 seconds, W) lands on a low branch, hops up in several seconds, passes to D13F, which feeds. He hops down from his branch above her and perches beside her on the rim, at 1532 leaves W.

1546 - D13F leaves.

1558 - She feeds, stays on the rim.

1600 - It's 84°, unchanged. So far the sun hasn't been on the nest since I've been here.

3 ✓ 1613 - MD13 (3 songs, 1 minute, W) passes a larva to D13F, in 30 seconds goes W.

1630 - It's 83°, unchanged.

1639 - D13F leaves W.

1655 - She feeds, stays on the rim.

1700 - It's 82<sup>0</sup>, unchanged.

1703 - MD13 (1 song) feeds as D13F stands by. He goes S in 30 seconds.

1717 - D13F leaves.

1725 - MD13 (5 songs, 3 minutes) feeds a larva, in 30 seconds flies N.

1740 - Nolan relieves me.

1600 - I return. It's still hot and sunny.

TD6 - D6F is incubating.

TD3 - D3F is about where she was yesterday, far S on the hilltop. She calls as usual all the time I'm present. A rabbit happens to cause a young bird to fly and land near me, D3(2)G. It was deep in hawthorn trees, now sits in the full, very hot sun, 2 feet up in another haw. I watch it for 10 minutes; it sits quietly, bill open, never seeking shade. It's tail is  $\frac{3}{4}$ -inch long, its body very near full size.

I then move N and find MD3 carrying food on his territory, near the big white oak and 200 yards from D3F. I'd guess there has thus been a temporary complete separation of the adults, each with its own wards.

(Cf. the 59's.)

MD3 doesn't show any alarm at me and goes about

his feeding. I can't see the young, in the center of a hawthorn. However, once it gives a squawk, and MD3 immediately goes into a full (but silent) distraction display. MD3 isn't molting noticeably, nor is D3F.

*dis dis  
or all*

TD9 - Silence. I see nothing.

TD8 - Silence, but Ryckman says a male was singing loud frequent skids at the SE corner of the territory when he arrived today.

*Sy*

TD13 at 1740 - I relieve Ryckman. D13F is not present.

1743 - D13F brings 1 green caterpillar, feeds from the NE rim, probes for 5 minutes. At 1748 she broods SW. At 1750 she sees something below her and after craning her neck drops to the foot of the nest tree. In 15 seconds she hops up to the E rim and probes.

*B*

1755 - D13F leaves and goes N. I check the nest. There are 2 young; one gapes.

1800 - It's 78°, clear, nearly calm.

1823 - D13F feeds, stays on the E rim.

1823½ - A male sings 7 insipids in 1½ minutes E of the nest.

1830 - It's 77°, unchanged.

I'll note when I hear songs.

1836 - D13F leaves the E rim and flies N.

1840 - D13F feeds, stays on the E rim poking, prob-



ing, tugging, and only rarely just looking.

1847½ - D13F leaves and flies N, pausing 1 second  
a few inches from the nest.

1852 - D13F feeds, stays on the E rim. At 1857  
she jumps down 5 inches below the nest, possibly to  
pick at something, in 8 seconds returns to the rim.

1858 - D13F leaves.

1900 - It's 77°, unchanged.

1901 - D13F feeds 1 small object, stays as usual.

Nest sanitation can't be fully observed here because  
of obstruction. NB

1904½ - MD13 without song brings a green cater-  
pillar and something else. He lands on a diagonal branch  
above the nest; his head is 4 inches above the rim. D13F  
reaches up and pulls the caterpillar loose, evidently  
without much resistance from him. He watches as she  
feeds. She raises her head 1 minute later for the other  
object. He doesn't give it to her, so she reaches up and  
takes it and feeds. He watches to 1907, flies N right  
over my head. At 1910 D13F broods. ←

1911 - D13F leaves.

1915 - She feeds a green caterpillar, stays on the  
E rim.

1917½ - D13F leaves.

1920 - MD13 without song feeds an adult insect, stays

15 seconds.

1925 - D13F feeds, stays as usual. She went directly to the nest instead of landing a few inches away as she generally does. At 1928 she broods S but keeps picking at the nest and young.

1930 - It's 74°, unchanged.

1935 - MD13 arrives and D13F leaves to the E 1 second later. He then hops up to the rim, stays 20 seconds.

1940 - D13F feeds, stays on the rim.

1944 - D13F leaves to the N.

1945½ - She feeds, stays on the E rim and probes, as always. In 2 minutes she broods SW.

1949½ - D13F leaves E.

1951½ - D13F feeds 1 white object, in 30 seconds flies N.

1956 - MD13 feeds, stays 15 seconds.

1959½ - D13F feeds, in 1 minute broods SW.

2000 - It's 71°, unchanged.

2007 - D13F leaves to the NE. It's dusky and hard to see.

2008 - D13F feeds, in 30 seconds leaves to the N.

2013 - D13F feeds, in 15 seconds broods S. At 2020 it is scarcely possible to see the nest. Only an occasional towhee and Cardinal are audible.

665  
7/21/57  
VN

2025 - I leave. It's been 99%<sup>+</sup> sunny, ideal.

2 1/2 m

July 22, 1957

A very hot humid day with a storm coming up all afternoon and breaking at about 2300. Present from 0900 to 1100 and from 1730 to 1830.

T65 - Silence.

T64 - Silence.

T61 - I finally find 61F, 61U, and 61B in the SW corner of V. I don't know where M61 and 61R are. Note that all the young are now accounted for. They have only the trace of a gap in the yellow ventral tracts. The heads are messy; the broken white eye-ring is appearing. The shoulders are not yet neat; presumably the wing *molts* coverts are still coming in.

Twice I see one fly at the other aggressively. *fly aggress*

61F is feeding actively, calling very little. A young bird flutters as it receives food. 61F may be *molts* molting a little on the flanks.

1100 - I leave.

1730 - I return. It's thundering but clearing periodically.

TD6 - The eggs are unhatched.

1830 - I leave.

667  
7/23/57  
VN

July 23, 1957

A wet day with rain all night and until 1200, clearing slowly thereafter. Present from 1330 to 1415 and from 1530 to 1545.

TD6 - I come to the tract only to check D6F's behavior. She gets back to the nest once without my seeing if she is carrying food, and later she probably doesn't carry any. The eggs are sure to hatch sometime today.

*no way to be  
sure*

July 24, 1957

A very clear fresh day with a high of 77°. Present from 1000 to 1200.

TD6 - D6F carries food to the nest, a large green caterpillar.

TD13 - The nest has 2 young. As I walk 30 yards away I see both parents with food. MD13 seems to crouch very slightly and elevate his tail a little. His wings flutter in very small quick spurts, never leaving his sides much. He looks like a female inviting copulation. All this lasts for 10 seconds and occurs when DL3F lands 6 feet from him with food. There is no other unusual behavior.

10g —  
ings of  
display  
cop

I walk very slowly around the N and E fields, seeing and hearing nothing.

TD3 - I make a careful search along the E side of the hill, without finding any PW's.

1200 - I leave.

silence



July 25, 1957

A clear, cool, very dewy dawn after a chilly night; calm; about 65°. Present from 0500 to 1245; Ryckman present from 1245 to 2030.

I walk from Dunn through all the fields, hearing no PW songs at all. The period is 0500 to 0515. *Dunn*

TD13 at 0515 - D13F is on the nest.

0523 - MD13 sings 1 insipid.

0530 - A Great Horned Owl calls.

0533 - D13F leaves.

0538 - She feeds 1 object, broods SW immediately.

0557 - D13F leaves.

0600 - It's unchanged.

0602 - MD13, after 1 weak insipid, arrives and feeds, stays 10 seconds. *or*

0602½ - D13F feeds, in 10 seconds broods SW.

0614 - D13F leaves. She may be staying on more than she would on a warm morning.

0616 - D13F feeds, in 10 seconds takes a fecal sac E.

0626½ - D13F after calling near me with a damselfly (wings and all) in her bill, goes to the nest, now carrying a big green larva too. She feeds only 1 bird, probes for 15 seconds, broods SW.

0630 - It's unchanged, about 2 degrees warmer. A very light mist around the horizon filters the sun.

0636 - D13F leaves to the W. Till now she has always come N.

0640 - D13F feeds an adult insect, in 10 seconds broods SW.

0645 - D13F leaves and goes W.

0646½ - MD13 (1 weak insipid) feeds an adult insect and a large green caterpillar in 1 delivery, leaves in 15 seconds.

0648 - D13F feeds 2 objects, 1 a green caterpillar, probably to 1 young, goes W in 10 seconds.

0651 - D13F feeds probably 2 objects, goes W in 6 seconds.

0659 - MD13 (5 weak insipids in 1½ minutes) feeds 2 green caterpillars probably to 1 young, in 10 seconds goes S with a fecal sac, I think.

0700 - It's unchanged except for a slight SE breeze and a little more warmth from the sun.

0701½ - D13F feeds a small green caterpillar, in 15 seconds broods SW.

0712½ - D13F leaves to the N.

0723 - D13F feeds probably 2 objects, goes S in 10 seconds. MD13 came to the nest tree with her and followed her away. He sat 18 inches from the nest,

evidently had no food.

0730 - It's calm, unchanged, about 70°.

0737 - D13F feeds a large green caterpillar, in  
1½ minutes broods SW.

0743 - D13F leaves and goes W.

0754 - MD13 (3 insipids) feeds an adult insect,  
probably a moth, goes S in 10 seconds.

0755 - D13F feeds, leaves in 8 seconds, hopping  
away slowly.

0800 - It's unchanged.

0802 - D13F brings a large green caterpillar, goes  
SW in 7 seconds. She came from the SW.

0814 - MD13 (1 skid, his first today) feeds a green  
larva, a brown object, possibly something else, goes S  
in 30 seconds. He came from the N.

0830 - It's breezy from the SE, warming slowly.

0834 - D13F feeds, pulls violently at something in  
the nest, broods S.

0837 - D13F leaves, dropping SW.

0847½ - MD13 (5 weak step-buzzes while perched 18  
feet high 12 yards away) feeds 2 objects, 1 a green cater-  
pillar, to 1 bird. In 10 seconds he takes a sac SW.

0852½ - D13F feeds 2 objects to 1 bird, in 10  
seconds takes a sac E.

0856½ - MD13 (silent) feeds, stays 20 seconds.

0900 - It's calm, unchanged.

2 ✓  
F 0914 - MD13 (2 step-buzzes) feeds 1 green caterpillar, goes W in 10 seconds.

0918 - D13F feeds an adult insect (or a spider), leaves after 2 minutes on the nest rim.

✓  
F Both adults land in the tree about 1 foot from and a little below the nest, then hop quickly to it. D13F feeds from the E rim as always and MD13 from the NE but apparently while perched on a little branch above the rim.

*Orig. notes show that this is a generalization - not a specific case of feeding*

✓  
F 0930 - MD13 (silent) arrives with a large object and possibly something else. He perches 2 feet away for 10 seconds before going to the nest, stays 15 seconds on the rim.

0930 - It's unchanged.

7 ✓  
F 0936 - MD13 (7 step-buzzes, weak but not really faint) feeds a green caterpillar.

0936 - D13F arrives with food, waits 5 seconds, gets to the NW rim beside MD13. He leaves 30 seconds after arriving. She stays, broods SW at 0940. She had jumped over to the E rim at 0938.

0955 - D13F leaves the nest. From time to time while on it she backed off and pulled at something in it.

1000 - It is sunny and bright despite a thin white haze very high up. It's fresh, breezy, not a hot day.

My thermometer is inaccurate in registering too low, but it may be pretty close to correct now, 70°.

1012 - D13F feeds, in 15 seconds broods W.

Neither D13 is molting noticeably yet.

1019 - D13F leaves.

1025 - D13F feeds a green caterpillar and probably something else, in 10 seconds takes a sac N.

1030 - D13F feeds 2 objects, 1 an adult insect or spider. In 1 minute she broods, facing E for the first time. This may be connected with sheltering; the sun strikes her head as she broods.

1030 - It's 72°, unchanged.

1039½ - MD13 sings 3 weak insipids.

1040 - D13F leaves.

1040 - MD13 arrives 5 seconds behind the female. He feeds, stands on the rim and probes for 2 minutes (unusual for a male), then goes SW.

A Red-tailed Hawk soars over to the S. I saw 2 Cooper's here the other day, and about a week ago at the university farm a Cooper's chased a flock of doves near a spot covered with dove feathers.

1100 - D13F feeds, in 6 seconds takes a sac N.

1100 - It's 73°, unchanged.

1113 - D13F feeds, stays on the E rim and pokes in- to the nest, At 1118 she broods W, drawing back to probe



occasionally.

6 ✓  
1126 - MD13 sings short weak insipids, 6 in 1½ minutes about 20 yards from the nest.

F ✓  
1128 - MD13 lands 2 feet from the nest. D13F leaves immediately (she was still brooding). MD13 feeds a green caterpillar, stays 2½ minutes.

1130 - It's 75°, unchanged except that if anything it's brighter.

I check the nest: 2 young.

After listening to bird song today and during the last week, I'd say the PW's song period comes to an end earlier than that of any species on the same habitat.

*song  
period*

1156 - D13F feeds a green caterpillar, stays.

3 ✓  
F ✓  
1158 - MD13 arrives (3 weak insipids), in 5 seconds hops up to the nest. D13F takes a green caterpillar from him, evidently without resistance. She feeds. He reaches in and gets a sac, and she takes it too. There seems to be a mild tugging contest which she wins. She goes S and he follows a few inches behind at 1158½.

*o*

1200 - It's 77°, unchanged.

1205½ - D13F feeds a large object, an insect or a spider. She remains on the rim till 1207, then broods SW. A little sunlight gets through to her back.



1216 - D13F leaves.

1222½ - D13F feeds, goes E in 7 seconds with a sac, I think.

1228½ - D13F feeds, in 15 seconds broods S, apparently sitting deep.

1230 - MD13 (silent) arrives and perches 4 inches above the nest. D13F reaches up for his food but can't quite make it. She reaches again, gets it, feeds, broods S sitting high. MD13 watches her for 2 minutes, goes.

1230 - It's 79<sup>0</sup>, unchanged.

1240 - D13F leaves.

Ryckman relieves me.

1245 - I leave.

TD13 at 1245 - I [Ryckman] relieve Nolan. The female isn't present.

1300 - It's 80<sup>0</sup>, sunny, the nest shaded (a fact I won't bother to mention any more).

1312 - D13F feeds, in 2 minutes goes S.

1327 - She comes from the S, stays on the rim.

1330 - It's unchanged.

1342 - D13F takes a sac NW.

1347 - MD13 comes from the W, feeds a larva from the E, in 20 seconds goes S.

1352 - D13F comes from the W, feeds, stays on the

rim.

1400 - It's 78<sup>0</sup>, unchanged.

1401 - D13F settles E.

1410 - D13F leaves W.

1415 - MD13 feeds, in 20 seconds goes with a sac.

1418 - D13F feeds, settles W in 70 seconds.

1426 - D13F leaves W.

1430 - It's 75<sup>0</sup>, unchanged.

1434 - D13F comes from the W, feeds, at 1436 settles E.

1440 - D13F leaves with a sac.

1500 - It's unchanged.

1503 - D13F feeds, in 35 seconds goes S.

1507 - D13F comes from the W, feeds, stays on the

rim.

1515 - D13F leaves W.

1528 - MD13 feeds, at 1528 goes S.

1530 - It's 74<sup>0</sup>, unchanged.

1538 - D13F feeds, stays on the rim.

1539 - MD13 begins to sing E.

1539 - D13F leaves W after 3 of his songs.

1539 - MD13 arrives just after she goes, goes to a low branch, then for 30 seconds stays E of and level with the nest, then feeds. He goes S low immediately.

1555 - D13F feeds, stays on the rim.

1600 - it's 75<sup>0</sup>, unchanged.

1605 - D13F leaves with a sac.

1618 - D13F comes from the W, feeds, goes in 2 minutes.

1629 - MD13 brings a wooly worm [sic] that looks 1/3 MD13's length. He pauses 10 seconds, goes to the rim, twice delivers the larva to the same young.

1629½ - D13F flies to a low nest tree branch. MD13 leaves. D13F feeds, stays on the rim.

1630 - It's 75<sup>0</sup>, unchanged.

1633 - D13F leaves.

1648 - D13F feeds, stays on the rim.

1659 - D13F leaves.

1700 - It's 73<sup>0</sup>, unchanged.

1716 - MD13 comes from the W, feeds, stays 20 seconds.

1720 - D13F feeds, stays on the rim.

1726 - D13F leaves.

1730 - It's 72<sup>0</sup>, unchanged.

1747 - MD13 comes with food to a tree 15 yards from me, sings twice (between me and the nest).

1748 - D13F feeds, goes in 15 seconds.

1748 - MD13 feeds (he has sung twice more, goes to the nest as soon as D13F leaves). In 30 seconds he

takes a sac W.

1800 - It's 71°. The nest is now partly in the sun.

1815 - I stand and see D13F foraging in the field to the W, calling "check." At 1818 MD13 joins her. At 1819 she has a larva. She begins to move in the general direction of the nest. I sit.

1822 - D13F feeds, stays on the rim.

1825 - D13F leaves W with a sac.

1827 - MD13 sings S 6 times to 1830.

1830 - It's 70°, [evidently unchanged].

1835 - MD13 (1 song 30 seconds ago, SE) feeds the highest a larva, goes in 20 seconds.

1849 - D13F feeds, stays on the rim.

1849 - MD13 sings, 8 times to 1855.

1851 - D13F leaves low W.

1859 - MD13 feeds, goes W in 35 seconds.

1900 - It's 69°, the sun on the nest.

1904 - D13F feeds, in 2 minutes goes N.

1930 - It's 67°, still shining on the nest.

1935 - MD13 (14 songs, E, 4 minutes) feeds, in 45 seconds goes W.

1950 - D13F feeds, in 30 seconds removes a sac.

1958 - D13F feeds, goes W in 2 minutes.

2000 - It's 61°. The sun is down.

*Please  
return*

*o*

*o*

*o*

679  
7/25/57  
BR

2005 - D13F feeds, broods W.

2030 - It's too dark to see. It's 60°.

I leave.

[The day was 100% sunny.]

July 26, 1957

A partly cloudy day. Present from 0830 to 1130.

T65 - No PW's.

T61 - 61F and all the young are together in the SW part of V, moving about 150 yards in 20 minutes and then becoming stationary in the W pine row. 61F feeds very actively; M61 never appears, but it's hard to see well. Once 61U tries to catch a sow bug as it crawls across bare ground, picks at it 6 or 7 times almost more in curiosity than as if trying to eat it.

The young stay at all heights. Their plumage is so nearly fully immature that no particular defects can be identified; they simply aren't quite neat enough yet, especially on the heads.

The most interesting thing seen is a fully immature bird that is accompanying the family, moving from 3 right along with them all the time. This seems to be not unusual, since I have other instances of it. I see no caring for the young 61's, nothing but the association with them. The presence of this bird makes it easy to see that the 61's aren't in full plumage.

I go to the Dunn tract.

TD6 - D6F isn't at the nest, which seems to have failed [error].

*feeding*  
*details*

*helping*  
*stranger attached*  
*to family*

*N*



TD13 - The young are alive, and D13F carries food as I pass.

At the NW corner of the territory a male feeds a full grown young about 35 days old. I assume the two have moved down a few yards from the N and are the birds I've been seeing N of TD13.

I then walk slowly over all the territories on the Dunn tract, see no PW's.

1130 - I leave.

*silence*

July 27, 1957

A calm, nearly dry dawn with a high thin overcast;  
66°. Present from 0500 to 1215 and from 1630 to 2020;  
Ryckman present from 0850 to 1712.

There are no PW sounds as I enter.

TD13 at 0515 - It's very dark; D13F is on the  
nest.

0529 - D13F leaves the nest.

0531 - D13F feeds, leaves in 10 seconds.

0532½ - D13F feeds, leaves in 6 seconds.

0536 - D13F feeds, leaves in 9 seconds, goes N as  
she has before this morning.

0538½ - D13F feeds, stays 1 minute, goes W.

0556 - D13F feeds a green caterpillar, possibly 2,  
stays 17 seconds.

0558½ - D13F feeds, stays 20 seconds.

0600 - The day has become lighter, but otherwise  
there is no change since dawn.

0601½ - D13F feeds, stays 16 seconds.

0606 - D13F feeds, stays 11 seconds. She is leav-  
ing in all directions. She invariably feeds from the E  
rim, and she nearly always gets there by going to a  
branch about a foot W of and below the nest and then  
crossing to the E on the N side. She hops W through  
the tree, across the nest, before leaving, so I can see

if she has a fecal sac (none today so far).

0616 - D53F feeds a spider, I think, stays 10 seconds.

0627 - D13F feeds a green caterpillar, stays 32 seconds.

0630 - It's 68<sup>0</sup>, calm, completely overcast. The clouds are high and thin, but enough to prevent any sunshine so far.

0659 - D13F feeds, stays 18 seconds.

0700 - It's 70<sup>0</sup>, unchanged.

0202 - D13F feeds, stays 7 seconds.

0708 - D13F feeds a live green caterpillar which she holds behind the head, stays 9 seconds. She sat about 15 yards S of the nest, 7 feet high in the top of a tree, for nearly a minute before she came to the nest.

0713½ - D13F feeds 2 items to 1 bird, stays 13 seconds, drops low to the W. In recent trips she has left to the W, but she has nearly always hopped once, sometimes twice, through the tree.

0719 - D13F feeds a green caterpillar and an adult insect to 1 young, stays 16 seconds, drops W, probably with a sac. She came from the tree top mentioned at 0708.

0730 - It's 72<sup>0</sup>, cloudier, still virtually without

a breeze. It is quite likely to rain.

0730½ - D13F feeds a green caterpillar and a small object to 1 bird, stays 13 seconds, comes to within 15 feet of me and looks at me calmly. The back of her neck is beginning to molt very slightly. *molt*

0733 - D13F feeds, stays 9 seconds.

0735 - D13F feeds an adult insect, stays 10 seconds. She's leaving by hopping W across the nest again, pausing 1 second before she flies.

0742½ - D13F feeds 2 large items, 1 to each young, stays 19 seconds. I think she dropped and retrieved a piece of food as she landed in the nest tree; she hopped down out of sight a moment.

0745 - D13F feeds, stays 6 seconds.

0753 - D13F feeds a green caterpillar, stays 1½ minutes.

0754 - A few drops of rain fall for a minute.

0800 - It's 72°, very gray and calm.

0807½ - D13F feeds, stays 50 seconds.

0815 - It rains very lightly for a few seconds.

0818½ - D13F feeds 2 objects, stays 70 seconds.

0830 - It's 74°. There was thunder in the W 3 minutes ago, the first today, but it's lighter and the clouds are thinner. At 0831, the sun comes through dimly and casts shadows.

0840½ - D13F feeds, in 26 seconds drops SW with a sac. I think she always has a sac when she drops, leaves more slowly when not disposing of feces.

0847 - There is a loud clap of thunder without preliminaries or any change in the relative brightness of the sky.

0849 - D13F feeds, stays 45 seconds. She may have stayed longer than she would have because some other bird lit in the nest tree and caused the tree to move. D13F didn't chase the bird.

0850 - Ryckman relieves me.

I walk slowly through the field N of TD13 but see and hear nothing.

TD11 - An unbanded molting male with all his old (?) flight feathers sings 5 full irregular spaced insipids. *Sing*  
He stays in the field cover and at that level in a sassafras for 4 minutes, seems shy. He then goes to the 9-foot top of a sassafras MD11 often sang in. I'd guess it's MD10 or MD11.

TD6 - D6F is not at the nest. *N*

I go to the old area.

T63 and T62 - I cover these territories and surrounding areas for just under 2 hours, seeing no PW's.

1215 - I leave.

TD13 at 0850 - I [Ryckman] relieve Nolan.

0854 - D13F feeds, in 35 seconds takes a sac W.

0900 - It's 73°. A slight drizzle has begun.

0904 - D13F comes from the E, feeds a larva, in 15 seconds goes N. She is silently and calmly foraging 4 feet from me.

0912 - D13F feeds, in 25 seconds goes N.

0916 - D13F comes from the NE, feeds the highest, in 15 seconds leaves.

0918 - D13F comes from the NE, feeds, in 40 seconds goes NW.

0930 - D13F feeds the highest, in 30 seconds goes W.

It's 73°, heavily overcast but not drizzling at the moment.

0933 - D13F feeds the highest, goes in 25 seconds.

1000 - It's 78°, overcast.

1003 - D13F feeds, in 2 minutes goes W.

1011 - D13F comes from the W, feeds, in 2 minutes goes W.

1015 - D13F comes from the W, perches low, hops up to the nest, feeds, in 30 seconds goes W. This is the approach she nearly always uses.

1026 - D13F feeds, stays on the E rim, probes.

1030 - She takes a sac E.



It's 74<sup>0</sup>, overcast, the breeze rising.

1031 - D13F comes with a new approach. She perches high for 15 seconds, drops and feeds a larva.

1034 - D13F leaves W.

1054 - D13F feeds, in 60 seconds goes S.

1057 - D13F feeds, in 50 seconds takes a sac W.

1100 - It's 75<sup>0</sup>, the sun for a moment shining through the overcast.

1118 - D13F feeds the highest, in 30 seconds hops up to the W, in 10 seconds goes W.

1125 - D13F feeds the highest, in 25 seconds takes a sac W.

1130 - It's 80<sup>0</sup>, overcast.

1132 - D13F comes from the W, feeds, in 20 seconds goes W.

1200 - It's 82<sup>0</sup>, overcast, the sun just visible.

1211 - D13F lands E of the nest tree, for 60 seconds moves through the trees, goes and feeds, in 30 seconds leaves.

1214 - D13F feeds the highest, goes W.

1218 - D13F comes from the W, feeds the highest, probes from the E rim, at 1220 takes a sac W.

1230 - It's 80<sup>0</sup>, overcast.

1248 - D13F feeds the highest, in 35 seconds takes a sac N.

1252 - D13F comes from the E, feeds, in 30 seconds goes W.

1300 - It's 81<sup>0</sup>, clearing in the E.

1302 - D13F feeds, stays 10 seconds.

1308 - D13F feeds, in 45 seconds takes a sac W.

1315 - A Goldfinch or yellow-throat looks into the nest, hops around in the tree several minutes, leaves S.

*GF or yth  
looks in*

1323 - D13F comes from the W, in 125 seconds goes W.

1330 - D13F feeds, stays on the E rim. At 1336 she goes W.

1343 - D13F feeds a larva, broods W. She moves about restlessly; this is the first time since I've been here that she has brooded.

1351 - D13F leaves.

1400 - It's 82<sup>0</sup>, overcast.

1419 - D13F feeds, in 70 seconds goes W.

1430 - It's 84<sup>0</sup>, still hazy, but clearing and the sun shining.

1431 - D13F feeds, at 1433 goes W.

1440 - D13F comes from the NE, feeds, at 1442 goes W.

1452 - D13F comes from the W, feeds a larva, at 1453 takes a sac W.

1500 - It's 81°; scattered clouds.

1502 - D13F comes from the W, feeds, immediately flies W.

1515 - D13F feeds a larva, in 80 seconds goes W.

1521 - D13F feeds a larva, stays on the E rim, probes.

1527 - D13F leaves W.

1530 - It's 79°, sunny.

1537 - D13F comes from the NW, feeds, stays on the rim, probes.

1541 - D13F leaves W.

1550 - D13F feeds the highest, immediately goes W.

1600 - It's 78°, cloudy.

1615 - D13F comes from the N, feeds the highest, takes a sac W immediately.

1619 - D13F comes from the W to a lower nest tree branch. In several seconds she feeds, then stays on the E rim, and probes till 1625, goes W.

1630 - It's 77°, again heavily overcast.

1632 - D13F feeds a larva, leaves immediately.

1635 - D13F comes from the NE, feeds, in 30 seconds flies W.

1637 - D13F comes from the W; after feeding she stays at the nest till 1640. She hops up above the nest, hesitates, moves on a few inches, leaves. This

is fairly typical, except that with a sac she leaves without preliminaries.

1700 - It's 77<sup>0</sup>, partly clear, intermittently sunny.

1705 - D13F comes from the N, feeds, takes a sac W immediately.

1707 - D13F comes from the W, feeds a green larva, in 110 seconds leaves.

1712 - Nolan relieves me.

1630 - I return. The sun has shone at times, but by and large it's been cloudy. It rained very lightly and briefly at 1030.

TD6 - D6F isn't present.

I walk slowly through the center of TD7 and TD12 without seeing anything.

TD13 at 1712 - I relieve Ryckman and check the nest: 2 young.

1715 - D13F feeds, stays 65 seconds, perches 25 seconds 1 foot above the nest, goes S.

1724 - D13F feeds a brown caterpillar. Stays 1 $\frac{1}{4}$  minutes.

1730 - It's 73<sup>0</sup>, nearly completely overcast, with no sunshine. Occasionally there's a light S breeze.

1733 - D13F feeds, stays 2 $\frac{1}{2}$  minutes, hops up through

the tree for 20 seconds before leaving.

1742½ - D13F feeds a green caterpillar, in 30 seconds takes a sac W.

1745 - It's thundering in the SW.

1752 - D13F feeds a green caterpillar, in 1 minute takes a sac W.

1800 - It's 73°, unchanged. The thunder has stopped.

1824 - D13F feeds, stays 45 seconds, hops up through the tree for 15 seconds, flies N.

1828 - D13F feeds a very small green caterpillar, stays 50 seconds, goes W.

1830 - It's 73°, unchanged. It looks a little more like rain perhaps.

1835½ - D13F feeds a small green caterpillar, stays 25 seconds. Many times today I've heard young birds call when she's been at the nest. I can't localize the sound, but I'm sure it comes from the nestlings. I heard it this morning too.

*calls of  
yng*

1838 - D13F feeds, stays 20 seconds.

1844 - D13F feeds, stays 13 seconds.

1846 - D13F feeds, in 22 seconds takes a sac SW.

1849 - D13F feeds, stays 40 seconds, goes W.

1853½ - D13F feeds, stays 70 seconds, goes W.

1859 - D13F feeds a small object (spider?). She



sat quietly 1 foot from the nest from 1857 on, then went to the rim and stayed 45 seconds. I wonder if the rapid feeding in the last half-hour is due to the poor light.

*more  
feeding  
light*

1900 - It's 72°, pretty gray but with the sun still visible.

1911½ - D13F feeds, stays 25 seconds, goes N.

1913 - D13F feeds, in 25 seconds takes a sac W.

1918½ - D13F feeds a small dark item, in 45 seconds goes W. I think she seldom brings more than 1 piece of food this afternoon.

*Good*

1921 - D13F feeds a dark adult insect, stays 65 seconds, goes N.

1930 - It's 70°, cloudy, with a cool breeze from the SE.

1933½ - D13F feeds a small green caterpillar, in 25 seconds goes S. The young rise up for food occasionally but are inactive otherwise, so far as I can see.

1938 - D13F feeds, stays 20 seconds. The food was reddish, but I can't see very well any more.

1944½ - D13F feeds, stays 38 seconds.

1955 - D13F feeds, stays 10 seconds.

1959 - D13F feeds, stays 40 seconds, goes W.

2000 - It's 68°, unchanged except that it's very dusky and I can't see much.

2001 - D13F feeds a small green object, stays 12



seconds, goes N.

2004½ - D13F goes to the nest (feeds?), arriving by climbing up from low in the nest tree. She probes for 2½ minutes, goes N. A young bird raised its head while she was there.

2016 - D13F goes to the nest and after 10 seconds broods W. All day bird sounds have ended and Whip-poor-wills have just begun to sing. *broods*

2020 - I go. It's been 10 or 15% sunny but the weather has been good for normal attentive behavior. MD13 never came to the nest. Either he has deserted (which I didn't expect in a male with nestlings) or died. *1 of song*

July 28, 1957

A very misty dawn, calm, about 68°. Present with Bob Quirk from 0630 to 1100, and alone from 1430 to 1500 and from 1930 to 2025.

TD13 at 0635 - D13F is not at the nest.

0639 - D13F feeds, stays 1½ minutes.

0646½ - D13F feeds, stays 40 seconds.

0648 - An adult PW and a mobile, calling young bird come to the sassafras tree near me, but I can't see them well enough to see bands (if any). Probably they're the birds N of TD13.

0652 - D13F feeds, stays 25 seconds. The young have called every time she has come.

0700 - D13F feeds, stays 2 minutes.

0704 - D13F feeds, stays 30 seconds.

0711 - D13F feeds, stays 20 seconds.

0723 - D13F feeds, stays 30 seconds, takes a sac.

0734 - D13F feeds, stays 30 seconds.

0737½ - D13F feeds, stays 1 minute. A male lands and watches for 10 seconds, perched 2 feet from the nest. (Quirk is watching at this time.)

0745 - D13F feeds, stays 25 seconds.

0747½ - D13F feeds, stays 30 seconds.

0802½ - D13F feeds, stays 33 seconds.

0808½ - D13F feeds from the NW rim, picks continuously at the young for 2 minutes, leaves. The young have not been very active; they are invisible except when being fed.

0824 - D13F feeds, stays 40 seconds. The young stretched twice while she was gone. There are intermittent calls after she leaves.

0829 - D13F feeds a large caterpillar, takes a sac W in 30 seconds.

0833 - D13F feeds, stays 20 seconds.

The sun came out 10 minutes ago.

0837 - D13F feeds, picks at the young for 2½ minutes, leaves.

We quit watching for the time being, after 2 hours.

TD10 - An unbanded female is tending a 36- to 38-day old young near the track in the middle of the territory. They may be members of the family from N of TD13; the young is of the right age. Note again the way females wander with their young.

We walk through the E and W fields, see and hear nothing.

TD13 - D13F is feeding as before, and it seems clear the young won't leave today. We watch for 30 minutes. Once there are sounds of a PW's feeding a grown young in the thicket N of us, presumably the birds from N of

TD13.

1100 - We leave.

1430 - I return to check the young D13's. They are still in the nest.

1500 - I leave.

1930 - I return. It has been partly cloudy but is nearly cloudless now.

TD13 at 1950 - D13F is away from the nest, and the young are in it.

1952½ - D13F feeds, stays 15 seconds. The young rise up high to take the food.

1953 - She feeds, stays 25 seconds.

1954 - She feeds, stays 9 seconds. I'd guess she is gathering within 15 yards of the nest.

1955 - She feeds, stays 15 seconds.

1958 - A nestling suddenly climbs out of the nest and to a twig 2 inches above it. It then goes up 3 or 4 more inches, climbing and at times opening its wings almost as if using them to climb. In 2 minutes it gets back to the rim but immediately starts up again at another point. This time it gets as much as 8 or 10 inches from the nest. It sits for 30 seconds or so at a time and teeters, then moves on.

-nest leaving

2002 - D13F feeds the nestling above the nest, does nothing to distinguish her behavior from the usual feeding. She stays 10 seconds. The young moves down a few inches.

2004 - D13F feeds the nestling about 3 inches above the nest, then sticks her head into the cavity toward the other bird. In 1 minute she leaves. The nestling descends to the rim and sits half in the nest, as best I can tell. It's getting pretty dark.

2014 - D13F feeds, stays 35 seconds. All I can see is that the nestling isn't down in the nest as it normally would be.

2019 - Whip-poor-wills begin.

2020 - D13F returns to the nest and stays. It's too dark to see her position. In view of the nestling's activity I'd guess D13F is roosting on the nest rim or only partly over the cavity. *probe*

2025 - I leave.



July 29, 1957

A wet dawn with a fine rain at times and at 0700 a normally heavy rain for 30 minutes; thereafter cloudy. Present from 0500 to 0630 and from 0800 to 1100. *dawn*

TD13 at 0515 - Although it's still very dark the young are off the nest, and I find them each about 5 to 8 feet away. They must have left the minute D13F moved off. As usual, the young call till I get near them, then fall quite silent until something, perhaps either hunger or habituation, leads them to call regularly despite my presence. D13F once goes through the shaking bathing motions while in the midst of distress at my having the young; the leaves are wet and a little rain is falling, but it's surprising to see her start. I soon catch her. *N13  
bathing while  
distressed*

I band D13F blue over silver, left leg, 25-66054. The young are green left, silver over yellow (25-66052) and red (25-66053) right.

D13F is molting; all but 2 tail feathers come out when I catch her. *molting*

0630 - I leave.

0800 - I return after the rain, go to the old study area.



699  
7/29/57  
VN

T65 - No PW's.

T61 - I cover the area carefully but see nothing.

T64 - No PW's.

T66 - No PW's during a pretty careful search.

1100 - I leave.

*W. C.*

700  
7/30/57  
VN

July 30, 1957

A hot sultry day with the temperature in the 90's.  
Present from 0830 to 1130 on the Dunn tract.

TD5 - An adult flies into and out of a big elm too quickly for me to see if it's banded. I see too an unbanded fully immature bird in the low maples near the W ravine where I saw MD2 and the D9's earlier in the month.

TD9 - An unbanded immature is on the open hillside.

TD1, 2, 3 - I cover this area with great care for about 1½ hours, moving over it many times and seeing nothing. The D3's are probably here, but they are out of sight today. I do discover an old nest at the extreme N end of the habitat, 5 feet up in a 9-foot elm. It contains a broken shell and must be the D9's' or D3's'. On second thought, this cannot have been the D3's'.

TD13 - D13F comes up and calls mildly at me when I get near her nest. She shows more alarm as I approach the trees at the point where MD12 used to be seen, so I think the young have moved that way. I don't try to find them.

D13F scratches, opens her bill quickly 4 or 5 times afterward. *scratch*

TD7 - MD7 is in the woods edge W of the W fence, about where his young went when they fledged. He is

molting, has no tail but a 1/2-inch central pair of rectrices. His head is mottled and gives the effect of his having a dark crown like a Wilson's or a female Hooded. He is silent, behaves normally and without showing any concern over me. He ranges between 6 and 20 feet, flies at times but once drops a caterpillar without flying to retrieve it.

*molting*

1130 - I leave.

July 31, 1957

A sunny, humid day with rain in the afternoon.

Present from 0900 to 1130.

T61 - After an hour or so I find 61B with 2 unbanded immature birds, in the NW corner of V. All are in full immature plumage. They move quietly within from 3 to 10 yards of each other, at all heights in the edge growth of locusts just E of the clearing. In a minute 61F appears and 61B flies to her to be fed, begging silently. 61F feeds it, and all then move E into 5 and I lose them. The young is at the end of the period of parental care.

*feeding*

T64 - No PW's.

T65 - No PW's.

I go to the Dunn area.

TD13 - I go to the place where the family was yesterday but find no PW's during a brief walk over the territory.

1130 - I leave.

*Silence*

August 1, 1957

A cloudy sultry morning with thunder and occasional light rain. Present from 0630 to 1130.

T68 - No PW's during an hour of searching.

T66 - No PW's. I cover the territory.

I go to the Dunn tract.

TD1, 2, 3, 9 - No PW's during an hour on these territories.

1130 - I leave.

August 2, 1957

A sunny morning, very hot. At 1630 it becomes threatening and at 1700 there is a very violent wind and rain storm. Present from 0930 to 1230, from 1315 to 1530, and from 1630 to 1715. Bob Quirk is with me at 1315.

T61 - No PW's.

T65 - An unbanded immature feeds tamely within 5 feet of me, 5 feet up in a cedar along the dirt road. I see no PW's with it.

I go to the Dunn tract.

TD8 - At the very entrance, by Snow's house, a male is feeding near the ground. It is molting and especially noticeable are small white patches on the wings at the coverts. It catches an insect, holds it for 3 or 4 seconds, goes N out of sight in the wooded field. I search that part of the field but see nothing else.

TD6 - By chance I drop by the nest, long ago given up, and find that it contains young. This is bound to be their last day, so I'll return and band them later today.

TD13 - No PW's.

TD10 - No PW's.

1230 - I leave.



1315 - I return with Quirk.

TD6 - The nest contains 2 young, so old [11 days] and vigorous that one escapes my cage and flies 15 yards. They would obviously have left tomorrow, their twelfth day of life.

To my further surprise today both a male and a female are caring for the young, and both come up and call at our presence. I am convinced that MD6 deserted, so the male today can only be he returned or MD8 fostering. In view of the male seen with food 200 yards SW on TD8 I think the male at the nest is pretty surely MD8. Both he and the female are unusually shy, the male so much so that we never catch him. The female I finally catch twice.

I band the female blue left, silver right, 25-66058. The young are blue with a color above it left, and silver right. One is yellow, 25-66055, and the other red, -56. I destroy band 21-66057. It looks as if I have duplicated the bands of this brood and of the second D3's.

1530 - We leave with the net still up and the young in a cage; I'm trying to get the male.

1630 - I return. It's about to storm and the thunder and lightning are violent.

TD6 - There is no change here. I release the young,

the most vigorous I think I've ever seen on a day when still in the nest. Both adults are still here, but they won't come near me. They respond some what to my hissing but stay in the trees. No displays.

1715 - I leave. It has begun to rain and the wind is so violent it blows down some trees.

There may be some correlation between the small size of late broods and the common fact of the males' desertion at this season. Note too that the 2 twelve-day broods I've found are ones the males deserted (but 60F's feeding rate may show that at least it's not a mere question of feedings).

*2 in the nest*

*silent*

NB  
*brood size*

August 3, 1957

A clear, very hot and sultry day, clouding up in mid-afternoon and raining heavily from 1800 to 2000. Present from 0930 to 1200.

TD6 - After walking over the whole territory I hear the young give a short burst of calls in the little strip of woods where I let them go yesterday evening. D6F calls when I come up.

The young will probably move, so I'll describe the situation here: There is a woods about 25 yards wide separating the big E broomsedge field from the little wooded field N of Snow's; small maples, sumac, and hawthorn dominate the latter. The nest was on the W edge of the woods, at the edge of the open E field. The young will not be likely to go into the open (cf. the D10's, D13's, D7's, and contrast the young in the W field, e.g., the D3's).

point 38

TD13 - No PW's.

TD12 - I find MD12 at the S edge of his territory, about where MD7 was a few days ago. Note the very significant fact that these males have not moved even though there is a large uniform stretch of PW habitat available. I.e., the males' staying on V isn't due to the fact that it's isolated, since the Dunn males stay even though they

aren't isolated. Note too that MD12 is the first banded male I've been able to follow after total nesting failure (unless I count M58).

MD12 is molting. His entire head, his flanks, neck, and back are sloppy looking, his head mottled like MD7's a few days ago. His tail is nearly replaced, about  $\frac{1}{4}$  inch short of its full length. The 2 center pairs of rectrices are of equal length, the outer pairs  $\frac{1}{2}$ - to  $\frac{3}{4}$ -inch shorter than this, except that the outer feathers on 1 side have evidently grown faster than those on the other and are nearly full-size.

*molt - done - 189*

MD12 is silent and spends much time preening. He is not shy, moves quietly in haws, at middle height.

*preening*

1200 - I leave.

August 4, 1957

A sunny day, clearing in the early morning. It is fresh and pleasant, temperature in the 70's. Present with Paul Davis from 0900 to 1200.

T63 - No PW's.

T62 - In a short time we find M62 at the NW corner of the territory. He flies low from 1 part of the edge to another, landing about 3 feet up in a thick stand of dwarf sumac. He then moves actively through this thicket for 5 minutes, staying between 1 and 4 feet high. He keeps well under cover and is very hard to see, but he shows no fear of us. He calls very faint "sips" on 2 occasions and once calls 6 or 7 "checks." I see no other PW near and no reason for the calls. M62 is molting and has only about 3 to 5 rectrices, one of them a white outer feather. The rest of his body is ragged looking. He doesn't respond to my hissing.

*call*

*molting*

At the SW corner of the main clearing are 62F and 62R, together to my great surprise. The young bird flies up to its mother and follows her, but I see no feeding or food carrying. Both are 15 feet up, and they move quickly.

*yg flying  
mother -  
individual  
recognize*

62F has a 1-inch tail, so she is molting ahead of the male. Possibly this is the result of her being a

*molting -  
late - yg*

young adult; cf. MD12's good progress in his molt. The rest of 62F's body is still molting. 62R is in perfect immature plumage, of course.

Pretty clearly 62F hasn't cared for her young all this time. I'd guess this is a temporary reunion, possibly involving feeding. I think too that the 62's may have got off their territory but not very far.

1100 - We go to the Dunn tract.

TD6 - D6F is tending young in the middle of the wooded field, 100 yards from where she was yesterday. She goes into display at our presence. Mild display consists of depressing the tail at an angle of about  $45^{\circ}$  and spreading it a little, opening the wings and sometimes fanning them. She calls "check" but not very excitedly. The male is not around.

*dis dis*

D6F still has all her tail feathers and is molting only very little. Compare her with D13F, whose tail came out in my hand when I caught her.

*molt*

1200 - We leave.



August 5, 1957

A sunny cool day with enough of a N breeze to make observation difficult. Present from 0930 to 1200.

TD5, 1, 2, 3, 9 - I cover these territories with great care but see only 2 PW's, both single unbanded immatures. The first is in the open brushy area along the path on TD2. It feeds low, calls "check" once or twice, flies some 20 yards or so once. The other is in the open stand of trees by the sycamore on TD9, a place where PW's seem to be seen with unusual frequency these late season days. I suspect the medium-size trees with many small openings and much edge growth provides ideal cover at this time. The PW feeds at medium height, moves continually but not especially rapidly, is silent. Gnatcatchers and titmice are nearby, but the warbler doesn't seem to associate with them.

A chipmunk is sitting quietly 8 feet up at the tip of a crataegus branch in a 12-foot tree. The tree is in the middle of TD3, in typical open territory.

*pred*

1200 - I leave.

August 6, 1957

A sunny cool day with little wind and a heavy dew in the early morning. Present from 0700 to 1000.

T65 - No PW's.

T61 - After covering V thoroughly I find all the young 61's and an additional unbanded immature moving about together. In 20 minutes or more they go from the S end of 3 to the W part of 5, in the pines. Sometimes two will be only a foot or so apart, and there are 1 or 2 very mild chases (less of this than I would have expected). They feed at all heights, from 3 to 25 feet; no preference can be detected. Occasionally there is a call note, but they are silent in the main. I never see more than 2 or 3 at once, but all are present. no sign of the parents. Perhaps by coincidence, a family of chickadees and several gnatcatchers are covering the same course as the young warblers.

T64 - No PW's.

1000 - I leave.

note that M61 seems to have quit tending the young before 61F did; cf. the 53's and probably other pairs. Would a male care for young for a longer time if there were no female? Probably not. Do males generally quit tending earlier than females?

*detached egg*  
*immature*  
*attached to*  
*61's*  
*progeny +*  
*B*

713  
8/7/57  
VN

August 7, 1957

A clear, hot, fresh day. Present from 0900 to  
1200.

TD6, 7, 8, 10, 11, 12 - I cover the whole E  
field, with attention to its edges, and most of the N  
field, without seeing a sign of a PW. I'd say that  
clearly the migration hasn't begun yet.

1200 - I leave.

August 8, 1957

A hot, sunny day. Present from 1500 to 1600.

TD6 - D6F is feeding her young at the S edge of the tree row between the E and the little wooded field. She calls "check" at me, looks no more molted than on August 4. The young are out of sight in the edge-type growth which is characteristic of the whole field. The birds are some 120 yards from the nest, 40 yards from where they were 4 days ago.

molt -  
cf same  
70 days ago

yg

1600 - I leave.

August 9, 1957

A very hot sunny day. Present from 0900 to 1200.

I spend 3 hours going most carefully over T66, T65 and the PW habitat between the 2 territories. On T66 I see an unbanded male evidently nearly through his molt. He seems poorly marked. The tail looks complete, the head still rather patchy. He is feeding steadily, quietly, and silently in the low crataegus and other edge growth in the NE corner.

T66 - See above.

T65 - No PW's.

1200 - I leave.

August 10, 1957

A hot day, sultry again after the week's fresher weather. Present from 0930 to 1200.

TD5 - MD5 is feeding silently at from 3 to 5 feet in the redbud-crataegus-maple growth by the sycamore on TD9. He is thus about 30 or 40 yards N of his territory. Note again how the males, at least, stay on or near their territories even when there is a large homogeneous stretch of habitat in which to wander. (What happens to males that desert?) I can't see MD5's plumage condition during my short glimpse of him.

TD3 - An unbanded bird, probably a poorly marked male, is feeding very quietly along the E edge of the PW habitat, staying in sumac and edge growth. He is silent, seldom gets over 3 feet high.

TD4 - A lone unbanded immature is feeding W of the fence, in low edge growth.

TD7, 12, 13 - No PW's during a brief search. A Sharp-shinned Hawk soars high overhead once.

1200 - I leave.

Note that the moon is just becoming full and the nights are clear.

*Sharp-shinned*



August 11, 1957

A very hot sultry day with clouds and thunder most of the afternoon, but no rain. Present from 1000 to 1200.

T61 - I find at least 2 unbanded immatures in the SW corner of V, and though I stay with them for 20 minutes or so they are never joined by banded birds. They stay between 5 and 25 feet, most of the time at about 15, and they seldom get out of the locust woods. They move very rapidly most of the time, keep close together, often within a foot of each other. There are 3 or 4 short chases or aggressive darts. At least twice I hear series of "check" notes at normal volume and rate but in the main they are silent. *yg calls*

My first reaction is that these birds are migrants, because they move so rapidly. However, I now think they must be 61U and the bird that attached itself to the 61's. There are no other signs of migration today, nor have I seen any PW's yet that I felt were migrating. *over*

T64 - No PW's during a careful search.

1200 - I leave.

Did 62F and MD12 molt earlier than other adults? If so, is it because they are young? See if poorly marked males have molted early in past years.

August 12, 1957

A very hot sultry morning with thunder and a heavy rain in the late afternoon. Present from 0930 to 1200.

T63 - No PW's.

T62 - During a 1½-hour search I find M62. He is feeding silently between 5 and 8 feet high at the far NE corner of his territory. He behaves normally, once flies 15 yards or so into sumacs at the edge of the woods. He has no tail, or perhaps one between ¼- and ½-inch long, and his body and head are molting. I think his <sup>greater middle coverts</sup> ~~tertiaries~~ are just coming in, giving him new but ragged wing bars. *molting*

1200 - I leave.

August 13, 1957

Hot and clear. I don't go into the field.

August 14, 1957

Hot and partly cloudy, with a light shower in the late morning. Present from 1500 to 1730.

I cover the Dunn E, N, and wooded fields with considerable care, seeing 2 PW's.

In the wooded field an immature attracts me by its loud calling. My first thought is that a young bird is being fed by an adult, but the bird is fully immature and is clearly alone. It calls irregularly and in bursts, sometimes 3, sometimes as many as 12 times in 5 seconds. There are 2 intervals of calling, each lasting about a minute, about 3 minutes apart. I see no stimulus to cause the behavior, and I'm inclined to think it is aggressive or excitement calling, not connected with food begging. The bird flies W into the E field or across it, and I lose it.

*gg h/c calling*

TD7 - MD7 is perched about 2 feet up in a little tree in the middle of the N field, near where I killed the copperhead and in a spot where I have seen him before. He feeds and behaves normally, then flies 25 yards S to the E-W fence row. Some 5 or 10 minutes later I see him feeding in the thick growth between 1 and 4 feet high there. Perhaps the mid-field spot where I first saw him is more open than usual for PW's

720  
8/14/57  
VN

at this season, although there is plenty of cover in the form of berry bushes and little elms there.

MD7 is silent. He has a full-size new tail and is still molting only on the head and neck. The only ragged looking area on him is the nape, which thus seems to undergo molt throughout the entire period of plumage renewal. (Possibly all areas of the body do this, and it is more evident on the neck because it bends so.) Very little red can be seen on MD7's back; it must be masked.

*molt*

1730 - I leave.

[Adults after molt resort to normal PW habitat again, I have found.]

*T*

August 15, 1957

Hot, dry, mostly sunny. Present from 0900 to 1200.

I cover the Dunn W field with great care, seeing MD5, 2 adult females nearly through their molts, and an immature bird.

The immature is W of the W field, in very thick weeds and brush along a damp gulley. Other birds are there, possibly all of them seeking water. The PW is silent, apparently not with others of the species.

TD5 - MD5 is near the sycamore where he was on August 10, feeding at middle height and then going up to 25 feet in a big walnut, a much more exposed position than usual for this season. He still retains most of his old tail feathers, and his whole body shows signs of molt. He is silent. *molt*

Nearby, just NW of the big cherry which is about on the corners of TD1, 5, and 9, are 2 females. Although I see them simultaneously and about 30 yards apart, I see nothing to suggest that they are associating with each other (except that the second one attracts my attention by 2 or 3 "sip" calls, the only sounds I hear). One female's tail is 1 inch short on the outer rectrices, 1/2 inch short on the next pair. *call*  
*molt*

722  
8/15/57  
VN

Her nape is molting; the wings look complete. The other bird has finished her molt except on the sides of the head and the nape; possibly her outer primaries are a little short. Both females are out in open habitat, the sort that is typical in the W field, and both are at 5 feet and under. One flies 20 yards across pretty open field.

I'd guess these are resident females, e.g., D1F and D5F.

1200 - I leave.

There is a loud thunderstorm at 2300, with a lot of rain for about an hour.



August 16, 1957

A sunny fresh day. Present from 0800 to 0930.

I go rather quickly through the E and N fields on the Dunn tract, covering the extreme N end of the Dunn field looking for the D10's and D13's. The only PW's seen in the N field are a full immature following and begging noisily from a female with a  $\frac{1}{2}$ -inch tail and a molting body. I see no feeding, but the two are together low in the field all the time, both moving actively. The young bird begs constantly, fluttering its half-spread wings and calling typical notes.

I'd guess this bird is the one I saw as a fledgling here about a month ago, just N of TD13.

0930 - I leave.

August 17, 1957

A sunny, hot, fresh day after a very light shower at 0800. Present from 1400 to 1700.

I cover the E Dunn field, the N field from TD13 on S, and the little wooded field. I see 2 PW's, MD12 and an unbanded adult male through or nearly through the molt. The whole area is searched with great care, especially the wooded field.

TD7 - The unbanded adult is feeding silently and very actively in the dense low growth of the E-W fence row where MD7 is often seen. If his molt is less than complete, it is because the head may not be perfect. The back shows little red. This might well be MD4.

TD12 - MD12 is feeding about 50 yards S of his S territorial line, about where the young D7's were when I caught them, W of the fence. He is nearly finished molting, showing a little imperfection on the head and nape; these parts aren't messy but look not quite completely patterned. *molt*

He feeds silently, stays in the fence row at first, shows no shyness toward me. After 5 minutes he flies S down the old roadway and lands in a row of hawthorns 125 yards from his territory. I leave him here, feeding 4 feet up.

1700 - I leave.

August 18, 1957

A fresh hot day. Present from 0900 to 1200.

I start to cover V from the W, meet a fully molted unbanded male, an immature or perhaps two, and M61, all in 3. In the same area are several chickadees, titmice, and gnatcatchers, and I can't help thinking that it is no accident that I so often find PW's with these other species at this season.

N13 -  
associated  
spgs

T61 - The first PW seen is the unbanded adult, which feeds silently at low and middle heights and behaves normally. The immature calls "check" a few times, feeds at the same heights as the adult, reappears several times in the edges of 3. There may be more than one present, but I think not.

call

M61 feeds between 3 and 4, in silence and at all heights. He moves a lot but not nervously or jerkily. He has finished molting everywhere except on the head and nape, which are clearly still changing but aren't messy. He will finish his molt in about 3 days, I'd guess. There are no signs that M61 is staying with other birds.

molt

T65 - In 2 slow, careful transects of the territory, no PW's.

1200 - I leave.

August 19, 1957

A clear, cool morning with considerable dew; the day is hot, but a cold front must have passed last night. Present with Bob Quirk from 0800 to 1130.

We cover the Griffey tract and all but the W field of the Dunn tract. At Griffey we see no PW's. At Dunn are the D6's, an unbanded adult female, and an immature.

TD6 - D6F, showing no more molt than when I last saw her, is feeding D6Y in the middle of the wooded field. I may hear the other young. D6Y is vociferous and follows its mother about in a tall stand of sumac. The family is only some 30 yards from where I last saw them over a week ago; they must have been in the field here despite the fact that I haven't seen them.

*molt*  
*gg*

D6Y is full-grown, and on its flanks are 1/2-inch wide tracts of yellow. I'd guess the yellow has been visible for 3 days.

(I check the bands and find that my records are correct: D6Y is silver right, blue below yellow left. So I did duplicate markings with the second D3's.)

N field - N of TD13 are an unbanded adult female

727  
8/19/57  
VN

with a nearly complete molt (tail  $\frac{1}{2}$ -inch short on the outside) and a fully immature. They are out in mid-field in the dense stand of little elms about 6 feet high. See August 16. *molt*

1130 - We leave.



August 20, 1957

A sunny, dry day after a cool night with a dew.  
Present from 0900 to 1200.

I find only MD2 and an immature in a cursory search of the E field and a very careful search of the W field.

TD2 - MD2, completely molted with the possible exception of a very few feathers on the head and face, is feeding low (1 to 6 feet) in the open in the center of his regular territory. He moves normally, doesn't go to thickets, acts as he would in June except for his silence.

Then at 1010 I hear songs and find that the singer is MD2. He is just at the N-S path on the hilltop, moving low and still in the open. The songs are faint and run together so much that there are some 40 fragments in about 4 or 5 minutes. Once there are 5 in immediate succession. Most are insipids but occasionally there is a skid or a buzz. All are whispered and none are perfect.

As I watch MD2, an unbanded immature flies up to him (as though it had heard the song and sought the singer, I'd say). It goes to within 1 foot of MD2, both birds 3 feet high; MD2 doesn't react, and both are silent. The immature eats a spittle bug. MD2 flies 10

molt

Song  
[not  
heard  
any where  
here]

ins + buzz  
released

egg goes to  
singer

spittle



feet and the other seems to follow. A minute later I see both fly a few yards together. Another minute later they are 2 feet apart, 2 feet high in a tree. I then lose them but hear a few of MD2's faint songs as I go on.

I think immatures are mildly gregarious at this season.

1200 - I leave.

↑  
immatures  
gregarious

730  
8/21/57  
VN

August 21, 1957

A hot sunny day after a cool night. Present from  
0900 to 1200.

I cover T65 and T66 with the greatest care but see  
no PW's. Nor do I see any in the strips of habitat  
along the golf course.

1200 - I leave.

August 22, 1957

A fine sunny day after a cool night with a heavy dew. Present with Ryckman from 0800 to 1200.

We cover the Dunn E and N fields very carefully, seeing D13F, D13Y, and 5 unbanded birds.

TD11 - At the edge of the shallow sink hole is an unbanded immature. It calls "check" while perched low (3 feet), in a few seconds flies out over us and lands in a little tree in the open field on TD11. As it passes over it calls "sip" several times. After a few more seconds it flies W out of sight, or perhaps into the tree row. In this flight it rises to 50 feet and flies typically, with irregular bursts of wing beats and a sort of buoyancy; movement through the air is slow.

*calls -*

*figure down*

Also in the vegetation at this sink hole is a female. She is still molting and has a  $\frac{3}{4}$ -inch tail. She moves carefully over the branches of shrubs and trees between 2 and 20 feet high, is silent.

*molts*

TD12 -13 - Out in the open part of the S end of the N field are 2 males, which we see because they engage in a close pursuit. It is silent (so far as we can tell from some distance) but is unusually prolonged for this season; the birds fly within about 3

*♂ ♂*

feet of each other and cover about 25 yards as they twist and turn rapidly only 2 to 5 feet above the ground.

When I go to look for them I first find a completely molted male feeding silently about 3 feet up, in the middle of the field. A minute later I come on a male with his tail still  $\frac{1}{4}$ -inch short at the edges, therefore rounded looking. His nape and wing coverts and perhaps his contour feathers are not quite neat yet. This bird has a spotted breast, like that of the male N of TD13. He is silently tearing at an insect cocoon, working very hard.

TD13 - Ryckman sees a molted mature female in the trees on the W edge of the field; note that he may not be able to distinguish a female from an immature.

D13F and D13Y are in the edge trees on the W side of the N field some 300 or more yards N of the nest. D13F has no tail at all, so her loss of rectrices when I banded her wasn't because new feathers were about to come in. She has an injured left leg and holds it up against her body except when she lands. Note that the leg didn't seem to be injured on the 2 occasions when I saw her after I banded her, so there is no particular reason to think that I hurt her. D13F feeds D13Y diligently despite her injury and loss of a tail; she

molt

tail

feeding

Do what? this is odd to have a delay

molt -  
N13

foot hurt

733  
8/22/57  
VN

hops and flies about as much as any molting bird. *- missing?*

D13Y stays in big trees most of the time, from 15 to 35 feet high. It follows its mother, begs in little bursts of calls, flutters its wings when fed. Its head is still gray and slightly messy, in the juvenile plumage, while its ventral tract is nearly completely yellow (it may be completely, but I think I see a slight dark spot on the center of the breast or lower belly). Only the 1 young appears during more than 15 minutes of following the D13's, so I'd guess the other has been lost in some way. *yr* *NB*

1200 - We leave.

August 23, 1957

A hot, sunny day. Present from 0900 to 1130.

I cover IV N and T62, seeing a molting male and M62.

T63 - On IV N at the E edge of old T6 is a molting PW, I think a poorly marked male. Its tail is half-grown, and its body feathers are coming in. It moves along silently and low in the rather continuous but thin edge growth, typified by stands of sumac and red osier dogwood. My guess is that this bird is M63, which came into this area fairly often earlier in the summer.

T62 - M62 is at the S tip of the territory, 8 feet up in a stand of relatively high sumac. He is nearly finished molting, with his nape, lores, auriculars messy and his flanks slightly so. His tail is almost full length; the outer feathers are  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch short. He climbs to 20 feet high in an ash, where a Blue-winged Warbler chases him 5 feet and then quits. The two move about silently in the tree, M62 never uttering any notes.

*lower*

*inc Bug*

I search for 62F but see no other PW's.

1130 - I leave.

August 24, 1957

A day of rain and threat of rain. I don't go out.



August 25, 1957

A murky early morning, clearing and turning hot at 1000. Present from 0900 to 1200.

I work very slowly over T66 and T65 and the habitat between them, seeing an unbanded male and a male whose legs I can't examine.

T66 - At 1000 a male sings some 50 chatter songs in 20 minutes as he hops slowly through the edge growth in the little pocket in the NE corner of the territory. The songs are not full volume, but they aren't whispered either; perhaps they are about half volume. Their pattern is complete, about 8 or 9 notes, and there is no running together of fragments. For a time the male calls "check" occasionally. The bird is fully molted. He stays 6 or 7 feet high or lower. Note that a male was in this rather thick growth a week or two ago; it may be M68. He responds to hissing. Males like this, clearly on the territories of other pairs, present very interesting questions. This one may be a migrant, but if he is the male of a week ago, how explain his presence?

*sings*

A male flies from the S, possibly from the big tulip tree, into the top of an oak at the N edge. I hear a "sip" as he passes over with a second bird, see him for a moment as he lands, then lose sight of him

*call*

for good.

1200 - I leave.

A Tennessee Warbler on T66 is the first migrant warbler species.

August 26, 1957

A sunny hot day. Present from 0900 to 1200.

I cover T65, T61, and T64 with great care and see no PW's.

A Canada Warbler male is on V.

August 27, 1957

A hot typical late summer day. Present with Quirk from 0900 to 1200.

We cover the wooded field and the W field, seeing the D6's and some signs of a PW migration, some 5 unbanded birds.

TD6 - In the wooded field we hear "check" calls *call* and find 2 fully molted, poorly marked males moving about very actively in the low trees and open growth. A minute or two later we see an immature. Since these birds are known not to have had territory here, it seems likely that 1 or more are migrants.

Not far on we hear D6Y begging <sup>for</sup> food and find it and its mother, near the N center of the tract. (Before we leave, 15 minutes later, they have moved NW and are just across the strip of woods from the nest, only about 30 yards or so from it.) D6F hasn't lost her tail yet, and I see clear molt only on her head. D6Y still has a gray head but its body is in immature plumage; the back is slightly messy looking. *mess* D6R never appears or calls.

D6Y behaves typically, calling and following its mother; she feeds it. More interesting, there is an unbanded fully immature bird moving with the D6's. *yg B - imm ahead*

Several times it is in the same tree as D6Y, and once it unmistakably flies straight up to D6Y and from only an inch away goes into the stance of an adult passing food. I don't actually see food given, but it may be and the behavior surely suggests that it sometimes is. *helping*

TD5 - At the usual place by the big sycamore and the thick growth along the valley we hear some 20 insipid step songs, all faint. Simultaneously we can see a molted unbanded male, definitely not the singer. I would guess it's MD5 singing. We search the area carefully and at 1100 hear songs again, still from the edge of the woods along the valley. These songs are faint and are often uttered in pairs, usually somewhat fragmentary. I find an unbanded male, presumably the same one. He calls "check" between songs at times, responds to hissing, sings for about 3 minutes. *Song*

1200 - We leave.

August 28, 1957

Another hot day. Present from 0930 to 1200.

I cover the E and N Dunn fields, seeing only 1  
FW, a male with a tail just finishing the molt and  
with a very frowsy looking head. This bird calls  
"sip" as it flies out into a little tree in the open  
part of the S end of the N field. *molt*

Note that I cover the area where Ryckman and I  
saw the D13's, but I see and hear nothing.

1200 - I leave.

August 29, 1957

A hot sunny day. Present from 0900 to 1200 .

I go through the wooded field, finding the D6's; then cover the E-W fence row between the E and N fields; then spend 2 hours in the W field concentrating on the valley and the area where MD2 should be. I see 2 immatures and probably 2 molted males but no banded birds except the D6's.

TD6 - D6F is feeding D6Y about where they were 2 days ago, on the W side of the wooded field near the fence row and the projecting woods where the nest was. D6R is clearly not with them and must be dead, nor is the unbanded immature attached to them today. D6Y is calling a lot, in frequent bursts, and D6F as usual responds to the begging and feeds it. D6Y stays under 10 feet, spending most of its time in thickets 3 to 4 feet high. (In this field the low vegetation doesn't provide high cover.) It doesn't always follow its mother but sometimes flies 10 or 15 yards on beyond her.

The plumage of D6Y will be complete within about 2 days. The nape is a little scant still and possibly the cheeks; the gray eye ring has begun to come in. D6F, surprisingly, looks as though her tail hasn't begun to



molt. Her head, neck, back, and flanks are spotty, and at least 1 left primary is gone.

TD5 - Near the big cherry and the heavy wooded growth along the ravine is a male, which flies on into the thick cover shortly after I glimpse it. It is unbanded. Thereafter I see unbanded males 3 or 4 times, but I think I'm seeing the same bird all except once. The males are silent, behave normally as they feed at low and middle heights in edge growth.

West of the little ravine in the area where the 09's once were about to build are 2 unbanded immatures. They are clearly associating with each other as they move quickly about, going N through the edge growth all the way to big sycamore.

1200 - I leave.

August 30, 1957

It has become very hot and sunny, with comfortable nights. Present from 0900 to 1200.

I spend much time in the N end of the E field and in the N field, covering all the fence rows carefully looking for the banded males. I may hear MD7, but I see only 2 unbanded adult males.

TD6 - An unbanded adult male is feeding silently in the wooded field as I enter. Note that males like this, which could be migrants, are never seen out in the open growth of the E field but are always where there is scrubby cover. This male calls "sip" and flies W across the open field.

*havior*

*call*

TD7 - I hear 2 medium-volume type-8 songs out in the field just E of the N-S fence row, but a long search fails to turn up the singer. It is probably MD7, whose song was often a type-8.

*song*

Later I see an unbanded male in the E-W fence row, but painstaking search doesn't turn up MD7 or MD12.

TD13 - I go fairly carefully through the area where Ryckman and I found the D13's, but I see and hear nothing.

1200 - I leave.

I saw a chipmunk in a tree today.

*pred*

August 31, 1957

A hot sunny day. Present with Ryckman from 0830 to 1200.

We cover all the university farm territories but see only 2 unbanded immatures.

T63 - On old T6 is an unbanded immature feeding in the rather open growth in a clearing. It stays at about 2 to 4 feet and responds immediately to my hissing, coming to within 5 feet of me. It then moves up into a little tree and in a minute calls "check" at irregular intervals. Suddenly it utters about 4 weak, rather buzzing song notes, unmistakably part of an insipid step. This is the first time I've ever heard an immature try to sing. Afterwards it goes on feeding as before, remaining silent. Conceivably my hissing may have stimulated it.

*calls  
ygg song*

T61 - As we are leaving after 2 hours here we see an unbanded immature near the pines in the SW corner of V.

1200 - We leave.

A chipmunk was sitting at the very tip of a white pine branch, about 6 feet high.

*pred*

September 1, 1957

A very hot sunny day. There is dew in the early morning, not very heavy since the nights are only moderately cool. Present from 0615 to 0700.

I cover the E Dunn field, see MD7 and 2 unbanded immatures.

TD7 - MD7 is sitting 20 feet up in the trees of the N-S fence row, and he flies down into the berries to the E, where he calls a dozen loud "check" notes. This location is the very center of his territory.

I go quickly along the E-W fence row and see an immature (no bands).

TD12 - No PW's in a quick search.

As I leave along the old road W of TD4 I see an unbanded immature, possibly associating with a Blackburnian and a few other migrant warblers here.

0700 - I leave.

September 2, 1957

No field trip. There is a thunderstorm and a heavy rain at 1630, after a very hot humid day.

*calls*

*Assoc w/ b-thru*

September 3, 1957

A hot clear day but fresh and somewhat cooler after the rain yesterday. Present with Quirk from 0830 to 1200.

We find no banded birds and hear no songs, but we see probably 5 or 6 adults and 1 immature PW. We cover the wooded field, the S end of the E field, and the W field.

TD6 - We walk through the wooded field enough to hear D6Y if it were being fed here by its mother; silence.

TD8 - An unbanded fully molted male is in the fence row trees at the SW corner of the E field. It calls "check" once or twice. *call*

TD5 - We put in over an hour here without seeing MD5. A molted male is in the heavy growth well to the S along the ravine, and across it (to the W, where the D9's were) we see a completely molted male and female feeding low and in the open (and paying no attention to each other).

TD2 - No PW's in a thorough search.

As we are leaving we see several PW's moving rapidly through the ravine that divides the E from the W field. Two are males, molted, and at least 1 other is

746  
9/3/57  
VN

immature. They seem active most of the time, as  
though they were migrants.

1200 - We leave.



September 4, 1957

A cool day that remains cloudy throughout and seems always about to rain but never does; NW wind. Present from 0900 to 1230.

I cover T62, the wooded field, and the E and N fields, seeing 4 PW's, one of them D10Y.

T62 - No PW's in a 1½-hour search.

TD6 - I cover the field well enough to hear D6Y if it were being fed; silence.

TD11 - An adult female, unbanded, is feeding at low and middle heights in the vegetation around the sink hole. She has not quite completed her molt; the nape still shows a gap when she moves her head. I'd guess this is the female Ryckman and I saw about 2 weeks ago.

TD13 - No PW's. I cover the spot where Ryckman and I saw the D13's.

TD12 - I don't see MD12, but at about this point I find a mixed flock of warblers moving S along the woods edge. In it are at least 1 male Golden-wing, a Chestnut-sided, a Blackburnian, and some 3 PW's. The time is 1150 and I follow the birds as they move very rapidly and dartingly for 10 minutes, when they suddenly pass out of sight.

*molt*

*mixed  
bird flock*

Among the flock are at least 1 male PW (molted) and perhaps as many as 3, and an immature or two. One of these is banded silver over yellow left, red right, and is DIOY. I don't think it can be a permanent member of the migrating flock; it seems likely that local birds are stimulated by warblers passing through and join them momentarily.

48 joins  
migr  
the changing  
full night?  
aggression -  
fall

There are a number of chases and pursuits between PW's and possibly between PW's and other species. I never get a look at the participants except as they dart into the woods out of sight.

1230 - I leave.

September 5, 1957

A clear morning with a heavy dew after a cold 45° night; hot and pleasant during the day, with some clouds in the afternoon. Present with Moorhead from 0700 to 1200.

We cover the Dunn areas along the E-W fence row in the vicinity of TD7, the wooded field, and the W field. We then go to V on the university farm. We see perhaps as many as 10 PW's, nearly all adult and all through their molts. Among them are MD7 and MD12. Until 0900 or a little later there is great activity, much calling "check," and general signs of a migration (probably). Thereafter it gets silent and we see nothing.

TD7 - MD7 sits 20 feet up in the trees of the N-S tree row near the D10 nest. He sings 1 loud type-8, flies out almost to the shallow sink hole and lands in the top of an 8-foot tree. We start away but in 2 minutes hear and see MD7 calling loud "checks" back at the fence row; he's at middle height. Some 10 minutes later we find MD7, an unbanded immature, and a third (only glimpsed) PW near each other in the N-S fence row near the D7's' successful nest. MD7 chases a Field Sparrow, goes into the E-W fence row at about 6 feet and feeds. He calls

*sung*

*call*

*inc FS*

"check" irregularly but often. At about this time a PW flies overhead to the N, calls "sip." MD7 seems extremely active and I would gather aggressive; he sings only once today but gives the impression that he's patrolling his territory.

*patrolling*

TD12 - At the time MD7 began to call at the fence row after returning from the sink hole, MD12 and an unbanded male to the N of him began to do so out in the N field, as if stimulated by hearing MD7. The 2 males in the field are some 20-30 yards apart; both are in the low blackberry-type growth. Their calls are "check," and the unbanded male gives 2 bursts of excitement calls. I follow MD12 W to the edge of the woods, where he sits about 20 feet high and preens. He then begins to shake his tail laterally and go through routine bathing motions. Everything is very wet with dew. In 2 minutes MD12 climbs up to about 50 feet in the top of a dead tree and goes W out of sight. It looked as if he went into the deep woods or across to the W field perhaps.

*facilitation  
of calls*

*exc calls*

*bathing*

TD2 - A female feeds along low near the path, where MD2 often is. She stays in the open about as much as a female would in mid-summer. She calls "check" at intervals, a regular loud call note. Her molt is complete.

*calls*

TD5 - A male flies into the big cherry between TD5, 1, and 9, then goes S to the lower trees along the ravine. He is unbanded. Another PW flies high to the S and lands in the top of one of the big elms. We hear 1 insipid step song, probably from the first male.

*Song*

We next go N and cover the area around the big sycamore. Here we see a male which calls "check" and 1 or 2 "sips."

*calls*

At 0900 or so activity stops.

1000 - We go to the university farm, cover the V and XII areas, without success.

1200 - We leave.

It seems possible to me that the PW's we saw in the early morning stayed higher in the trees than they did after 0800 or 0830. This is scarcely more than a hunch.

*lights*



September 6, 1957

Another cool sunny morning, not quite so dewy as yesterday. Present from 0700 to 1100.

I walk through the S end of the Dunn wooded field and the E field and cover the W field. Between 0700 and 0900 there is nearly constant PW activity, and I see possibly 20 birds, among them MD2 and D6Y. Thereafter it becomes quieter, but I continue to see PW's, till 1000.

TD6 - An unbanded adult male feeds silently beside the path in the wooded field. He then goes up to 20 feet and feeds, flies N 40 or 50 yards. His flight is fast and darting.

TD8 - In the tree row at the W side of the E field and in the little patch of growth where D8F's first nest was I run into great activity. An unbanded adult, probably a faint male, is 20 feet up in the tree row, feeding silently, then going to D8F's first nest tree. In the tree row I quickly see an unbanded immature, an unbanded male, D6Y, and another unbanded male. They are never in sight simultaneously and their flight is swirling and darting. They stay as much as 35 to 40 feet up most of the time, in the sycamores. There are a number of chases between PW's and with PW's chasing chickadees.

Aggressive  
inc chicks



Once a male flies at and hovers over D6Y, which ignores him and makes no response though the male is only about 6 inches away.

*Attack 89*

Within 10 minutes the birds have disappeared, I'm pretty sure into the big trees in the pasture just to the S. I heard no songs, only 1 or 2 "checks," and some very faint "sips."

*calls*

TD2 - An unbanded male is beside the path as I come up the hill on to the territory. It is 25 feet up. In a minute I see a male in the low open growth N of the path (MD2's usual haunts); it is probably the same bird. It flies over S of the path. Some 6 young Bluebirds fly up and the PW rather quickly flies 10 yards in the opposite direction. In 30 seconds it flies straight up to a Bluebird sitting at 10 feet in a sassafras, approaching to within 1 foot almost as if showing aggression. The Bluebird flies a few seconds later, probably to catch an insect, and the PW clearly flies at it as if pursuing. I hear bill snapping sounds, but can't say which bird made them. The PW flies on to a low tree top. In a few seconds it chases a male Cardinal, perhaps a young one, a few feet.

*one Bluebird*

*important*

*one card*

Two immatures without bands are moving in the scrubby growth on the hill top on TD2. I can hear occasional "check" and "sip" calls.

*calls*

A male sings 3 medium-volume insipids, MD2. He flies at and chases an immature a few feet. He is moving a lot, staying under 6 feet here in the scrubby growth. An unbanded male appears. I lose sight of him and of MD2. Two insipids are probably MD2's.

It is now 0830. I am at the hilltop just where the path forks in 3 directions, near the middle of TD2.

TD3 - I go on N on the hill onto TD3. An unbanded female is moving around low in the hawthorns, out in the open as in mid-summer.

TD2 - I hear "check" and excitement calls back at the big elm at the N edge of TD2. MD2 and an unbanded male are about 30 feet up in the tree, some 7 yards apart. They seem to forage, but both call and surely are observing each other. The unbanded male goes on. MD2 sings 6 insipids at medium volume.

TD9 and TD3 - I hear insipid steps to the N at about the line between TD3 and TD9 and head toward them. There may be 2 singers. I see 2 PW's in a chase, the slow, high sort often seen in spring, the birds 10 yards apart. They are silent and I lose them.

In 2 or 3 minutes 2 warblers, pretty surely PW's, engage in a high, close, fast pursuit out over TD9. A few minutes later 2 birds that may be PW's fly from the E into the big chinquapin oak by the TD9 sycamore

song  
Tott, ann

song

etc calls

song

song

chase

chase

and quickly fly on W.

A male begins insipids on TD9 and sings 10. He is unbanded and is foraging in rather dense tangles up near the D9's' last nest. He responds to my hissing and gives a few excitement calls, again probably a response to me. He calls "check" as he hops around in the brush. He seems to stay at about 6 feet.

TD5 - No PW's. I get here about when the excitement stops. To 0900 or so I'm seeing and hearing PW's about as fast as I can make notes, with one in sight nearly all the time.

TD2 - At 0945 MD2 is feeding E of the elm on his territory, out in the open and generally in low hawthorns. His right wing may possibly be drooping a little more than his left; he carries both hanging slightly at his sides, and once before this morning I thought the right one was lower.

Just as I lose sight of MD2 (because I quit watching him) an unbanded female calls "sip," lands near me, in 5 seconds flies on E out of sight.

TD3 - I search for the D3's in view of the songs that may have come from here. At 1000 I see 2 unbanded males in the hawthorns growing densely at the N end of the territory. The 2 are within a few yards of each other but are not associating; both respond immediately

*Song*

*exc calls*

*drooping wing*

*call*

to my hissing. They are silent.

1100 - I leave.

All birds seen this morning were in perfect plumage,  
with no signs of molt. Surely most of the adults were  
migrants.

September 7, 1957

A cloudy cool morning with little dew. Present with Moorhead from 0600 to 1000.

We cover V and XI, give some attention to T65, and I go over T66 alone. We see only M61 and perhaps a PW on T66.

T61 - There is none of the activity of the last 2 mornings (except that we ran into a small flock of Black-throated Greens, Bay-breasteds, and Blackburnians on T65 as we came in). It occurs to me that as the migrant PW's from the N, and perhaps warblers of other species, pass through the ranges where our resident birds are, the residents become somewhat excited, move more, and sing. Check to see if resident males have sung more when other PW's have been present. Possibly today's inactivity can be related to the cloudy weather.

We find a gray Screech Owl E of 2 in a pine. It sits 5 feet high and lets us both get within 5 feet of it.

We finally see M61 in a dogwood between 2 and 1. He flies into 2 and we lose him after 30 seconds. He is silent, completely molted.

T66 - I see a bird that is probably a PW, low in the hawthorns near the big tulip where the 66's often

NB -  
mechanical  
songs,  
often  
mimics

Screech  
Owl

molt

758  
9/7/57  
VN

were seen.

1000 - I leave.



759  
9/8/57  
VN

September 8, 1957

A sunny day with less dew after a night in the 50's.  
Present from 0800 to 1000.

I cover T62 with the greatest care, going over it  
slowly twice. I see no PW's there or while en route  
there, and no signs of any activity to speak of.

September 9, 1957

A very dark cloudy day with almost imperceptible rains 2 or 3 times; temperatures in the 60's. Present with Moorhead from 0645 to 1015.

We cover the W field and T62, seeing 5 PW's, including MD5. Most of the time there is no activity at all, and the PW's appear briefly and within a short interval.

TD2 - We spend very little time here and see nothing.

TD3 - A molted unbanded female feeds silently in a hawthorn in the open; she doesn't move rapidly.

TD5 - within about 1 minute I see an unbanded male feeding some 6 feet high in the edge growth around the sycamore, a much more well marked male (MD9?) a few yards farther on, and MD5 perched for a few seconds about 30 feet up in a woods tree to the W along the ravine. MD5 flies quickly out of sight, moving NE to the woods around the sycamore.

TD8 - An unbanded male is calling "check" out in the S end of the E field near the N-S path. He then sings 2 slightly rasping insipid songs at medium volume, moves E toward the wooded field, utters a very few excitement calls, and flies N into the woods where D6F had her last

*Song*  
*etc calls*

761  
9/9/57  
VN

nest.

T62 - No PW's.

1015 - We leave.

September 10, 1957

A gray damp morning after very light rains last night. Present from 0730 to 0930.

I cover the wooded field, where DIOY and some 5 other PW's are present, and T66, where I see 1 male.

TD8 - In the wooded field there are several Chestnut-sided Warblers in the higher growth and PW's and Magnolias in the sumacs and bushes. There are a number of PW call notes, "checks" and 1 short series of fight notes. The birds dart around too fast for me to see much, but I spot DIOY, probably 3 males, and 2 other immatures. (All birds are in complete plumage; I haven't seen one in molt for some time.) DIOY flies high into a sycamore at the SE edge of the clearing, and I lose him and the rest of the flock. Only 1 male remains, feeding silently in the low growth, very inactive by comparison with the birds just seen. These were probably migrants; they had the migrants' behavior of darting and of flying rather long distances.

Some 40 minutes later I find 2 or 3 PW's in the SW corner of the wooded field. One male chases a Magnolia, and I'm sure I hear bill-snapping during the short rapid flight. The male then climbs up to about 25 feet, from its original 3-foot level. As I watch it DIOY appears

etc. other calls

B

inc. frag  
bill snapping  
of Blackbird  
a few  
days  
ago

and attacks it. There are 6 or 7 "check" calls, and the 2 birds flutter down some 20 feet in the air. They seem to be bill to bill rather than to be kicking at each other. D10Y then flies away into the wooded field, where I find it again 10 minutes later, quietly preening and feeding some 2 feet up.

*imm  
a flock of  
flutter up  
down*

D10Y's movements are quite interesting. It seemed to be with a migrant flock last week and to be acting like a migrant. The location was very near its parents' territory (perhaps 100 or 150 yards away); today it is 1/3- to 1/2-mile from its position last week. Again today it is with migrants, and though it darts around like them it stays in the same little field for at least an hour.

*aggressive  
imm  
a flock of*

D10Y's bands are silver over yellow, left; red, right.

TD10 - See above.

T66 - An unbanded male is feeding in the low dense blackberry-type growth by the maple, very near the place the 66's frequented. It is silent. I cover the territory for 40 minutes, see nothing else.

0930 - I leave.

September 13, 1957

Ryckman present at the university farm from 0830 to 1200. No PW's.

September 14, 1957

Ryckman present on the E and N Dunn fields from 0630 to 1100. A female at the sink hole at the N end of the E field.

September 15, 1957

Ryckman present on the W Dunn field from 0630 to 1100. Two immatures at the S end of the W field.

The weather during the period I'm gone is moderate, rather cloudy and wet. The rain is steady and not violent or stormy.



September 16, 1957

A gray cloudy day after a very heavy rain yesterday at 1630; cooling as a cold front comes in, but not yet chilly. Present from 0900 to 1200.

I cover the wooded field and the W Dunn field, seeing only 1 PW, an unbanded male in the trees in the little gulley between the E and W fields. I also go briefly to TD7, seeing nothing.

September 17, 1957

A clear sunny day with a dew so heavy it drips and sounds like rain; cool, about 45°. Present with Quirk from 0700 to 1100.

We cover the wooded field, the D7-D12 area, and the W field. Present are MD7, 2 males, a female, and 2 immatures.

TD7 - MD7 is in the N-S tree row, his usual spot. He calls "check" several times from about 18 feet up in a tree, and I then lose him. Some 45 minutes later I see him again, this time in the little corner of field W of the W line of the S part of the E field, i.e., very near the place where the young D7's went after leaving the nest and where MD12 has sometimes appeared. Today an unbanded male and female are there too, feeding in the low trees about 6 feet or so high.

TD13 - In the middle of the S part of the N field, very near the successful D13 nest, a male gives a series of excitement calls. I find him in the little sassafras tree by the nest, 9 feet up. Two feet from him is an immature PW. After 20 seconds one chases the other, and the male then flies W to the E edge of the woods. Here he moves around at about 15 feet in height, singing and from time to time chasing a Magnolia Warbler. There

all

the call

aggressive  
admission

song -  
low  
loud

are about 8 songs, full-volume insipids, between 0750 and 0755, and I see some 5 or 6 short chases at the Magnolia. (Note again the possibility that male PW's sing in autumn as they are incited to aggressiveness by the presence of other birds.) The male then flies out E about 30 yards into the blackberries, where he sings to 0755. There is a second immature bird near him there, but I see nothing of note.

1100 - We leave.

768  
9/18/57  
VN

September 18, 1957

A clear, cold, dewy morning; it warms up during the day and clouds over in the evening, staying warm. Present from 0800 to 1130.

I cover T62, T65, and T61, seeing no PW's in a very careful search.

September 19, 1957

A cloudy rather warm day with a wind which hampers observation. Present from 0800 to 1130.

I cover the wooded field fairly quickly, then spend a long time in the W field. MD2 and an unbanded male are the only PW's seen.

TD2 - After a long careful search of the territory I work down to the thick growth of low trees running N and S on TD1 and TD5. Here I see MD2, feeding silently about 2 feet up. I lose him quickly as he drops down into the brush along a run-off bed for rain water. The location is perhaps 30 yards from the D1's' last nest, some 120 yards from the hilltop where MD2 is usually seen, but within the limits in which I have seen him before this summer.

TD5 - I go W and a little N of the ravine where MD5 has been seen during the late summer, finding a strip of good PW habitat that may be within the range that MD5 has been using. Present is an unbanded male feeding silently and low in typical medium-open growth, e.g., of small maples, blackberries, sassafras, etc.

1130 - I leave.

770  
9/20/57  
VN

September 20, 1957

A warm gray morning with a rain starting at 1000 and continuing periodically for the rest of the day. Present from 0800 to 1100.

I cover the wooded field, the E field, and the S end of the N field. Present are 2 unbanded males.

TD6 - A male is feeding in the low growth, calling "check" faintly. I hiss, and it either fails to respond or actually moves away, probably the latter. *cert*

TD7 - A male is feeding in the blackberries at the fence corner. It is silent.

1100 - I leave.



September 21, 1957

A warm cloudy morning with a constant threat of rain. Present with Ted Chandik from 0700 to 1100.

We cover the wooded field, where we see 2 unbanded males and 3 unbanded immatures, and the E and N fields, where we see nothing.

TD6 - In the wooded field, covered with extreme care in a vain search for D6F, we see 2 males and 3 immatures. All are feeding slowly and deliberately in the low growth such as the stands of sumac. Except for the single instance mentioned below they are separate, and there is no impression of a group of migrants. All are silent and none respond to a hiss.

Once as I watch a male, an immature flies up to within some 2 feet of it and, I think, cocks its tail slightly for a second as a female inviting copulation would do. There is no response of any sort, and the two move on after about 20 seconds together in the little tree.

*immature invites  
cop?*

TD13 - No PW's in a good search that includes the N part of the N field.

1100 - We leave.

772  
9/22/57  
VN

September 22, 1957

A morning of constant rain after a night during which several inches must have fallen. Present with Bill Ryckman from 0830 to 1030.

We cover T65 and T61, seeing no PW's and few other birds.

1030 - We leave.

September 23, 1957

A cool sunny morning, very wet with both dew and yesterday's rain. Present from 0830 to 1130.

I cover the wooded field and the E and N fields, seeing D13Y and no other PW's.

TD6 - In the wooded field D13Y (silver over yellow, right; green, left) is feeding normally, first about 4 feet up in small trees and a few minutes later 20 feet up in a walnut. This bird shows very faint but unmistakable and rather extensive red marks in the back, and it is pretty surely a male. I hear it call "check" once, faintly. *check*

D13Y is about  $\frac{1}{2}$ -mile from its nest and  $\frac{3}{4}$ -mile from where I saw it with its mother in August. It is interesting that one of the oldest birds-of-the-year I have ever seen should be here on such a late date; clearly late nests don't have their cycles accelerated. Note that D13Y was apparently alone today. I think I'd have seen its companions if there had been any.

TD13 - See above.

1130 - I leave.

September 24, 1957

A cloudless cool day with a very heavy dew and little wind. Present from 0845 to 1200.

I cover T62, the Dunn wooded field, and the habitat along the ravine between the E and W fields. Present are M62 and an unbanded adult female.

T62 - M62 is feeding silently about 18 feet up in the trees at the edge of the woods on the SE side of his territory.

Presumably I have simply overlooked M62 in my many recent unsuccessful visits here, which may explain why I've seen no banded females this fall and why I have no records of the 66's on their territory. It is conceivable that PW's leave their territories a lot and return periodically, but I think it much more likely that they are usually present and that I don't find them.

TDS - In the ravine between the E and W Dunn fields I see a PW feeding 10 feet high many yards away. It is almost surely a female, and a leg shines as though it may be banded. The bird flies before I can get close enough to see it well, and I can't find it thereafter.

1200 - I leave.

775  
9/25/57  
VN

September 25, 1957

Fair and cool, with a light wind. Present from  
0900 to 1200.

I cover T65, T66, and T61, only the last one with  
any real care. I see no PW's.

1200 - I leave.

September 26, 1957

A fair day, slightly cool in the early morning and warm later. Present from 0930 to 1200.

I cover TD2 and TD5 and spend a little time in the wooded field. Present are MD3 and a probable female, almost surely unbanded. There is a great deal of activity by migrant warblers, which are passing overhead and calling a lot all during the morning.

TD5 - Just beyond the little ravine, in the field with maple saplings, I glimpse an adult PW feeding low in the goldenrod and field cover. It is almost surely a female, and I see no bands.

At the sycamore where I've seen MD5 so often I hear an insipid *song* at 1130. After several minutes of search I find MD3 feeding there about 5 feet up in the thicket, which is now pretty open as the result of the loss of leaves by sassafras, etc. The location is some 50 yards from TD3; note that D3F appeared here when she had small young. MD3 feeds along slowly, once catches a mosquito-like fly just by reaching out as it flies by. NB-

Meanwhile the song continues, so that eventually I hear it about 11 times in 4 minutes. Several times I'm watching MD3 and see no movement of his bill when the song is heard. I think the singer must be a second male *Song - bill movement*



777  
9/26/57  
VN .

very nearby, but I can't see him. The song is medium-volume, not much off normal for an insipid.

The implications of MD3's appearance at this date are very interesting. Either I've somehow missed him for 2 months or he has returned. I judge that he raised his young nearby but not in this field, and that he may have returned some time ago without my seeing him.

TD3 - See above.

1200 - I leave.

*Leave  
+ return  
in fall -  
very likely*

September 27, 1957

A very clear morning after a cool night which must have moved some birds, including PW's, out; about 48° at 0700. Present with Chandik from 0700 to 1030.

We cover the wooded, E, and the S half of the N fields and also spend 40 minutes on the W field. There are no PW's present.

We see an immature White-eyed vireo.

1030 - We leave.

September 28, 1957

Another clear day, not quite so cool as yesterday; there is a wind, and observation conditions are poor. Present with Chandik from 0830 to 1100.

We cover T66, T65, and T61, seeing no PW's.

September 29, 1957

A sunny day, calm and much warmer than it has been during the last 2 days. Present with Ryckman from 0930 to 1230.

We cover the whole Dunn tract, seeing no PW's.

September 30, 1957

A warm but somewhat windy day with cloud cover most of the time. Present from 0900 to 1200.

I search the whole Dunn tract, with care devoted to the wooded and the W field. I find MD3.

TD3 - Just as I'm leaving I find MD3 in low trees N of the path leading down to the ravine between the E and the W fields. I.e., he is about 50 yards E of the hill top and perhaps 100 yards from his territory off to the N of his location today. It's about 200 yards from the sycamore where I found him last.

There are other birds in the vicinity, I would guess migrant warbler species and chickadees and titmice. MD3 sings a faint insipid song, not quite perfect, and after about 10 seconds disappears in the woods trees beside the path.

1200 - I leave.

780  
10/1/57  
VN

October 1, 1957

A sunny very warm and calm day. Present from 0830 to 1115.

I cover the wooded, E, and N fields and see a female and perhaps hear a male PW. The female is at the shallow sink hole in the N end of the E field, feeding in the field cover right beside it and then low in the trees that grow in it. I'd guess this is D11F; almost surely it's the female that I see nearly every time I take the time to search this spot. She is silent.

Near the N end of MD10's fence row I hear 2 faint notes that I think a male PW uttered. I look all along on both sides of the tree row and in the S end of the N field, but careful work turns nothing up.

There is an adult White-eyed Vireo in the wooded field, a chat in the woods at the edge of the N field.

*chat*

1115 - I leave.

October 2, 1957

Another calm, very warm sunny day. Present from 0800 to 0930.

I start to work the wooded field and find D6F, so I go on and look quickly at the usual spots in the E and N fields.

TD6 - D6F is feeding very slowly and silently in the wooded field, first at about 10 feet and then up to 20. The spot is just E of and next to the tree row that divides the E and wooded fields, a little S of the half-way point of the tree row's length. This is perhaps 80 or 100 yards from her last nest and is well within the area she frequented with her young. I think she may drop W into the blackberries of the E field when I lose her.

Very interestingly D6F still shows a few signs of molt. It is possible that her plumage is not quite neat yet, and I can clearly see several feather sheaths on her crown and nape. *molt*

This is an important record and leads me to believe that females probably don't behave differently from males at this season (cf. the female found yesterday). Possibly females that bring off their young late in the summer stay longer than others. Or, perhaps females

782  
10/2/57  
VN

leave after molting; thus one completing the molt in August might leave then. My other records may throw light on this hypothesis.

0930 - I leave.



783  
10/3/57  
VN

October 3, 1957

A windy day, warm when the sun shines but less so than it has been the last 3 days; cloudy in the afternoon. Present from 0815 to 1045.

I cover T62 and T61, seeing nothing. Observation is much hampered by the wind, however.

covered full a.  
relationships  
between molt date  
& last sighting  
date? -

Long.

between molt &  
egg or nesting?

October 4, 1957

A fine sunny day with a N breeze; cool at night and till mid-morning. Present with Chandik from 0730 to 1030.

We cover the W field carefully and the E field rather quickly, finding MD3.

TD3 - In the center of the territory (from N to S), between the big white oak and the sycamore and only a few yards from the last nest, MD3 is feeding. We see him first about 20 feet up in the woods edge, then lose him for about 5 minutes. Once I think I hear a few notes of an insipid song. (There are many Ruby-crowns, Tennessees, etc., around.) Then MD3 flies out into the field and moves through the scattered trees at about 4 feet. Once a thrasher seems to attack him, and he yields and flies on. Immediately afterwards he calls "check" about 6 or 7 times rather loudly. He continues to forage along normally, and we leave him.

*thrasher*  
*calls*

1030 - We leave.

785  
10/5/57  
VN

October 5, 1957

Another fine day, like yesterday. Present from 0900 to 1130.

I search T66, T65, and T61, seeing no PW's. I do see 2 Orange-crowns; I saw 2 on September 30 on the Dunn tract.

October 6, 1957

The weather is unchanged. Present with Ryckman from 0800 to 1000.

We search T62 and the wooded Dunn field, seeing nothing.

October 7, 1957

Still warm and sunny. Present from 0830 to 1030.

I cover the wooded, E, and N fields and see no PW's.

October 8, 1957

It's unchanged. Present from 0830 to 1100.

I cover the W Dunn field, see no PW's. It has become so autumn-like that I'd be surprised to see a PW now.

An immature White-eyed Vireo is in brushy growth at the first ravine as you enter from the W.

October 10, 1957

Another balmy day. It was cloudy yesterday afternoon but evidently cleared at night. The nights are cool but there isn't much dew. Present from 0845 to 1045.

I cover the wooded, E, and N fields, see no PW's.

October 13, 1957

Still no change in the weather. Present with Ryckman and Moorhead from 0830 to 1000.

We search the Dunn area except the W field, see no PW's. They clearly have left. Only Myrtles and a few late Tennessees, etc. are seen.

October 30, 1957

On about this date Val and I found a well formed nest shell on XI, not far from 61F B's first nest. It is in a dogwood and will be described in an appendix. Almost surely it is a fragment built by female B, probably before she built the complete nests.

January 29, 1958

In measuring nest heights I found 1 well-preserved PW nest each on TD11 and TD12, each clearly a 1957 nest. These were built by D11F and D12F before I found those pairs.

## APPENDICES



## APPENDIX I

## REPRODUCTIVE SUCCESS BY PAIRS

## Pair 61

## Female A

Nests complete - 4  
Nests incomplete - 0  
Nests successful - 1  
Eggs per clutch - 4, (4), 4, (4)      Total - 16 eggs  
Young fledged - 3  
Stage at failure - 1: egg  
                        2: egg  
                        3: egg  
                        4: young (1 probably)  
Total - 12 eggs, 1 young  
Cause of failure - 1: 1 egg, Cowbird; 3 eggs, desertion  
                               (man)  
                        2: unknown  
                        3: unknown  
                        4: unknown (as to 1 young)  
Cowbird parasitization - 1 in 3 known  
Cowbird eggs per nest - 1 in 2

## Female B

Nests complete - 2  
Nests incomplete - 1  
Nests successful - 0  
Eggs per clutch - 2, (3)                      Total - 5 eggs  
Young fledged - 0  
Stage at failure - 1: laying  
                              2: laying or egg  
Total - 5 eggs  
Cause of failure - 1: unknown  
                              2: unknown  
Cowbird parasitization - 0 in 1 known

Pair 62

Nests complete - 2  
 Nests incomplete - 0  
 Nests successful - 1  
 Eggs per clutch - 4, 4  
 Young fledged - 4  
 Stage at failure - 1: egg  
 Total - 4 eggs  
 Cause of failure - 1: 3 eggs unknown; 1 egg, desertion  
 (man?)  
 Cowbird parasitization - 0 in 2  
 Note - The first 62F started 1 nest, completed another,  
 never laid.

Pair 63

Nests complete - 7  
 Nests incomplete - 2  
 Nests successful - 0  
 Eggs per clutch - 4, (4), (2), 2, 2, (3), (3) Total - 20 eggs  
 Young fledged - 0  
 Stage at failure - 1: egg  
 2: egg  
 3: laying  
 4: laying  
 5: laying  
 6: egg  
 7: egg  
 Cause of failure - 1: 3 eggs, disappeared; 1 egg, deserted  
 2: unknown  
 3: unknown, possibly Cowbird  
 4: unknown  
 5: unknown  
 6: unknown  
 7: unknown  
 Cowbird parasitization - 0 in 2 known *www*  
 1 in 1

No mate ever acquired.

Pair 65

Nests complete - 3  
 Nests incomplete - 0  
 Nests successful - 0  
 Eggs per clutch - 2, (4), 4  
 Young fledged - 0  
 Stage at failure - 1: laying  
                                   2: young  
                                   3: young  
     Total - 2 eggs, 8 young  
 Cause of failure - 1: unknown  
                                   2: unknown  
                                   3: unknown  
 Cowbird parasitization - 1 in 2 known  
 Cowbird eggs per nest - 1: 1

Total - 10 eggs

Pair 66

Nests complete - 2  
 Nests incomplete - 1 (weather)  
 Nests successful - 1  
 Eggs per clutch - 4, 4  
 Young fledged - 4  
 Stage at failure - 1: egg  
     Total - 4 eggs  
 Cause of failure - 1: weather  
 Cowbird parasitization - 0 in 2

Total - 8 eggs

M67

No mate ever acquired.

Pair 68

Nests complete - 1  
 Nests incomplete - 0 (?)  
 Nests successful - 0  
 Eggs per clutch - 4  
 Young fledged - 0  
 Stage at failure - 1: young  
     Total - 4 young  
 Cause of failure - 1: unknown  
 Cowbird parasitization - 0 in 1  
 Note - There must have been 1 or more earlier nests.

Total - 4 eggs

## Pair D1

[illegible]

Note - There was probably a nest that failed before the pair was found.

## Pair D2

Nests complete - 2  
Nests incomplete - 0  
Nests successful - 1  
Eggs per clutch - 4, 4                      Total - 8 eggs  
Young fledged - 4  
Stage at failure - 2: egg  
    Total - 4 eggs  
Cause of failure - 2: unknown  
Cowbird parasitization - 0 in 2

## Pair D3

Nests complete - 3  
Nests incomplete - 0  
Nests successful - 2  
Eggs per clutch - (4), (4), 4      Total - 12 eggs  
Young fledged - 8  
Stage at failure - 2: egg  
Total - 4 eggs  
Cause of failure - 2: unknown  
Cowbird parasitization - 0 in 3

Pair D4

Nests complete - 1  
 Nests incomplete - 0 (?)  
 Nests successful - 0  
 Eggs per clutch - 4  
 Young fledged - 0  
 Stage at failure - 1: young  
 Total - 4 young  
 Cause of failure - 1: unknown  
 Cowbird parasitization - 0 in 1  
 Total - 4 eggs

Pair D5

Nests complete - 1  
 Nests incomplete - 0 (?)  
 Nests successful - 1  
 Eggs per clutch - (3)  
 Young fledged - 2  
 Stage at failure - 1: probably 1 young died  
 Total - 1 young  
 Cause of failure - 1: unknown  
 Cowbird parasitization - 0 in 1  
 Total - 3 eggs

Pair D6

Nests complete - 4  
 Nests incomplete - 0 (?)  
 Nests successful - 1  
 Eggs per clutch - 4, (4), (2), (3)  
 Young fledged - 2  
 Stage at failure - 1: 1 egg died; 3 young  
 2: egg  
 3: laying  
 4: probably 1 young  
 Total - 7 eggs, 4 young  
 Cause of failure - 1: 1 egg probably defective; otherwise unknown  
 2: unknown  
 3: unknown  
 4: unknown  
 Cowbird parasitization - 0 in 2 known  
 Total - 13 eggs

Note - The D6's probably had 1 nest before I found them.

Pair D7

Nests complete - 1  
 Nests incomplete - 0 (?)  
 Nests successful - 1  
 Eggs per clutch - 4  
 Young fledged - 4  
 Stage at failure - none  
 Total - none  
 Cause of failure - none  
 Cowbird parasitization - 0 in 1

Total - 4 eggs

Pair D8

Female A

Nests complete - 2  
 Nests incomplete - 1 or 2 probably  
 Nests successful - 0  
 Eggs per clutch - (3), 4  
 Young fledged - 0  
 Stage at failure - 1: laying  
                                     2: 1 egg, 3 young  
 Total - 4 eggs, 3 young  
 Cause of failure - 1: unknown  
                                     2: unknown  
 Cowbird parasitization - 0 in 1 known

Total - 7 eggs

Note - Eggs in abandoned nest were not female A's; she was quite probably the second female acquired by MDS.

Female B

Nests complete - 2  
 Nests incomplete - 0 (?)  
 Nests successful - 0  
 Eggs per clutch - (2), (3)  
 Young fledged - 0  
 Stage at failure - 1: laying, probably  
                                     2: young  
 Total - 2 eggs, 3 young  
 Cause of failure - 1: unknown  
                                     2: unknown  
 Cowbird parasitization - 0 in 1 known

Total - 5 eggs







## Pair D13

Nests complete - 3

Nests incomplete - 0 (?)

Nests successful - 1

Eggs per clutch - 3, 3, 3

Total - 9 eggs

Young fledged - 2

Stage at failure - 1: egg

2: egg

3: 1 young disappeared

Total - 6 eggs, 1 young

Cause of failure - 1: unknown

2: unknown

3: unknown

Cowbird parasitization - 0 in 3

Note - Two empty nests were found on TD13; they were quite probably earlier nests of D13F.

## APPENDIX II

### SUMMARY OF REPRODUCTIVE SUCCESS

Most of the following data are based only on nests laid in and actually found while active or while still containing eggs. There may have been some 10 nests built before all the Dunn pairs were discovered, and a few calculations are made on that assumption, as indicated.

#### Nests:

Nests complete - 50  
Nests incomplete - not dependable  
Nests successful - 11  
Nests successful per pair studied - .579  
Nests successful per laying female studied - .500  
Nests successful of total complete - 22%  
Nests complete per pair studied (including 10 nests not actually found) - 3.157  
Nests complete per laying female studied (including 10 nests not actually found) - 2.72

#### Pairs:

Pairs successful once - 9  
Pairs successful twice - 1 (excluding possibility D10's were)  
Pairs unsuccessful - 9  
Females unsuccessful - 12

#### Eggs:

Eggs laid, total - 167  
Egg failures, egg stage - 96 or 57.48%  
Egg failures, nestling stage - 37 or 22.15%  
Eggs successful - 34 or 20.35%  
Eggs per pair studied (actually found) - 8.79  
Eggs per pair studied (adding an assumed 35 eggs) - 10.63  
Eggs per female studied (actually found) - 7.59  
Eggs per female studied (adding 35 eggs) - 9.18  
Egg sets known to contain 5 - 0  
Egg sets known to contain 4 - 19  
Egg sets known to contain 3 - 4  
Average size of known set - 3.82  
Incomplete sets - 3 of 3 eggs, 7 of 2 eggs, 1 of 1 egg, or potentially about 20 eggs

Potential egg total, including 35 eggs from  
nests not found - 222  
Eggs dying, presumably because defective - 2 in  
54 possibilities

Fledglings:

Fledglings, total - 34  
Fledglings per pair - 1.79  
Fledglings per female - 1.54  
Fledglings per breeding adult - .878  
Fledglings per egg laid in known nests - .203  
Fledglings per nest completed - .680  
Fledglings per nest successful - 3.09  
Fledglings as to size of brood - 6 of 4, 1 of 3,  
3 of 2, 1 of 1  
Fledglings per brood, average - 3.09  
Of broods successful, number and per cent totally  
so - 6, or 54.5%  
Of broods successful, number and per cent losing  
1 egg or nestling - 4 or 36.3%  
Of broods successful, number and per cent losing  
at least 2 eggs or nestlings - 1 or 9.09%  
Broods totally successful per nest completed -  
.120 or 12%

Cowbirds:

Total nests of which Cowbird status is known - 38  
Total nests parasitized - 4 or 10.52%  
Total number of Cowbird eggs - 5  
Parasitization where known, according to probable  
succession of nests (i.e., making assumptions  
as to nests not found by me) -  
First nests parasitized: 2; not parasitized: 10  
Second nests parasitized: 0; not parasitized: 12  
Third nests parasitized: 1; not parasitized: 7  
Fourth nests parasitized: 1; not parasitized: 2  
Fifth nests parasitized: 0; not parasitized: 3  
Parasitization by more than 1 female - 1  
Warbler eggs removed per Cowbird egg laid:  
Egg for egg - 1 (61)  
2 PW eggs for 1 Cowbird egg - 0  
0 PW eggs for 1 Cowbird egg - 1 (61)  
Unknown - 2 (65 and D9)  
Other - 1 (egg laid after nest failure, D9)  
Effect of parasitization on PW's:  
Failures directly due to Cowbirds - 0 nests,  
1 egg, 0 young

Failures after but unrelated to parasitization -

1 nest with 2 Cowbird eggs, deserted

Unknown - 2

Other - 1 Cowbird egg laid in nest already  
failed

Cowbird success - 0 in 5 eggs, 4 nests

Egg failures as eggs - 5

Egg failures as young - 0

Cowbird egg failures due to self-imposed risks:

Abandoned - 0

Laid too late - 1



APPENDIX III

NEST SITES, BY PAIRS

Pair 61, female A -

132.1 Nest 1 - 4 feet 4 inches high in an 8 foot 4 inch sugar maple, built against the 2 leaders of main Y-fork and on diagonal from 1 of them, on ENE side of tree. Tree within 2 yards of 13-foot dogwood to SE and 9 foot Virginia pine to SW. Some slight sun in morning. Concealment medium.

599.4 Nest 2 - 28 feet high in a 29½-foot dogwood covered with creeper, built against tallest branch, extending N above tree's broad canopy. Nest tree is 20 yards into a deep woods about 25 feet high. Nest cavity probably in flickering shade provided by tree and vine. Concealment good.

137.2 Nest 3 - 4½ feet high in an 8 foot sugar maple, placed on NE side between 2 Y-fork leaders and on 1 of many twigs. To S and SE 3 yards are 10-15 foot redbud and cherry. Nest largely in shade of these and own tree. Concealment medium.

231.7 Nest 4 (successful) - 9 feet 3 inches high in a 13 foot yellow pine, built against trunk on S side and on 2 of branches of a whorl. Other pines are within 2 yards, to S are within 8-10 yards. Nest tree dense, so little sun. Concealment good.

Pair 61, female B -

236.2 Fragment - 7 feet 9 inches high in a 13 foot dogwood, built in 4-way diagonal fork of diagonal growing WSW and 2½ feet from tree's center. Tree fully exposed except for 2 large tulips 10 and 15 yards to N. Good shelter and shade from branch of nest tree. Concealment good.

236.2 Nest 1 - 7 feet 9 inches high in a 17 foot honey locust and 10 foot dogwood, built against and

on a cross formed by a limb of each tree and their twigs. Trees grow from side of an eroded hill, are 20-30 yards from woods to NW. Nest on NW side of trees, shaded by nest trees till some sun strikes it late in day. Concealment medium.

462.3 6/15  
Nest 2 - 15 feet 2 inches high in a 20 foot dogwood, built in vertical fork of branch growing N in broad tree top. Tree among others of same height and 25 yards W of woods. Shade all day from nest tree only. Concealment good.

Pair 62, - Early female -

213.4 5/12  
Nest 1 - 7 feet 2 inches high in a 9-foot honey locust covered with creeper, built on horizontal branch, N side of tree facing an open field. Nest tree dwarfed by 18 foot dogwood 1 yard to SE. Full shade. Concealment medium.

207.3 5/7  
Nest 2 - 6 feet 10 inches high in a 20 foot honey locust, built on drooping creeper-covered branch, 4 feet E of trunk. Tree in open woods along W edge of territory, surrounded by 25-45 foot trees but with no canopy to N. Full shade. Concealment good.

Pair 62, 62F -

391.2 5/13  
Nest 1 - 12 feet 9 inches in an 18 foot sugar maple, built in 3-way vertical fork of a major diagonal growing SW. Tree and nest much higher than surrounding haws and cherries. Nearly full shade from nest tree. Concealment good.

487.7 5/23-4  
Nest 2 (successful) - 16 feet high in a 19-foot dogwood, built in E top of the tree on diagonal covered with grape. Nest tree on E side of clump in and around sink hole; 35 foot cherry 5 yards SW. Full shade. Concealment good.

## Pair 63 -

137.2 Fragment - 4½ feet high in an 18-foot sugar maple, in diagonal fork of diagonal branch, about 3 feet from tree's center, SE side. Full shade. Concealment good.

147.3 5/10 Nest 1 - 4 feet 10 inches high in a bushy 18-foot sugar maple with no bole, built just inside leaf layer 6 feet SE of tree's center, in diagonal 2-way fork of very small branch from main diagonal. Much grape near but not supporting nest. Tree just N of ridge top; 30 foot elm 10 yards to NW, 25-35 foot clump of sassafras and cherry 15 yards SW. Full shade. Concealment good.

452.1 7/20 Nest 2 - 14 feet 10 inches high in a 20-foot apple, on top horizontal branch spreading from head, SE edge of tree. Tree in little ravine, dominated by 40-foot white pines just to N; 40-foot cherry 15 yards to S. Full shade. Concealment very good.

346.9 6/3 Nest 3 - 11 feet 3 inches high in 13-foot redbud, built largely against vertical grape stem and redbud branch in center of tree's crown. To SSW 6 yards is 30 foot maple. Sun on side of nest late in day. Concealment good.

325.1 1/10 Nest 4 - 10 feet 8 inches high in a 13 foot sassafras, in vertical woody fork on NE side of top. Tree is dominated by a sassafras grove (18 to 35 feet high), in N center of which it stands. Full shade. Concealment medium.

193 6/15 Nest 5 - 6 feet 4 inches high in a 25-foot elm, built on top of 4½-foot horizontal branch and at base of fork, SE side, 3 feet out from trunk. Tree exposed to S and SE; bushy 25-foot maple 5 to 10 yards to W and SW and 12-foot cherry to NE. Some filtered sun till mid-day. Concealment poor.

547.6 6/22 Nest 6 - 18 feet high in a 25-foot dogwood, built in vertical fork in tree's center, below leaf layer. Tree stands on steep hillside (among dense dogwood-redbud growth; it is higher than most. Full shade. Concealment good.

276.9 7/3 Nest 7 - 15 feet 9 inches in a 20-foot cherry, actually built in grape tangle in W center of tree, which is not very thrifty. To SW 20 yards is 40-foot cherry which would shade nest some. Full shade probable, from nest tree and vine. Concealment medium.

315 Fragment - 10 feet 4 inches in a 20-foot sassafras, built in a typical woody fork of side branch. Tree is on SW edge of grove of 30-foot sassafras trees. Some sun on nest side in late afternoon. Concealment good.

## Pair 65 -

63.5 July May Nest 1 - 2 feet 1 inch high in a 5 foot 1 inch haw, built in small vertical fork of W diagonal, which is 1 of 3 main leaders. Tree stands alone except for some few blackberries and a dense growth of herbs like goldenrod. Flickering sunlight. Concealment poor.

609.6 5/14 Nest 2 - 20 feet high in a 21 foot mulberry, built in the tree top on crossed branches of mulberry and grape. Nest tree bent SE by grape and by 45-foot honey locust 5 yards SW; tree is exposed to S and E, stands in dense clump of redbud and walnut. Full shade from nest tree and vine. Concealment good.

297.2 6/7 Nest 3 - 9 feet 9 inches in an 11½ foot haw, built in vertical fork of major branch in S center of top. Tree is exposed to S, stands S of cluster of 20-30 foot walnuts. Probably a little filtered sun. Concealment good.

## Pair 66 -

81.3 July May Nest 1 - 2 feet 8 inches high in a 4 foot 4 inch linden, built almost without support against largest of 4 leaders, and on 1 twig on W side of tree. Tree is 10 yards S of mature woods and 2 yards from 2 ironwood saplings (10 feet)

to NE and NW, on fairly steep NW slope.  
Nest tree and slope give full shade. Concealment good.

106.7

Nest beginning - 3½ feet high between the stems of 2 blackberries about 5 feet tall, anchored to stems. A fence row 1 yard to S has 15 foot dogwoods and 25 foot sassafras and cherry. Probably full shade. Concealment poor.

78.7

Nest 2 (successful) - 2 feet 7 inches high on top of a bent-over horizontal blackberry stem and against 2 or 3 twigs and leaves from it. Bush is in moderately dense blackberry-rose tangle; no trees. Flickering sunlight. Concealment good.

Pair 68 -

86.4

Nest 1 - 2 feet 10 inches high in a 3 foot blackberry, on and against diagonal stem and 2 twigs. Bush stands in light tangle of blackberries; no trees. Flickering sunlight. Concealment medium.

Pair D1 -

88.9

Nest fragment - 2 feet 11 inches high in a 6-foot 8-inch elm, between 2 branches of Y-fork of leader. A few scattered trees around, including 25 foot cherry 5 yards SE; blackberries near. Moderate shade from nest tree. Concealment poor.

71.1

Nest 1 - 2 feet 4 inches high in a 5 foot 8 inch elm, built on SW side of leader, against it and on twig from it. But similar elm is 2 inches to SW and 5½ foot cedar is 3 feet SW, so nest is in center of clump of vegetation. Clump is in open, W slope of ridge. A little sun late in day. Concealment medium.



176.2  
6/23  
Nest 2 - 5 feet 7 inches high in an 11-foot elm, against and on NW side of leader and against twig from nearby diagonal and on another twig. Tree at S edge of TDI and toward S end of dense thicket of 5 foot blackberries and 5-10 foot elms, in which tree stands; nest just above thicket top. Moderate shade, from nest tree only. Concealment medium.

Pair D2 -

160  
Nest 1 (successful) - 5 feet 3 inches high in a 7 foot 3 inch cedar which is dead below nest level and spreads out into a 3 foot umbrella from that level on up. Nest is in 3-way fork of main leader in center of crown. Similar cedar 1 foot to E; 10-11 foot ash and tulip 5 yards to S and W; shade only from nest tree. Flickering sun all day. Concealment good.

175.3  
Nest 2 (second brood) - 5 feet 9 inches in a 9 foot 4 inch haw, rather thin and sparse. Nest in S center of tree, fastened among many twigs of SW leader. To SW 3 yards is 10 foot elm, with scattered haws nearby. Flickering sun during afternoon. Concealment medium.

Pair D3 -

160  
Nest 1 (successful) - 5 feet 3 inches high in a 9½ foot haw, very bushy. Nest in dead center of tree in thick 3-way vertical fork and among twigs. Scattered haws around; 20 foot cherry 5 yards NE. Full shade from nest tree. Concealment good.

167.6  
Nest 2 (second brood) - 6½ feet high in 9½ foot haw, built in vertical fork of ¼ inch branch and against twigs, NW center of tree. Tree is on NE edge of clump of 8 similar haws and elms; some late shade from them. Moderate shade. Concealment medium.



259.1  
6/18  
Nest 3 (successful second brood) - 8½ feet high in a 12 foot haw, in 3-way vertical fork and among twigs of a vertical, W center of tree. Scattered slightly smaller haws nearby; 40 foot sycamore 15 yards E. Moderate shade. Concealment good.

## Pair D4 -

50.8  
5/4  
Nest 1 - 1 foot 8 inches high in a 5½ foot sugar maple, against leader and 2 twigs growing N. To W 8 yards is a tree row; in it 15 yards SW is 50 foot walnut. Some shelter from dead goldenrod and other high herbs. Probably light sun in morning. Concealment poor.

## Pair D5 -

96.5  
5/1  
Nest 1 (successful) - 3 feet 2 inches high in a bushy 7 foot haw, built on and against 4 or 5 twigs and branches including main ¾ inch vertical, S center of tree. To SE 5 yards is 8 foot cedar; otherwise tree is exposed. Full shade from nest tree. Concealment good.

## Pair D6 -

58.4  
10/27  
Nest 1 - 1 foot 11 inches high in a 3 foot 4 inch haw, built on 2 verticals and 3 or 4 twigs, N center of tree. Tree alone among a few blackberries, much broom sedge, some goldenrod. Light sunshine much of day. Concealment medium.

640.1  
6/18  
Nest 2 - 21 feet high in a 28 foot elm, built against a main 1½ inch limb and on several twigs. Tree is 15 yards into woods, among dense growth of 20 foot scrub trees and 2 yards

NE of 25 foot elm; just E are mature big trees. Note nest is above most of surrounding scrub trees. Probably some sun from mid-day on. Concealment medium.

502.9 6127 Nest 3 - 16½ feet high in a 25 foot chinquapin oak, built on and in nearly horizontal fork of a large horizontal growing W, 5 feet from trunk and 1 foot from the branch end. Tree stands at mature woods' edge, so nest tree top leans W to shelter nest and nest overhangs field edge. Full shade. Concealment good.

257.5 715 Nest 4 (successful) - 8 feet 3 inches high in a 30 foot elm, in and on little branch with many twigs, growing out and down from 1 inch diagonal; about 1½ feet NNW of trunk. Nest tree has tangle of haw and ash around its base and is at W edge of woods; nest is on W side of this vegetation. Probably full shade. Concealment good.

Pair D7 -

38.1 511 Nest 1 (successful) - 1 foot 3 inches high in a 3 foot blackberry, against cane and in fork formed by 2 vertical twigs. Bush is in moderately thick patch; no trees. Some flickering sun. Concealment good.

Pair D8, female A -

276.9 517 Nest 1 - 9 feet 1 inch high in a 22 foot elm, 8 inches from outer end of diagonal growing NW, 3 feet from tree's center, built in small 3-way fork. Tree is on NW edge of grove of 10-12 similar trees, which would give morning shade. Some sun from mid-afternoon on. Concealment poor.

149.9 6/1  
Nest 2 - 4 feet 11 inches high in a 7½ foot maple, built against trunk and on 2 diagonal twigs on SE side. Tree is sapling at NW edge of thick stand of similar hardwoods. Light sun possible at times in afternoon. Concealment medium.

Pair D8, female B -

53.3 ✓  
Nest 1 - 1 foot 9 inches high in a 9 foot maple, built in Y formed by trunk and dead leader killed by cicadas. Tree is pole with only twigs from it; 6 inches to S is concealing, shading 3½ foot haw. Nest lower than field herbs and berries. Some sun, especially at mid-day. Concealment medium, good against man.

58.4 10/4 10/7  
Nest 2 - 23 inches high in a 3 foot haw, built on diagonal and its twigs in tree's center, below level of broom sedge and field cover. A few similar trees nearby. Probably a little sun all day. Concealment medium.

Pair D9, first female -

142.2 Lake L-7  
Nest 1 - 4 feet 8 inches high in a bittersweet vine growing thickly over 7 foot elm, on NE side of cluster of vegetation formed by tree and vine and overhung by vine. To SW 2-3 yards is thicket of haws and elms. Full shade. Concealment good.

96.5 6/9  
Nest 2 - 3 feet 2 inches high in an 8 foot elm, laced into 2 blackberry stems and 1 horizontal elm twig just N of trunk. Tree at S end of TD9 in dense berry patch and surrounded by 4-7 foot haws and elms. Full shade. Concealment good.

198.1  
Nest 3 - 6½ feet high in an 8½ foot hackberry, built in witches' broom and also against a main vertical and on a twig, on E side of tree. Exposed to E; tree among smaller redbuds and a few elms. A little sun nearly all day. Concealment poor.

Pair D9, later female -

170.2  
7/1  
Nest 1 - 5 feet 7 inches high in a 9 foot haw,  
built among many twigs in SE center of tree.  
Scattered similar haws nearby. Full shade  
from nest tree. Concealment medium.

Pair D10 -

86.4  
Nest 1 - 2 feet 10 inches high in a 4 foot black-  
berry, built in diagonal fork of diagonal  
stem. Bush stands in very dense patch about  
5 feet high. Nearly full shade. Concealment  
good.

86.4  
Nest fragment - 2 feet 10 inches high in a 3 foot  
blackberry, built in vertical fork formed by  
3-4 twigs. Bush stands in dense patch about  
3½ feet high. Nearly full shade. Concealment  
good.

508  
6/23  
Nest 2 (successful) - 16 feet 8 inches high in a  
25 foot elm, built in diagonal fork of diagonal  
growing SW, 4 feet from center of tree in its  
open head. Tree in N-S fence row between 2  
open fields, similar trees N and S of it. Sun  
into cavity during several hours at mid-day.  
Concealment medium.

Pair D11 -

43.2  
Nest built before pair discovered - 1 foot 5 inches  
high in a ¾ foot elm, against trunk and on  
diagonal and its twigs growing S. Tree among  
and on N edge of clump of 7-10 similar elms  
and of berries, so full shade. Concealment  
good.

63.5  
Nest 1 - 2 feet 1 inch high in a 7 foot 4 inch  
elm, against trunk and on horizontal branch  
growing N. Tree in open except for 2 similar

elms within 2-3 feet. Full shade. Concealment medium.

76.2  
6/16  
Nest 2 - 2½ feet high in a 3 foot blackberry, on top of long diagonal cane and supported by 2 short twigs. Bush in patch; no trees. Light sun, especially at mid-day. Concealment good.

Pair D12 -

106.7  
Nest built before pair found - 3½ feet high in a 7 foot elm, against S side of trunk and on 2 diagonal twigs. Tree alone, a pole in a field of berries and similar elms. Some light sun. Concealment medium.

94  
5/26  
Nest 1 - 3 feet 1 inch high in a 4½ foot elm, built in 3-way fork made by Y in leader and also in 1 of its subsidiaries, in center of tree. Tree alone in brushy field with elm seedlings and small sassafras trees. Light sunlight at times. Concealment medium.

Pair D13 -

88.9  
Nest before pair found - 2 feet 11 inches high in a 4½ foot elm, built in 3-way upright fork of leader. Other scrub elms around; blackberries reach higher than nest. Light sun at mid-day. Concealment medium.

116.8  
Nest before pair found - 3 feet 10 inches high in a 7 foot 4 inch elm in 3-way diagonal fork of diagonal on S side of tree, 5 inches from tree's center. Tree among some 25 similar elms within a 6-yard square. Light sun is possible. Concealment poor.



88.9  
Nest 1 - 2 feet 11 inches high in a 5 foot elm,  
built in 3-way fork formed by trunk and 2  
diagonals on SE side. Tree near similar  
elms; nest at level of berry tops and other  
field cover. A little sun, probably during  
much of day. Concealment poor.

195.6 8/18  
Nest 2 - 6 feet 5 inches high in a 10½ foot elm,  
in vertical 3-way fork of nearly vertical  
branch, NE side of tree. Tree among many  
others its size and smaller. Light morning  
sun. Concealment poor.

144.8 7/2  
Nest 3 (successful) - 4 feet 9 inches high in a  
10 foot elm, built between the 2 branches of  
narrow Y-fork of trunk and also against  
third branch growing diagonally. Moderate  
sunlight. Concealment medium.



#### APPENDIX IV

##### SUMMARY OF NEST SITES

Counting only the same 50 nests used as the basis of the summary in Appendix II, i.e., nests laid in and found with young or eggs in them, the following trees and shrubs were selected:

white elm - 13	hawthorn - 10
sugar maple - 7	blackberry - 5
flowering dogwood - 4	black cherry - 1
linden - 1	redbud - 1
hackberry - 1	yellow pine
honey locust - 1	apple - 1
sassafras - 1	chinquapin oak - 1
red mulberry - 1	red cedar - 1

Excluding the Dunn tract nests, the sites were:

flowering dogwood - 4	sugar maple - 4
blackberry - 2	hawthorn - 2
white elm - 1	black cherry - 1
red mulberry - 1	linden - 1
redbud - 1	yellow pine - 1
honey locust - 1	apple - 1
sassafras - 1	

Nests were built in vines or sheltered by them as follows:

Virginia creeper - 1  
grape - 5  
bittersweet - 1

Only the bittersweet was on the Dunn tract.

Nest heights for all 50 nests were these:

median - 6 feet  
mean - 15 feet  
average - 7.84 feet  
mode in - 2 foot units - 1-3 and 5-7 feet

Separating the nests from the 2 tracts studied, the comparable figures follow, the university farm's first:

median - 9 to 10 and 4 to 5 feet  
mean - 16.5 and 11.5 feet  
average - 10.64 and 5.81 feet  
mode in 2-foot units-4-6 and 1-3 feet

None of the nests built in or sheltered by vines succeeded.

## APPENDIX V

## DISTRIBUTION OF NEST SUCCESSES BY HEIGHTS

<u>Nest height</u>	<u>Successful</u>	<u>Failed</u>	<u>Total</u>	<u>Per cent success per 5-foot units</u>
1-2 feet	1	4	5	
2-3	1	7	8	
3-4	1	1	2	19.04%
4-5	1	5	6	
5-6	2	4	6	
6-7		4	4	
7-8		1	1	31.25%
8-9	2		2	
9-10	1	2	3	
10-11		1	1	
11-12		1	1	
12-13		1	1	00%
13-14			0	
14-15		1	1	
15-16		2	2	
16-17	2	1	3	
17-18			0	33%
18-19		1	1	
19-20			0	
20-21		1	1	
21-22		1	1	00%
22-25			0	
28-29		1	1	00%

This table includes only the 50 nests laid in.

# APPENDIX VI

## DISTRIBUTION OF NEST HEIGHTS AND NEST SUCCESSES BY PERIOD WHEN NEST WAS BUILT

May, June, and July are divided into thirds, each third numbered successively from 1 to 9. As was true of my 1953 notes alone, a nest is assigned to a period if laying began in that period.

There are only 48 nests in this table because laying dates of 2 of the 50 laid in are unknown.

There is undoubtedly a disproportionately high success shown for period 1 because almost the only early Dunn nests found were those that succeeded. Perhaps 7 or 8 additional period 1 failures would reflect the success rate accurately.

	<u>Periods</u>								
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
Successes per period -	4	0	2	1	0	2	2	-	-
Failures per period -	3	4	8	4	8	7	3	-	-
% success per period -	57.14/0	20	20	00	22.22/	40	-	-	-
% success per month -	May 28.57			June 13.63			July 40.00		

Heights in feet	<u>Periods</u>									<u>Total</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	
1-2	2		2							4
2-3	1		3	1	2	1				8
3-4	1		1							2
4-5	1	1	1	1	1		1			6
5-6	2	1				2	1			6
6-7					2	1				3
7-8					1					1
8-9						1	1			2
9-10				2	1					3
10-11					1					1
11-12				1						1
12-13			1							1
13-14										0
14-15			1							1
15-16						1	1			2
16-17			1			1	1			3
17-18										0
18-19						1				1
19-20										0
20-21		1								1
21-22						1				1
23-24		1								1
Total	7	4	10	5	8	9	5	0	0	48

Average height of nest per period	<u>Periods</u>						
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
	3.5	14.75	6.2	7.5	6.25	11.16	10.1

Pursuing the suggestion made on pp. 2-3 of Appendix V, 1952, average heights per period were lumped together when they resembled each other. The nests whose heights yielded those averages were then tested for success.

Period 1 is treated separately; 4 successes in 7 nests, or 57.14%.

Periods 3, 4, and 5 are lumped; 3 successes in 23 nests, or 13.04%.

Periods 2, 6, and 7 are lumped; 4 successes in 18 nests, or 22.22%.

## APPENDIX VII

SUMMARY BY PAIRS OF HEIGHTS, SUCCESSES, PERIODS  
PARASITIZATION

	<u>Success</u>	<u>Height</u>	<u>Period</u>	<u>Cowbird</u>
<u>Pair 61, A</u>				
nest 1	no	4-5	1	yes
nest 2	no	28-29	2	?
nest 3	no	4-5	3	no
nest 4	yes	9-10	4	no
<u>Pair 61, B</u>				
nest 1	no	7-8	5	no
nest 2	no	15-16	6	?
<u>Pair 62</u>				
nest 1	no	12-13	3	no
nest 2	yes	16-17	3	no
<u>Pair 63</u>				
nest 1	no	4-5	2	no
nest 2	no	14-15	3	?
nest 3	no	11-12	4	?
nest 4	no	10-11	5	?
nest 5	no	6-7	5	no
nest 6	no	18-19	6	?
nest 7	no	15-16	7	?
<u>Pair 65</u>				
nest 1	no	5-6	2	yes
nest 2	no	20-21	2	?
nest 3	no	9-10	5	no
<u>Pair 66</u>				
nest 1	no	2-3	1	no
nest 2	yes	2-3	3	no
<u>Pair 68</u>				
nest 1	no	2-3	5	no



	<u>Success</u>	<u>Height</u>	<u>Period</u>	<u>Cowbird</u>
<u>Pair D1</u>				
nest 1	no	2-3	3	no
nest 2	no	5-6	6	no
<u>Pair D2</u>				
nest 1	yes	5-6	1	no
nest 2	no	5-6	6	no
<u>Pair D3</u>				
nest 1	yes	5-6	1	no
nest 2	no	6-7	5	no
nest 3	yes	8-9	6	no
<u>Pair D4</u>				
nest 1	no	1-2	1	no
<u>Pair D5</u>				
nest 1	yes	3-4	1	no
<u>Pair D6</u>				
nest 1	no	1-2	3	no
nest 2	no	21-22	6	?
nest 3	no	16-17	7	?
nest 4	yes	8-9	7	no
<u>Pair D7</u>				
nest 1	yes	1-2	1	no
<u>Pair D8, A</u>				
nest 1	no	9-10	4	?
nest 2	no	4-5	5	no
<u>Pair D8, B</u>				
nest 1	no	1-2	?	?
nest 2	no	1-2	3	no
<u>Pair D9, early</u>				
nest 1	no	4-5	4	no
nest 2	no	3-4	no eggs	yes
nest 3	no	6-7	?	yes

## A VII - 3

	<u>Success</u>	<u>Height</u>	<u>Period</u>	<u>Cowbird</u>
<u>Pair D9, late</u>				
nest 1	no	5-6	7	no
<u>Pair D10</u>				
nest 1	no	2-3	3	no
nest 2	yes	16-17	6	?
<u>Pair D11</u>				
nest 1	no	2-3	5	no
nest 2	no	2-3	6	no
<u>Pair D12</u>				
nest 1	no	3-4	3	no
<u>Pair D13</u>				
nest 1	no	2-3	4 (?)	no
nest 2	no	6-7	6	no
nest 3	yes	4-5	7	no

As in the 1953 notes, Period refers to the date that egg-laying began.

# APPENDIX VIII

## NEST SUCCESSES CORRELATED WITH DEGREE OF CONCEALMENT

	Good	Medium	Poor
Failure	14	18	7
Success	9	2	0

Per cent of failure:

Good	60.86%
Medium	90%
Poor	100%

Of the 6 nests sheltered by or built in grape,  
Virginia creeper, or bittersweet, all failed.

## APPENDIX IX

### TERRITORY SIZES

T61 - 4.5 acres defended on V; 3 acres UT on V.  
T62 - 3.5 acres, slightly less utilized.  
T63 - 3.5 acres; UT smaller.  
T64 - 2.75 acres; UT same.  
T65 - 3.2 acres; UT probably smaller.  
T66 - 3.25 acres; UT nearer 2 acres.  
T67 - About .6 acres.  
T68 - About 3 acres; not well known.

TD1 - 1.6 acres.  
TD2 - 2.65 acres.  
TD3 - 2.5 acres; less utilized at a time.  
TD4 - 2 acres.  
TD5 - 1.25 acres; limits not well known.  
TD6 - 2.5 acres; probably less utilized at a time.  
TD7 - 1.75 acres; UT same.  
TD8 - 4 acres; all may have been UT.  
TD9 - 2.6 acres; limits not well known.  
TD10 - 2 acres.  
TD11 - 2.25 acres; UT probably same.  
TD12 - 1.2 acres.  
TD13 - 1.6 acres.

#### University farm:

Largest - 4.5 acres  
Smallest - 2.75 acres (excluding T67)  
Mean - 3.6 acres  
Median - 3.25 acres  
Average - 3.4 acres

#### Dunn tract:

Largest - 4 acres  
Smallest - 1.2 acres  
Mean - 2.6 acres  
Median - 2 acres  
Average - 2.14 acres

No explanation for the smallness of the size of the Dunn territories will be sought here. Note that of those territories, only TD1, 2, 3, 5, 9 consist of more or less

homogeneous habitat; while TD4, 6, 7, and 8 are little more than open broom sedge fields, seldom used by the males, adjoining strips of mature woods.

## APPENDIX X

## RECORDS OF BIRDS BANDED

M66	April 21	ag?	25-66089 and -90	R
M62	April 22	ag?	25-66087 and -88	L
Male	April 25	ag?	25-66013	R-L; S-R
62F (first)	May 2	ag?	25-66085 and -86	R and L
M65	May 16	ag?	25-66083	GOS-R
MD2	May 25	ag?	none	Y-R
D2Y	May 25		none	Y-L; G-R
D2B	May 25		none	B-L; R-R
MD3	May 27	ag?	25-66014	L
D3Yg	May 27		25-66015	S-R; 2 dull B's-L
D3Yg	May 27		25-66016	S-R; 2 dull B's-L
MD7	May 29	ag?	25-66017 and -18	R and L
D7F	May 29	ag?	25-66022 and -23	R
D7Yg	May 29		25-66019	S-L; 2 G's-R
D7Yg	May 29		25-66020	S-L; 2 G's-R
D7Yg	May 29		25-66021	S-L; 2 G's-R
MD5	May 30	ag?	25-66009	YOS-L
D5B	May 30		25-66024	YOS-L; B-R
D5C	May 30		25-66025	YOS-L; colored-R
D8(B)Yg	June 9		25-66026	killed
D8(B)Yg	June 9		25-66027	killed
66Y	June 15		25-66028	ROS-L; Y-R
66R	June 15		25-66029	ROS-L; R-R
66B	June 15		25-66030	ROS-L; B-R
66G	June 15		25-66031	ROS-L; G-R
D6Yg	June 17		25-66032	killed
D6Yg	June 17		25-66033	killed
D6Yg	June 17		25-66034	killed



D1Yg	June 18	25-66036	killed
D1Yg	June 18	25-66037	killed
D1Yg	June 18	25-66038	killed
11 66F <i>ds</i>	June 19	25-66035	SOG-R
62B	June 22	25-66039	S-L; BOB-R
62Y	June 23	25-66040	S-L; BOY-R
62R	June 23	25-66041	S-L; BOR-R
61R	June 29	25-66042	SR; GOR-L
61B	June 29	25-66043	S-R; GOB-L
12 D3F <i>ds</i>	July 14	25-66044	YOS-R
D3(2)Y	July 14	25-66045	S-R; YOB-L
D3(2)R	July 14	25-66046	S-R; ROB-L
D3(2)G	July 14	25-66047	S-R; GOB-L
D3(2)B	July 14	25-66048	S-R; BOB-L
13 D1OF <i>ds</i>	July 20	25-66050 and -51	L and R
D1OR	July 20	25-66049	R-R; SOY-L
14 D13F <i>ds</i>	July 29	25-66054	BOS-L
D13Y	July 29	25-66052	G-L; SOY-R
D13R	July 29	25-66053	G-L; SOR-R
15 D6F <i>ds</i>	August 2	25-66058	B-L; S-R
D6Y	August 2	25-66055	S-R; YOB-L
D6R	August 2	25-66056	S-R; YOR-L

## APPENDIX XI

WEATHER, APRIL THROUGH SEPTEMBER, 1957

	April					May					June					
	HIGH	LOW	1600	PRECIP.	L.C. PRE.	HIGH	LOW	1600	PRECIP.	L.C. PRE.	HIGH	LOW	1600	PRECIP.	L.C. PRE.	
1	61	50			.84	86	49	67	83		74	64	74	1.77	.83	
2	56	41			-	82	83	52	62	72	66	74	57	65	66	
3	45	34		1.55	-	70	39	54	56		78	53	65	78	-	
4	70	32			2.11	55	56	33	44	48	80	59	69	80	-	
5	68	38		.41	-	62	36	49	62		80	58	69	80	-	
6	53	29	51		.40	72	34	53	69		81	65	73	81	1.08	
7	67	43	55		-	77	41	59	74		74	63	85	74	.01	
8	55	33		.50	.19	81	50	65	79		72	59	65	72	.16	
9	57	26	55		.28	82	59	73	77		78	60	69	78	-	
10	61	30	59		-	79	63	71	73		79	65	72	79	.05	
11	68	44	65		-	80	62	71	73		73	69	71	73	.27	
12	55	28	38		-	82	55	68	81		85	64	75		.90	
13	46	25	42		-	80	81	62	71	72	82	66	74		.16	
14	50	25	48		-	79	63	71	77		97	84	63	75	84	
15	57	29	53		-	80	65	75	78		11	88	70	79	88	
16	55	42	54	.70	.05	78	47	62	56		-	94	73	80	94	
17	60	28			.44	77	51	64	75		-	77	71	74	77	
18	77	57	73	.40	.20	77	61	69	63	2.70	.19	89	69	79	89	
19	85	60	82	.40	.01	68	61	64	58	.30	1.78	80	59	69	80	
20	84	64	82		-	67	53	60	60	.26	.62	82	57	69	80	
21	82	61	73	.36	.36	80	56	68	79		-	86	59	72	86	
22	83	61	80		.06	83	62	72	72	2.16	1.90	73	72	72	73	
23	84	64	80		-	72	63	67	69	1.00	1.05	85	70	71		
24	85	64	80		-	75	50	62	73		.01	77	77	63	77	
25	82	62	79		-	78	55	66	76	.22	-	81	51	66	78	
26	85	63	77		-	76	47	41	71	61	.22	82	57	66	81	
27	78	61	73		-	71	51	61	61	61	-	85	66	75	70	
28	86	60	61		.28	71	45	69	58		-	77	65	71	70	
29	79	56	77		-	79	52	75	65		-	86	74	62		
30	84	47	80		-	81	55	79	68		-	84	67	75	82	
31						81	65	72	98	73	-					
TOTAL PRECIP. - 4.32					5.11	7.62					7.96	6.64				5.41

These tables are based on I.U. Power Plant readings. These are marred by gaps, here filled by reference to Climatological Data, which contains figures from the airport (precipitation only) and sometimes from "IU" - presumably someone in the Geography Department. Only when these last differ from or fill a gap in Power Plant readings are they included here, one space to the right of the relevant column.

July						August						September					
	HIGH	LOW	1600	IU PRE.	L.C. PRE.	HIGH	LOW	1600	IU PRE.	L.C. PRE.	HIGH	LOW	1600	IU PRE.	L.C. PRE.		
1	85	69	83	-	-	90	70	90	-	.10	94	67	90	-	-		
2	85	65	83	-	-	91	71	86	-	-	90	70	72	.49	-		
3	88	63	84	-	-	92	66	87	.49	.49	88	65	85	-	.55		
4						82	87	69	78	.34	.89	85	60	68	-	-	
5	84	61	80	.24	.14	82	55	71	-	-	74	47	72	-	-		
6	89	60	85	-	-	78	50	77	-	-	76	42	71	-	-		
7	98	68				82	54	82	-	-	75	55	69	-	.01		
8	92	89	73	89	-	89	58	88	-	-	77	46	75	-	-		
9	88	71	82	.23	.58	89	66	87	-	-	77	56	70	-	-		
10	84	55	79	-	-	91	65	87	-	-	76	63	75	.02	.01		
11	88	59	86	-	-	90	74	87	-	-	84	56	84	-	-		
12	91	64	88	-	-	90	71	85	-	-	85	67	70	.29	-		
13	90	67	82	.92	.36	87	64	87	.42	.06	77	62	75	.13	.85		
14	91	70	84	.49	.54	85	69	84	-	-	79	52	77	-	-		
15	90	70	86	T	-	92	72	91	-	-	85	64	80	-	-		
16	89	64	85	-	-	91	65	80	.56	.68	82	59	69	.63	.94		
17	86	87	67	78	.40	.22	82	64	79	-	-	79	45	76	-	-	
18	88	64	87	-	.24	83	57	81	-	-	82	48	80	-	-		
19	90	66	90	-	-	84	58	78	-	-	81	65	71	.21	-		
20	91	66	87	-	-	83	55	78	-	-	77	70	75	.28	.21		
21	91	71	89	-	-	82	58	81	-	-	84	70	77	.10	.01		
22	90	70	88	-	-	85	55	84	-	-	78	56	60	.48	.33		
23	88	69	76	.49	.52	88	56	86	-	-	73	51	72	-	.11		
24	79	58			.08	87	61	66	.17	.11	72	40	71	-	-		
25	82	67	80	-	-	87	59		.07	.07	82	47	81	-	-		
26	83	58	80	-	-	87	51		-	-	82	52	70	-	-		
27	83	69	79	-	-	89	61		-	-	70	46	65	-	-		
28	87	68	86	-	-	91	66		.36	.10				-	-		
29	87	70	78	T	-	91	64	74	-	-	74	39	69	-	-		
30	89	67	88	-	-	92	66	86	-	-	72	48	69	-	-		
31	90	65	78	.06	0	93	66	90									

TOTAL PRE. 2.53 2.68

C.D. 2.77

2.41 2.50

2.33 3.36

C.D. 2.52

## Notes:

A dash means record affirmatively shows a zero. A blank means there is no record.

L.C. means Lake Central. The airport is at latitude 39 08, longitude 86 37. IU means the Power Plant, at latitude 39 11, longitude 86 31.