

APPENDIX I: MAPS BANDING-DATA FILE STRUCTURE FOR 2006 DATA

| <u>Field</u> | <u>Field Name</u> | <u>Type</u> | <u>Width</u> | <u>Dec</u> | <u>Description</u> |
|--------------|-------------------|-------------|--------------|------------|---|
| 1 | LOC | Character | 4 | | Location code |
| 2 | BS | Character | 2 | | Band size |
| 3 | PG | Character | 3 | | Data page number |
| 4 | C | Character | 1 | | Capture code |
| 5 | BAND | Character | 9 | | Band number |
| 6 | SPEC | Character | 4 | | Four-letter species alpha code |
| 7 | SPEC6 | Character | 6 | | *Six-letter species alpha code |
| 8 | AGE | Character | 1 | | Age |
| 9 | HA | Character | 2 | | How aged |
| 10 | SEX | Character | 1 | | Sex |
| 11 | HS | Character | 2 | | How sexed |
| 12 | SK | Character | 1 | | Skull pneumaticization |
| 13 | CP | Character | 1 | | Cloacal protuberance score |
| 14 | BP | Character | 1 | | Brood patch score |
| 15 | F | Character | 1 | | Fat content score |
| 16 | BM | Character | 1 | | Body molt score |
| 17 | FM | Character | 1 | | Flight feather molt score |
| 18 | FW | Character | 1 | | Flight feather wear score |
| 19 | JP | Character | 1 | | Juvenal plumage score |
| 20 | WNG | Numeric | 3 | 0 | Wing chord |
| 21 | WEIGHT | Numeric | 5 | 1 | Body mass |
| 22 | STATUS | Character | 3 | | Status upon release |
| 23 | DATE | Date | 8 | | Capture date |
| 24 | TIME | Character | 3 | | Time of capture |
| 25 | STATION | Character | 4 | | Station code |
| 26 | NET | Character | 4 | | Net |
| 27 | DISP | Character | 1 | | Disposition on release |
| 28 | NOTE | Character | 2 | | Notes on data sheet |
| 29 | PPC | Character | 1 | | Feather generations in primary coverts |
| 30 | SSC | Character | 1 | | Feather generations in secondary coverts |
| 31 | PPF | Character | 1 | | Feather generations in primaries |
| 32 | SSF | Character | 1 | | Feather generations in secondaries |
| 33 | TT | Character | 1 | | Feather generations in tertials |
| 34 | RR | Character | 1 | | Feather generations in rectrices |
| 35 | HD | Character | 1 | | **Age class of head feathers |
| 36 | UPP | Character | 1 | | **Age class of upperpart feathers |
| 37 | UNP | Character | 1 | | **Age class of underpart feathers |
| 38 | BPL | Character | 1 | | ***Feather generations in body plumage |
| 39 | NF | Character | 1 | | Generation indicated by non-feather parts |
| 40 | FP | Character | 1 | | Feather pull status |
| 41 | SW | Character | 1 | | Swab |
| 42 | COLOR | Character | 5 | | *Color band sequence |

* - These fields (SPEC6 and COLOR) are not used for MAPS data.

** - These fields (HD, UPP, UNP) were only used for MAPS data from 1998 through 2003.

*** - This field (BPL) is to be used for MAPS data in and subsequent to 2004.

APPENDIX II: MAPS DATA-ANALYSIS FILE STRUCTURE FOR 2006 DATA

| <u>Field</u> | <u>Field Name</u> | <u>Type</u> | <u>Width</u> | <u>Dec</u> | <u>Description</u> |
|--------------|-------------------|-------------|--------------|------------|--|
| 1 | LOC | Character | 4 | | Location code |
| 2 | BS | Character | 2 | | Band size (or data sheet type; see App. 3) |
| 3 | PG | Character | 3 | | Data page number |
| 4 | C | Character | 1 | | Capture code |
| 5 | OBAND | Character | 9 | | Original band number |
| 6 | BAND | Character | 9 | | Band number |
| 7 | NUMB | Character | 5 | | Species number |
| 8 | OSP | Character | 4 | | Original four-letter species alpha-code |
| 9 | SPEC | Character | 4 | | Four-letter species alpha code |
| 10 | OSP6 | Character | 4 | | *Original six-letter species alpha code |
| 11 | SPEC6 | Character | 4 | | *Six-letter species alpha code |
| 12 | OA | Character | 1 | | Original age |
| 13 | OHA | Character | 2 | | Original how aged |
| 14 | AGE | Character | 1 | | Age |
| 15 | HA | Character | 2 | | How aged |
| 16 | OS | Character | 1 | | Original sex |
| 17 | OHS | Character | 2 | | Original how sexed |
| 18 | SEX | Character | 1 | | Sex |
| 19 | HS | Character | 2 | | How sexed |
| 20 | SK | Character | 1 | | Skull pneumaticization |
| 21 | CP | Character | 1 | | Cloacal protuberance score |
| 22 | BP | Character | 1 | | Brood patch score |
| 23 | F | Character | 1 | | Fat content score |
| 24 | BM | Character | 1 | | Body molt score |
| 25 | FM | Character | 1 | | Flight feather molt score |
| 26 | FW | Character | 1 | | Flight feather wear score |
| 27 | JP | Character | 1 | | Juvenal plumage score |
| 28 | WNG | Numeric | 3 | | Wing chord |
| 29 | WEIGHT | Numeric | 5 | 1 | Body mass |
| 30 | STATUS | Character | 3 | | Status upon release |
| 31 | DATE | Date | 8 | | Capture date |
| 32 | TIME | Character | 3 | | Time of capture |
| 33 | STA | Numeric | 5 | | Station number |
| 34 | STATION | Character | 4 | | Station code |
| 35 | NET | Character | 4 | | Net |
| 36 | ANET | Character | 2 | | Two-number net designation for analyses (conversions made by IBP) |
| 37 | DISP | Character | 1 | | Disposition on release |
| 38 | NOTE | Character | 2 | | Note number on data sheet |
| 39 | PPC | Character | 1 | | Feather generations in primary coverts |
| 40 | SSC | Character | 1 | | Feather generations in secondary coverts |
| 41 | PPF | Character | 1 | | Feather generations in primaries |
| 42 | SSF | Character | 1 | | Feather generations in secondaries |
| 43 | TT | Character | 1 | | Feather generations in tertials |
| 44 | RR | Character | 1 | | Feather generations in rectrices |
| 45 | HD | Character | 1 | | **Age class of head feathers |
| 46 | UPP | Character | 1 | | **Age class of upperpart feathers |

| | | | | |
|----|-------|-----------|---|--|
| 47 | UNP | Character | 1 | **Age class of underpart feathers |
| 48 | BPL | Character | 1 | ***Feather generations in body plumage |
| 49 | NF | Character | 1 | Generation indicated by non-feather parts |
| 50 | FP | Character | 1 | Feather Pull code |
| 51 | SW | Character | 1 | Swab |
| 52 | COLOR | Character | 5 | *Color band sequence |
| 53 | SC | Character | 1 | Skull check |
| 54 | CC | Character | 1 | Cloacal protuberance check |
| 55 | BC | Character | 1 | Brood patch check |
| 56 | MC | Character | 1 | Molt check |
| 57 | WC | Character | 1 | Flight feather wear check |
| 58 | JC | Character | 1 | Juvenal plumage check |
| 59 | OV1 | Character | 2 | Original single-year verification code |
| 60 | V1 | Character | 2 | Single-year verification code |
| 61 | VM | Character | 2 | Multi-year verification code through 1993 |
| 62 | V94 | Character | 2 | 1994 multi-yr. verification code |
| 63 | V95 | Character | 2 | 1995 multi-yr. verification code |
| 64 | V96 | Character | 2 | 1996 multi-yr. verification code |
| 65 | V97 | Character | 2 | 1997 multi-yr. verification code |
| 66 | OVYR | Character | 2 | Original 1998 and later multi-year verification code |
| 67 | VYR | Character | 2 | 1998 and later multi-year verification code |
| 68 | N | Character | 1 | Analysis suitability code |
| 69 | B | Character | 1 | Constant-effort comparability code for previous year |
| 70 | A | Character | 1 | Constant-effort comparability code for subsequent year |

* - These fields (SPEC6 and COLOR) are not used for MAPS data.

** - These fields (HD, UPP, UNP) were only used for MAPS data from 1998 through 2003.

*** - This field (BPL) is to be used for MAPS data in and subsequent to 2004.

APPENDIX III: CODE DEFINITIONS FOR 2006 MAPS BANDING-DATA AND DATA-ANALYSIS FILES

Last revised April 24, 2006

1. LOC: location code (identifies national forest, national park, military installation or other location where a single station or a set of stations is located and is run by a single operator). Location codes are unique.
2. BS: Data sheet on which record was recorded:
 - New captures: band size
 - Recaptures: "R"
 - Unbanded birds: "U"
3. PG: page number of raw data sheet for that band size (or for recaptures or unbanded) on which the record was written
4. C: capture code (codes L, D, C, and A indicate records that are not used in any analysis)
 - N - newly banded bird
 - R - recaptured bird
 - U - unbanded bird
 - L - lost band
 - D - destroyed band
 - C - changed band (duplicate recapture record containing the original band number)
 - A - added band (double-banded bird)
5. OBAND: original band number if BAND was subsequently changed during verification
6. BAND: band number
7. NUMB: species number

A unique sequence number created by the Institute for Bird Populations to place species into current taxonomic order. Some taxa are merged with others and given a single species number for analyses as the species cannot be reliably separated in the hand. These are:

 - 11475 - Traill's Flycatcher (includes Alder, Willow, and Traill's)
 - 11555 - Western Flycatcher (includes Pacific-slope, Cordilleran, and Western)
8. OSP: original four-letter species alpha code if SPEC code was subsequently changed during verification
9. SPEC: four-letter species alpha code

Four-letter species alpha codes codes from "*Four-letter and six-letter alpha codes for birds recorded from the American Ornithologists' Union check-list area*" (Pyle and DeSante 2003, 2005) are used for all data from 2003 and subsequent years; data from years prior to 2002 use the coding system given in Pyle (1997) and used by the BBL. Very few discrepancies that are likely to be encountered by banders exist between the two lists; the most notable is the use of "TUTI" by Pyle and DeSante (2003) instead of "ETTI" by the BBL for Tufted Titmouse (formerly Eastern Tufted Titmouse). All discrepancies are listed in Appendix 1 of Pyle and DeSante (2003, 2005). The Pyle and DeSante (2003, 2005) system reflects updated AOU taxonomy. Codes for gallinaceous species and certain taxa not identified to species were

developed by IBP in conjunction with general usage (birds recorded with these species determinations should not be banded, unless proper permits are available).

10. OSP6: original six-letter species alpha code if SPEC6 code was subsequently changed during verification (not used for MAPS data)
11. SPEC6: six-letter species alpha code (not used for MAPS data)
Six-letter species alpha codes codes from "*Four-letter and six-letter alpha codes for birds recorded from the American Ornithologists' Union check-list area*" (Pyle and DeSante 2003, 2005).
12. OA: original age if AGE was subsequently changed during verification (Data-analysis file only)
13. OHA: original how-aged codes if HA was subsequently changed during verification (Data-analysis file only)
14. AGE: age (final determination)
 - 0 - indeterminable age
 - 4 - local (young bird incapable of sustained flight)
 - 2 - hatching-year bird
 - 1 - after-hatching-year bird
 - 5 - second-year bird
 - 6 - after-second-year bird
 - 7 - third-year bird
 - 8 - after-third-year bird
 - 9 - not attempted
15. HA: how aged
 - S - skull pneumaticization
 - C - cloacal protuberance
 - B - brood patch
 - J - juvenal plumage
 - L - molt limit
 - P - plumage (exact plumage not specified)
 - A - adult plumage (not used after 1997)
 - H - 1st basic plumage (not used after 1997)
 - M - molt
 - F - flight feather wear
 - I - mouth\bill
 - E - eye color
 - O - other (needs explanation in notes)
 - R - recapture information from between-record verification
 - U - used by IBP when HA is not provided or cannot be assessed from supplemental data
16. OS: original sex determination if SEX was subsequently changed during verification (Data-analysis file only)
17. OHS: original how-sexed codes if HS was subsequently changed during verification (Data-analysis file only)

18. SEX: sex (final determination)
 M - male
 F - female
 U - unknown
 X - unattempted
19. HS: how sexed
 C - cloacal protuberance
 B - brood patch
 J - juvenal plumage
 P - plumage
 I - mouth\bill
 E - eye color
 W - wing chord
 T - tail length
 O - other (requires explanation in notes)
 R - recapture information (based on between-record verification)
 U - used by IBP when HS is not provided or cannot be assessed from supplemental data
20. SK: skull pneumaticization
 0 - none
 1 - trace (less than 5%)
 2 - less than 1/3 but greater than 5%
 3 - half (1/3 to 2/3)
 4 - greater than 2/3 but less than 95%
 5 - almost complete (greater than 95%)
 6 - complete
 8 - undeterminable, but attempted
21. CP: cloacal protuberance
 0 - none
 1 - small
 2 - medium
 3 - large
22. BP: brood patch
 0 - none
 1 - smooth (feathers lost)
 2 - vascularized
 3 - heavy (very heavily vascularized)
 4 - wrinkled
 5 - molting (growing new feathers)
23. F: fat content
 0 - none
 1 - trace (furculum less than 5% filled)
 2 - light (furculum greater than 5% but less than 1/3 filled)
 3 - half (furculum 1/3 to 2/3 filled)
 4 - full (furculum greater than 2/3 filled but not bulging)
 5 - bulging
 6 - greatly bulging
 7 - very excessive

24. BM: body molt
0 - none
1 - trace
2 - light
3 - medium
4 - heavy
25. FM: flight feather molt
N - no flight feather molt
A - asymmetric
S - symmetric
J - juvenal flight feather growth
26. FW: flight feather wear (outer 4-5 primaries only)
0 - none
1 - slight
2 - light
3 - moderate
4 - heavy
5 - excessive
27. JP: extent of juvenal plumage (body plumage only)
3 - full juvenal plumage
2 - greater than $\frac{1}{2}$ juvenal plumage but not full
1 - less than $\frac{1}{2}$ juvenal plumage but some remaining
0 - none, completely molted into basic plumage
28. WNG: wing chord (mm)
29. WEIGHT: mass of bird (g)
30. STATUS: status and additional information codes (see North American Bird Banding Manual, Vol. 1, for additional codes)
000 - not banded or bird died prior to release
300 - healthy bird banded and released
301 - healthy bird color-banded and released
500 - injured bird banded and released
501 - injured bird color-banded and released
31. DATE: date of capture (MM/DD/YY)
32. TIME: starting time of the net run during which the bird was captured, to the nearest ten minutes, e.g., 7:32am=073, 24-hr clock
33. STA: unique station number
34. STATION: four-character station code. A station is defined as a discrete study area consisting of a number of net sites. Station codes are unique within a location.
35. NET: up to 4-character original net designation (net in which bird was captured)
36. ANET: 2-character numeric net designation used in analyses

37. DISP: disposition of birds upon release or after capture
- M - malformed (deformity such as crossed mandibles)
 - O - old (healed) injury
 - I - illness/infection/disease
 - S - stress or shock
 - E - eye injury
 - T - tongue injury
 - W - wing injury
 - B - body injury
 - L - leg injury
 - P - predation (death due to predation)
 - D - dead (death due to causes other than predation or removed permanently from station)
 - R - band removed from bird and then bird released without a band (used only in analysis)
 - " " - blank, bird released alive, uninjured
38. NOTE: designates if a note was written on the reverse of the banding sheet
- N - note taken, not numbered (no longer used)
 - #1-27 - note number
 - NM - not MAPS: record not from a MAPS station or a MAPS net
 - QS - species identification questionable
 - " " - blank, no note
39. PPC: Feather generation(s) present within the primary coverts
- J - juvenal: feather tract comprised entirely of retained juvenal (or a mix of juvenal and alternate) feathers, but no formative feathers.
 - L - molt limit: molt limit between juvenal and formative feathers exists **within** the feather tract, regardless of whether or not alternate feathers are also present in the tract.
 - F - formative: feather tract comprised entirely of formative (or a mix of formative and alternate) feathers, but no juvenal feathers.
 - B - basic: feather tract comprised entirely of basic (or a mix of basic and alternate) feathers, but no juvenal or formative feathers.
 - R - retained: both juvenal and basic (rather than juvenal and formative) feathers are present within the tract.
 - M - mixed: multiple generations of basic feathers are present in the tract.
 - A - alternate: all feathers in the feather tract are of alternate plumage
 - N - non-juvenal: feather tract may include formative, basic, and/or alternate feathers, but no juvenal feathers are present.
 - U - unknown: feather tract was examined, but shows ambiguous characteristics or cannot be coded with confidence.
40. SSC: Feather generation(s) present within the secondary coverts
Codes as for PPC
41. PPF: Feather generation(s) present within the primaries
Codes as for PPC
42. SSF: Feather generation(s) present within the secondaries, not including tertials
Codes as for PPC
43. TT: Feather generation(s) present within the tertials
Codes as for PPC

44. RR: Feather generation(s) present within the rectrices, excluding central pair
Codes as for PPC
45. HD: age class of bird indicated by feather generations present in the head feathers (forehead; crown; nape; supercilium; eye ring; eye line; auricular; subauricular, submoustachial and malar stripes; and lores - only used for MAPS data from 1998 through 2003)
46. UPP: age class of bird indicated by feather generations present in the feathers of the upperparts (back, scapulars, rump, and uppertail coverts - only used for MAPS data from 1998 through 2003)
47. UNP: age class of bird indicated by feather generations present in the feathers of the underparts (chin, throat, breast, belly, sides, flanks, and undertail coverts - only used for MAPS data from 1998 through 2003)
48. BPL: Feather generation(s) present within the body plumage (Includes all feather tracts of the head, upperparts and underparts -this field is to be used for MAPS data in and subsequent to 2004.)
Codes as for PPC
49. NF: Generation indicated by non-feather parts
J - juvenal: non-feathered body parts show characteristics indicative of a young bird.
B - basic: non-feathered body parts show characteristics indicative of an adult bird.
U - unknown: non-feathered body parts were examined, but show ambiguous characteristics or cannot be coded with confidence.
50. FP: indicates whether feathers were pulled.
P - feathers pulled (code used through 2005)
O - two outer rectrices pulled (rectrix 6 from each side; used in and subsequent to 2006)
I - one outer and one inner rectrix pulled (code used in and subsequent to 2006)
" " - blank; no feathers were pulled
51. SWAB: indicates whether a cloacal swab sample was taken and the size of the swab used (field used for MAPS data in and subsequent to 2006).
1 - 1mm wide swab used to collect sample from within the cloacal cavity
2 - 2mm wide swab used to collect sample from within the cloacal cavity
52. COLOR: color band sequence (not used for MAPS data)
53. SC: skull check (if code present, record was re-examined for accuracy)
U - skull suggests age unknown, but age determined
Y - skull suggests HY bird, but AGE not equal to 2 or 4
A - skull suggests adult bird, but AGE not equal to 1, 5 or 6
5 - SK=5, record re-examined
" " - blank, record OK, not re-examined
54. CC: cloacal protuberance check (if code present, record was re-examined for accuracy), arranged hierarchically
A - CP suggests adult, but AGE not equal to 1, 5 or 6
M - CP suggests male, but SEX not equal to M
U - SEX=M, but CP is blank
1 - CP=1, record re-examined
H - AGE=0, 2 or 4, but SEX=M
P - SEX=M, but CP=0
" " - blank, record OK, not re-examined

55. BC: brood patch check (if code present, record was re-examined for accuracy), arranged hierarchically
- A - BP suggests adult, but AGE not equal to 1, 5 or 6
 - F - BP suggests female, but SEX not equal to F
 - U - Pre-1997: SEX=F, but BP=" " or BP#3 in species in which males develop BPs
 - U - 1997+: only used when SPEC=WREN and SEX=F; SEX should probably be U
 - 5 - BM>2 and BP=5, record re-examined
 - H - AGE=0, 2, or 4, but SEX=F
 - P - SEX=F, but BP=0
 - 1 - BP=1 or 5, record re-examined
 - " " - blank, record OK, not re-examined
56. MC: molt check (if code present, record was re-examined for accuracy)
- A - FM suggests adult, but AGE not equal to 1, 5 or 6
 - Y - BM+FM suggest HY, but AGE not equal to 2 or 4
 - " " - blank, record OK, not re-examined
57. WC: flight feather wear check (if code present, record was re-examined for accuracy)
- A - FW suggests adult, but AGE not equal to 1, 5 or 6
 - " " - blank, record OK, not re-examined
58. JC: juvenal plumage check (if code present, record was re-examined for accuracy)
- Y - JP suggests HY, but AGE not equal to 2 or 4
 - " " - blank, record OK, not re-examined
59. OV1: original single-year verification code for a given band number if V1 changed during between-record verification
60. V1: single year verification for a given band number (if code present, record was re-examined for accuracy), arranged hierarchically
- 2 - two records with C=N and the same band number or two records with C=R and the same date, time and net
 - BN - band number discrepancy
 - SP - species discrepancy
 - NM - species sequence number discrepancy
 - A - age discrepancy
 - S - sex discrepancy
 - DL - destroyed/lost band and a captured bird with the same band number
 - ST - station discrepancy
 - SS - status discrepancy
 - " " - blank, record OK, not re-examined
61. VM: multi-year verification through 1993 (if code present, record was re-examined for accuracy)
Same codes as V1
62. V94: 1994 multi-year verification (if code present record was re-examined for accuracy)
Same codes as V1
63. V95: 1995 multi-year verification (if code present record was re-examined for accuracy)
Same codes as V1
64. V96: 1996 multi-year verification (if code present record was re-examined for accuracy)
Same codes as V1

65. V97: 1997 multi-year verification (if code present record was re-examined for accuracy)
Same codes as V1
66. OVYR: original post-1997 multi-year verification code for a given band number if VYR changed during between-record verification
67. VYR: Post-1997 multi-year verification (if code present record was re-examined for accuracy)
Same codes as V1
68. N: codes that designate whether or not the record is to be included in productivity and survivorship analyses
The following codes mean record is not to be used in productivity or survivorship analyses:
 O - not caught at MAPS station
 S - caught within MAPS station boundary, but not in a MAPS net
 E - part of extremely irregular effort at site
 D - date outside of MAPS periods
 T - time outside normal MAPS operation for that station
 ? - uncertain species identification or band number
 H - hummingbird
 G - gallinaceous bird
 U - unbanded bird released alive
 R - recaptured bird, but no band number recorded
 The following codes indicate record can be used in productivity and survivorship analyses:
 - - record examined with current MAPS analytical procedures
 + - record examined with preliminary MAPS analytical procedures
69. B: comparability to previous year (year Before), using constant-effort analysis
The following codes mean record cannot be used in constant-effort productivity analyses:
 B - non-comparable, using net-by-net, hour-by-hour protocol (protocol used subsequent to 1991)
 M - non-comparable using net-by-net, hour-by-hour protocol; constant-effort analyses performed manually
 Y - non-comparable using net-by-net, period-by-period protocol (one protocol used prior to 1992)
 X - non-comparable using period-by-period protocol (another protocol used prior to 1992)
 The following codes mean record can be used in constant-effort productivity analyses:
 - - comparable by B or M protocol
 + - comparable by Y or X protocol
 The following code means no comparison made:
 * - no comparison made; constant-effort analyses not completed between this year of operation and the preceding year of operation.
 " " - blank; effort data not available; no comparison with preceding year possible
70. A: comparability to next year (year After), using constant-effort analysis
Same codes as B (Item 63), except for B, plus the following additional codes:
 A - (takes place of B) non-comparable using net-by-net, hour-by-hour protocol
 * - no comparison made; constant-effort analyses not completed between this year of operation and the following year of operation
 " " - blank; effort data not available; no comparison with following year possible

APPENDIX IV: CODE DEFINITIONS FOR 2006 MAPS EFFORT DATA FILES

Last revised April 17, 2001

Fields marked with an asterisk (*) are used solely for data analysis, and are not viewed or accessed in MAPSPROG.

1. LOC: location code (identifies national forest, national park, military installation or other location where a single station or a set of stations is located and is run by a single operator). Location codes are unique.
- *2. STA: unique station number
3. STATION: four-character station code. A station is defined as a discrete study area consisting of a number of net sites. Station codes are unique within a location.
4. DATE: date the station was run (MM/DD/YY)
5. IP: intended period. Intended Period (IP) is the Period for which the effort undertaken on a particular day was intended, strictly following the guidelines set forth in the *2005 MAPS Manual* on pp. 20-21, "MAPS Periods and Intended Periods." Usually, IP will be the Period during which the effort was undertaken. The dates of MAPS Periods are as follows:
 - Period Zero: April 21 - April 30 (only for extremely southerly stations)
 - Period One: May 01 - May 10
 - Period Two: May 11 - May 20
 - Period Three: May 21 - May 30
 - Period Four: May 31 - June 09
 - Period Five: June 10 - June 19
 - Period Six: June 20 - June 29
 - Period Seven: June 30 - July 09
 - Period Eight: July 10 - July 19
 - Period Nine: July 20 - July 29
 - Period Ten: July 30 - August 08
 - Period Eleven: August 09 - August 18
 - Period Twelve: August 19 - August 28

Non-MAPS effort conducted outside of these dates should be entered as Intended Period 88.
6. SP: sub-period. Used (for those few stations grandfathered into the Program that operate on multiple days in each period) to designate the multiple days of operation in a period on which the station was run (ranked from A-J). Days in the same period on which missing effort is made up are still designated as sub-period A. The sub-periods are ranked according to: (1) number of net hours; and (2) date.
7. NET: up to 4-character original net designation (net in which bird was captured)
- *8. ANET: 2-character numeric net designation used in analyses, matching the ANET designations in the banding data file

9. LENGTH: length of the net relating to the standardized net length of 12m; used in the calculation of net hours
- | | | |
|-----|---|-------|
| 12m | = | 1.000 |
| 9m | = | 0.750 |
| 6m | = | 0.500 |
10. START: starting time of the first net run during which the net was opened, to the nearest ten minutes, e.g.,
7:30 am=073
11. END: starting time of the net run during which the net was closed, to the nearest ten minutes, e.g.,
11:32 am=113
- *12. MAN: codes that designate any unusual running of the net that allows the computer programs to determine the comparability of effort between any two years.
- B - broken effort. Effort for a net on **one** day where the hours of effort were broken into two or more time blocks. It involves both start1 and 2 and end1 and 2. (i.e. 060-072, 091-115)
 - # - divided effort. Effort for a net on multiple days (the number of days are entered into the field) required to make up the full effort for that period and sub-period. (i.e. May 05 060-090, May 06 090-120, Man=2)
 - ? - designates that ANET, START, or END lack full information (usually a result of the protocol up to 1992).
- *13. MA: a designation (A) for use by the computer programs to indicate unusual net operation, i.e. broken, divided or questionable effort.
- *14. MB: a designation (B) for use by the computer programs to indicate unusual net operation, i.e. broken, divided or questionable effort.
- *15. N: codes that designate whether or not the record is to be included in productivity or survivorship analysis. This field is comparable to the designation in the banding data. Effort marked in the N field is not part of standard MAPS protocol.
- S - not a MAPS station or in a MAPS net, but during the MAPS season
 - E - part of extremely irregular effort at site
 - D - date outside of MAPS periods, but a MAPS net
 - T - time outside normal MAPS operation for that station, but a MAPS net and during the MAPS season
- *16. E: E indicates that the effort in the sub-period is **not completely** consistent with how the station was run throughout the MAPS season.
17. YEAR: year the station was run.
18. SHIFT: the number of periods the breeding, and hence MAPS, season was delayed due to extreme weather conditions.
- *19.DELAY: the average delay between the start of the net run and the time recorded on the banding data sheet

APPENDIX V: CODE DEFINITIONS FOR 2006 MAPS BREEDING STATUS DATA FILES

Last revised May 11, 2001

Fields marked with an asterisk (*) are used solely for data analysis, and are not viewed or accessed in MAPSPROG.

1. LOC: location code (identifies national forest, national park, military installation or other location where a single station or a set of stations is located and is run by a single operator). Location codes are unique.
- *2. STA: unique station number
- *3. STA2: super-station number (identifies if the station center is in close enough proximity (within 1350m) to another or others for them to be grouped together for survivorship analyses). The super-station number is the same as STA for ungrouped, single stations; and is the lowest station number + "S" for groups of two or more stations.
4. STATION: four-character station code. A station is defined as a discrete study area consisting of a number of net sites. Station codes are unique within a location.
- *5. NUMB: species number
A unique sequence number created by the Institute for Bird Populations to place species into current taxonomic order. Some taxa are merged with others and given a single species number for analyses as the species cannot be reliably separated in the hand. These are:
11475 - Traill's Flycatcher (includes Alder, Willow, and Traill's)
11555 - Western Flycatcher (includes Pacific-slope, Cordilleran, and Western)
6. SPEC: species alpha code
In general, these conform to the coding system used by the BBL, which reflects AOU taxonomy as closely as possible. Exceptions are gallinaceous species, for which BBS codes are used, and certain taxa not identified to species, for which codes were created by IBP (records with these species determinations should not be banded, unless proper permits are available). Refer to SPCODE98.DBF for a complete list of species names and alpha codes used in MAPS data.
7. YR: year
- 8-27. Period Specific Breeding Status codes. The status of each species as encountered during each period of operation
8. PS1: period breeding status code for period 1 (May 01 - May 10)

| | | |
|---|---|--|
| C | - | confirmed breeder; information found during this period confirms the species as a breeder for the season |
| P | - | probable breeder; information found during this period suggests, but does not confirm a species as a breeder: |
| O | - | observed; information found during this period indicates the species was detected, but displayed no evidence of local breeding |
| - | - | absent; the species was not encountered during this period |

9. SB1: daily behavior sub-code. Each sub-code is assigned to a specific period breeding status code and is the supporting evidence for assigning that period breeding status code.
- Sub-codes for period breeding status code = C**
- N - current year's nest found in the study area with eggs or young, in the process of being built, or already depredated or abandoned
 - M - adult seen gathering or carrying nesting material to a likely nest site in the study area
 - F - adult seen carrying food or fecal sac to or from a likely nest site in the study area
 - D - distraction display or injury feigning by an adult bird
 - L - a young bird incapable of sustained flight (a "local") captured in the study area; or very young (stub-tailed) fledglings found being fed by parents in the study area
- Sub-codes for period breeding status code = P**
- C - copulation or courtship observed of a species within its breeding range
 - T - other territorial behavior observed in the study area
 - S - territorial song or drumming heard
- Sub-codes for period breeding status code = O**
- B - bird captured or banded. NOTE: The presence of a brood patch or cloacal protruberance on a single individual is not valid evidence of local breeding
 - E - bird encountered (seen or heard) in the study area but with no territorial behavior
 - O - bird encountered flying over the study area.
 - Z - bird both captured/banded and encountered in, or flying over, the study area.
10. PS2: period breeding status code for period 2 (May 11 - May 20)
Same codes as PS1
11. SB2: daily behavior sub-code.
Same codes as SB1
12. PS3: period breeding status code for period 3 (May 21 - May 30)
Same codes as PS1
13. SB3: daily behavior sub-code.
Same codes as SB1
14. PS4: period breeding status code for period 4 (May 31 - June 09)
Same codes as PS1
15. SB4: daily behavior sub-code.
Same codes as SB1
16. PS5: period breeding status code for period 5 (June 10 - June 19)
Same codes as PS1
17. SB5: daily behavior sub-code.
Same codes as SB1
18. PS6: period breeding status code for period 6 (June 20 - June 29)
Same codes as PS1

19. SB6: daily behavior sub-code.
Same codes as SB1
20. PS7: period breeding status code for period 7 (June 30 - July 09)
Same codes as PS1
21. SB7: daily behavior sub-code.
Same codes as SB1
22. PS8: period breeding status code for period 8 (July 10 - July 19)
Same codes as PS1
23. SB8: daily behavior sub-code.
Same codes as SB1
24. PS9: period breeding status code for period 9 (July 20 - July 29)
Same codes as PS1
25. SB9: daily behavior sub-code.
Same codes as SB1
26. PS10: period breeding status code for period 10 (July 30 - August 08)
Same codes as PS1
27. SB10: daily behavior sub-code.
Same codes as SB1
28. YS: Year Specific Breeding Status codes.
- B - breeder (at least one individual was a summer resident at the station)
 - L - likely breeder (at least one individual was a suspected summer resident at the station)
 - T - transient (station is within the breeding range of the species, but no individual of the species was a summer resident at the station)
 - E - extralimital breeder (one or more individuals of the species was a summer resident at the station, but the station lies outside of the normal breeding range of the species)
 - M - migrant (station is not within the breeding range of the species, and the species was not a summer resident)
 - A - altitudinal disperser (species breeds only at lower elevations than that of the station and which disperses to higher elevations after breeding)
 - - absent (no evidence of species in data; presumably absent from station during year in question)
 - ? - uncertain species identification or band number (no breeding status assigned)
 - * - station not run this year
 - # - station operated this year, but breeding status determinations were not made for species that were not captured; used only for species without capture records
 - D - the species was only encountered at the station outside of the MAPS season, but the station lies *within* breeding range of the species.
 - W - the species was only encountered at the station outside of the MAPS season, and the station lies *outside* of the breeding range of species.
 - @ - the Breeding Status List is missing or incomplete for these species this year.

- *29. B: presence of banding data. Banding data is cross-referenced to determine species captured in this particular year.
- X - species was captured
 - R - species was not captured, but breeding status information was recorded on a breeding status list, a point count form, etc.
 - “ ” - blank, species was not captured

APPENDIX VI: UNIDENTIFIED SPECIES ALPHA CODES

| <u>SPEC</u> | <u>Common Name</u> | <u>Genus</u> | <u>Species</u> |
|-------------|--------------------------------------|--------------|-------------------|
| UNTE | Unidentified Teal | Anas | (sp) |
| UNDU | Unidentified Duck | (Genus) | (sp) |
| UNAH | Unidentified Accipiter Hawk | Accipiter | (sp) |
| UNHA | Unidentified Hawk | (Genus) | (sp) |
| UNDO | Unidentified Dowitcher | Limnodromus | (sp) |
| UNGU | Unidentified Gull | Larus | (sp) |
| UNOW | Unidentified Owl | (Genus) | (sp) |
| USHU | Unidentified Selasphorus Hummingbird | Selasphorus | (sp) |
| UNHU | Unidentified Hummingbird | (Genus) | (sp) |
| UNSA | Unidentified Sapsucker | Sphyrapicus | (sp) |
| UNWO | Unidentified Woodpecker | (Genus) | (sp) |
| HDFL | Hammond's/Dusky Flycatcher | Empidonax | hammondi/oberhol. |
| UEFL | Unidentified Empidonax Flycatcher | Empidonax | (sp) |
| UNFL | Unidentified Flycatcher | (Genus) | (sp) |
| UNCR | Unidentified Crow | Corvus | (sp) |
| UNSW | Unidentified Swallow | (Genus) | (sp) |
| UPCH | Unidentified Poecile Chickadee | Poecile | (sp) |
| UNWR | Unidentified Wren | (Genus) | (sp) |
| GCBT | Gray-cheeked/Bicknell's Thrush | Catharus | (sp) |
| UNTH | Unidentified Thrush | (Genus) | (sp) |
| UNWA | Unidentified Warbler | (Genus) | (sp) |
| UPTA | Unidentified Piranga Tanager | Piranga | (sp) |
| UNSP | Unidentified Sparrow | (Genus) | (sp) |
| UNBL | Unidentified Blackbird | (Genus) | (sp) |
| UCFI | Unidentified Carpodacus Finch | Carpodacus | (sp) |
| CHRE | Common/Hoary Redpoll | Carduelis | flamm./hornemanni |
| UNBI | Unidentified Bird | (Genus) | (sp) |

APPENDIX VII: CODE DEFINITIONS FOR 2006 MAPS HSA DATA FILES

Last revised April 5, 2004

Fields marked with an asterisk (*) are used solely for data analysis, and are not viewed or accessed in MAPSPROG.

1. LOC: unique location code (identifies national forest, national park, military installation or other location where a single station or a set of stations is located and is run by a single operator).
- *2. STA: unique station number
3. STATION: unique within a location four-character station code.
4. DATE: date the habitat assessment was completed (MM/DD/YYYY).
5. DOMCODE: hierarchical code that reflects the proportional area covered by the habitat being assessed.
 - A - dominant habitat
 - B - subdominant habitat
 - C - minor habitat 1
 - D - minor habitat 2
 - E - minor habitat 3
- 6.HABDESCRIP: succinct description of the habitat being surveyed, including dominant species and habitat type (e.g., "Old field," "Northern Red Oak forest").
7. SUCCSTAGE: successional stage (relative to habitat type) of the habitat.
 - L - late successional
 - M - mid-successional
 - E - early-successional
8. FORMATION: National Vegetation Classification Standard (NVCS) Formation code. NVCS codes, described to the formation level (e.g., I.B.2.N.a.), are listed in Appendix 2 of the HSA manual.
9. ALLIANCE: National Vegetation Classification Standard (NVCS) Alliance code. Appendix 4-6 of the HSA manual contain regional lists of NVCS Alliance codes and their one-line species descriptions.
10. PERCENT: percentage of the area of the station that is occupied by the habitat being assessed.
- *11. COVERCLASS: percent cover category* of the habitat within the station.
12. PATTERN: spatial pattern code** (1-12) of the habitat in relation to the station as a whole.
13. CANOPYHT: average height of the tree canopy (to the nearest 5m if >15m or the nearest 2m if <15m) in the habitat type being assessed.
14. SHRUBHT: average height of the shrubs (to the nearest 0.5m) in the habitat type being assessed.

15. HERBHT: average height of the herbaceous vegetation (to the nearest 0.1m) in the habitat being assessed.
16. UPPCOV: percent cover category* of the upperstory vegetation within the habitat.
17. UPPPAT: spatial pattern code** (1-12) of the upperstory vegetation within the habitat.
18. UPPNOS: number of species within the upperstory (may be approximated).
19. UPPCON: percentage of woody coniferous vegetation in the upperstory.
20. UPPBRD: percentage of woody broad-leaved vegetation in the upperstory.
21. UPPFF: percentage of forbs and ferns in the upperstory
22. UPPMAINS: a list of the most dominant species in the upperstory, generally using scientific names.
23. MIDCOV: percent cover category* of the midstory vegetation within the habitat.
24. MIDPAT: spatial pattern code** (1-12) of the midstory vegetation within the habitat.
25. MIDNOS: number of species within the midstory (may be approximated).
26. MIDCON: percentage of woody coniferous vegetation in the midstory.
27. MIDBRD: percentage of woody broad-leaved vegetation in the midstory.
28. MIDFF: percentage of forbs and ferns in the midstory
29. MIDMAINS: a list of the most dominant species in the midstory, generally using scientific names.
30. UNDCOV: percent cover category* of the understory vegetation within the habitat.
31. UNDPAT: spatial pattern code** (1-12) of the understory vegetation within the habitat.
32. UNDNOS: number of species within the understory (may be approximated).
33. UNDCON: percentage of woody coniferous vegetation in the understory.
34. UNDBRD: percentage of woody broad-leaved vegetation in the understory.
35. UNDF: percentage of forbs and ferns in the understory
36. UNDF: percentage of grass-like vegetation in the understory
37. UNDMAINS: a list of the most dominant species in the understory, generally using scientific names.
38. GLIVECOV: estimated percentage of cover provided by live vegetation in the ground cover layer.
39. GLIVEPAT: spatial pattern code** (1-12) of the live ground cover vegetation within the habitat.
40. GLIVENOS: number of species of live vegetation in the ground cover layer (may be approximated).

41. GLIVEWDY: percentage of woody vegetation in the live vegetation of the ground cover layer.
42. GLIVENV: percentage of non-vascular plants in the live vegetation of the ground cover layer
43. GLIVEFF: percentage of forbs and ferns in the live vegetation of the ground cover layer
44. GLIVEGRS: percentage of grass-like plants in the live vegetation of the ground cover layer
45. GLIVEMAINSP: a list of the most dominant live vegetative species in the ground cover layer, generally using scientific names.
46. GDEADCOV: estimated percentage of cover provided by dead vegetation (logs, fallen leaves, etc.) in the ground cover layer
47. GDEADPAT: spatial pattern code** (1-12) of the dead ground cover vegetation within the habitat.
48. GDEADTYPE: a five digit code that uses 1 or 0 to represent the presence or absence (1=present, 0=absent) of five different categories of dead vegetation in the ground cover layer. These features are, in order: leaves, twigs, branches, old logs, and recent treefall. For example, a code of 11100 would indicate the presence of leaves, twigs, and branches, and the absence of old logs or recent treefall
49. GDEADNOTE: brief description of the dead vegetation in the ground cover, usually emphasizing which features are most wide-spread or prominent
50. GNONVCOV: estimated percentage of cover provided by non-vegetative features in the ground cover layer.
51. GNONVTYPE: a five digit code that uses 1 or 0 to represent the presence or absence(1=present, 0=absent) of five different categories of non-vegetative features in the ground cover layer. These features are, in order: rock, stones or gravel, dirt or sand, water, or human-made features. For example, a code of 11100 would indicate the presence of rock, stones or gravel, and dirt or sand, and the absence of water or human-made features.
52. GNONVNOTE: brief description of the non-vegetative features in the ground cover, usually emphasizing which features are most wide-spread or prominent
53. RH20COV: estimated percent cover of running water within the habitat.
54. RH20PAT: spatial pattern code** (1-12) of the running water within the habitat.
55. RH20TYPE: a six digit code that uses 1 or 0 to represent the presence or absence(1=present, 0=absent) of six different categories of running water in the habitat type. These features are, in order: seep/trickle, very small brook(<0.5m), small stream(0.5-2.0m), large stream(2.0-5.0m), river(>5m), and canal. For example, a code of 111000 would indicate the presence of a seep/trickle, a very small brook, and a small stream.
56. RH20NOTES: brief description of the running water features within the habitat.
57. SH20COV: estimated percent cover of standing water within the habitat.
58. SH20PAT: spatial pattern code** (1-12) of the standing water within the habitat.

59. SH20TYPE: ten digit code that uses 1 or 0 to represent the presence or absence (1=present, 0=absent) of seven different categories and 3 different durations of standing water in the habitat type. The categories are, in order: pond/lake <50m², pond/lake >50m², for livestock <50m², for livestock >50m², marsh/bog <50m², marsh/bog >50m². The durations are seasonal, permanent, and occasional. The tenth category is for "other." For example, a seasonal marsh larger than 50m² would be represented by a code of 0000011000.
60. SH20NOTES: brief description of the standing water features within the habitat
61. HMCCOV: estimated percent cover of human-made corridors within the habitat.
62. HMCPAT: spatial pattern code** (1-12) of human-made corridors within the habitat.
63. HMCTYPE: ten digit code that uses 1 and 0 to represent the presence or absence (1=present, 0=absent) of ten different categories of human-made corridors in the habitat type. These categories are, in order: paved, gravel, dirt, mown, boardwalk, road, track, break, path, and other. For example a code of 1000110000 would indicate the presence of a paved road and a boardwalk.
64. HMCNOTE: brief description of the human-made corridors within the habitat
65. HMSCOV: estimated percent cover of human-made structures within the habitat.
66. HMSPAT: spatial pattern code** (1-12) of human-made structures within the habitat.
67. HMSTYPE: ten digit code that uses 1 and 0 to represent the presence or absence (1=present, 0=absent) of ten different categories of human-made structures in the habitat type. These categories, respectively, are: building, fence, bridge, powerline, tower, culvert, dam, channel, wall, and other. For example, a code of 1100000000 would indicate the presence of at least one building and fence.
68. HMSNOTE: brief description of the human-made structures within the habitat.
69. DRAINAGE: two digit code that uses 1 and 0 to represent the presence or absence (1=present, 0=absent) of two different categories of drainage in the habitat, well-drained and poorly-drained. For example, a code of 01 would indicate the habitat is poorly drained.
70. SLOPE: four digit code that uses 1 and 0 to represent the presence or absence (1=present, 0=absent) of four different topographical descriptions. The slope options are flat, gentle, undulating, and steep. A code of 0010 indicates the habitat's topography is undulating.
71. GEOGRAPHY: four digit code that uses 1 and 0 to represent the presence or absence (1=present, 0=absent) of four different categories of geographic features in the habitat. These categories are bottomland, hillside, ridge top, and plain. A bottomland habitat would be assigned a code of 1000.
72. RIDGES: four digit code that uses 1 and 0 to indicate the number of ridges in the habitat (1=yes, 0=no) Each digit of the code is ascribed to a different number category. These categories are none, single, two, and >2. For example, a code of 0100 would indicate that there is one ridge in the habitat being assessed.

73. ASPECT: six digit code that uses 1 and 0 to indicate the compass direction that the habitat faces (1=yes, 0=no). The directions are, in order, none, N, E, S, W, all. A flat habitat does not face in any direction, and would be assigned a code of 100000, while a north-facing slope would be assigned 010000.
74. LOGGING: three digit code that uses 1 and 0 to indicate the type of logging that may occur (1=occurred, 0=did not occur). The categories are clear-cut, selective, and strip. A habitat that was selectively cut would be assigned a code of 010.
75. YEARLOG1: the second most recent year in which logging has occurred
76. YEARLOG2: the most recent year in which logging has occurred
77. DISTURBANC: five digit code that uses 1 and 0 to represent the types of disturbances that may have occurred at the habitat (1=occurred, 0=did not occur). The types of disturbances are, in order, fire, wind, flood, drained, ice-storm. Therefore, a code of 11000 would indicate that fire and wind-related disturbances had occurred in the habitat.
78. YEARDIS1: the second most recent year in which a disturbance has occurred
79. YEARDIS2: the most recent year in which a disturbance has occurred
80. OTHER: brief description of any other type of disturbance that may have occurred in the habitat, but which does not fall into one of the five disturbance categories used in the DISTURBANC field.
81. YEAROTHER1: the second most recent year in which a disturbance described in the "other" field occurred.
82. YEAROTHER2: the most recent year in which a disturbance described in the "other" field occurred.
83. NUMSNAGS: one digit code that represents the approximate number of standing dead trees that occur in the habitat.
 0 - 0 snags
 1 - <5 snags
 2 - 5-15 snags
 3 - >15 snags
84. DISTHIST: description of management practices or disturbance regimes within the habitat.
85. GENDESCRIP: description of the habitat type that is more detailed than the brief HABDESCRIP, including descriptions of common species, elevation, topography, and soil composition.
- *86. YR: year

* Cover category is determined by rounding the cover percentage to the nearest 10 (with the exception of values <5% and values >95% which are represented by 5 and 95, respectively). Cover category values are: 5, 10, 20, 30, 40, 50, 60, 70, 80, 90, and 95. The cover category of a vegetative layer (e.g., upperstory) represents the percentage cover of the vegetation in that layer within the habitat type, not the percentage cover of the vegetation of the entire station.

** Spatial pattern codes are used to represent both the pattern of the habitat in relation to the station as a whole, and the pattern of the vegetative layer within the habitat being assessed (see Table 2 and Figure 2 of the 2001 HSA manual for descriptions). The pattern codes are:

- 1 - simple / complete
- 2 - simple / surrounded
- 3 - simple / surrounding
- 4 - simple / edge
- 5 - simple / divided
- 6 - simple / dividing
- 7 - clumped / low cover
- 8 - clumped / medium cover (not connected)
- 9 - clumped / medium cover (connected)
- 10 - clumped / high cover
- 11 - dispersed / low cover
- 12 - dispersed / high cover