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MOLTS, PLUMAGES, AND AGE CLASSES OF PASSERINES AND “NEAR-PASSERINES”: A BANDER’S OVERVIEW

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ABSTRACT

A thorough understanding of molts and plumages and their relation to age classes is fundamental to accurate and precise age determination of banded birds. Molt strategy and time of year affect the level of precision possible when determining a bird's age. This paper describes, with schematic illustrations of the first few calendar years in the lives of six representative species, some of the variation in molt strategy and its effects on age-class assignment. I use recently proposed modifications to standard Humphrey-Parkes molt terminology. The molt strategies exhibited by all North American passerines and “near-passerines” are presented in an appendix.

INTRODUCTION

Accurate (correct) and precise (specific) age determination of birds in the hand is a necessary element of virtually any meaningful banding project. Recently published reference materials (e.g., Pyle 1997a,b; Williamson 2001; Froehlich 2003) provide tools for North American land-bird banders to discriminate among plumages and age classes of many species. In my observation, however, too few banders have a sufficient grasp of the relationships among molts, plumages, and age classes, or the effects of variation in molt strategy on age determination, to apply these tools consistently. A modification to the Humphrey-Parkes (H-P) molt terminology (Humphrey and Parkes 1959) proposed recently by Howell et al. (2003) and rapidly gaining acceptance within the ornithological community, has the potential to add

additional confusion because the reference materials do not yet reflect it.

I see the acquisition of skills necessary for age determination as a three-step process. The first step (the focus of this paper) is to develop a thorough understanding of molt and plumage sequences and the relationships of plumages to age classes. The second, entirely contingent on the first, is to master Pyle (1997a) and other relevant literature so that information can be extracted efficiently. The third is to learn to apply the first two steps in the field to arrive at accurate, precise, and speedy age determinations. One must know what to look for and where and be able to recognize it and interpret it correctly.

This paper provides an overview and schematic diagrams of the molts, plumages, and age classes of six representative North American “near-passerines” (Columbiformes through Piciformes) and passerines. It is intended to reinforce these concepts for experienced banders and serve as a learning tool for beginners and a teaching tool for trainers. It is restricted in scope to the 397 species described in Pyle (1997a) and currently recognized by the American Ornithologists' Union; no inference to species beyond this group is intended. I make no attempt to explain the ecological or physiological constraints driving variation in molt strategy; for information on these topics see Howell (2003a). I use the modified terminology (Howell et al. 2003), with references to the more familiar terminology as needed.

TERMINOLOGY AND BASIC PRINCIPLES

Molts and plumages

A **molt** is a hormonally induced, essentially symmetric growth of feathers. Adventitious, or accidental, loss and replacement of feathers is not considered a molt, although it may be helpful in age determination. Humphrey and Parkes (1959) define a **plumage** as the set of feathers produced by a molt and the entire set of feathers possessed by a bird at any given time (often produced by multiple molts) as the **feather coat**. In popular usage, however, the former term has acquired the latter meaning. In this paper, the term "plumage" (in quotes) indicates a feather coat consisting of multiple generations of feathers. The entire appearance of a bird, including non-plumage characteristics, is known as its **aspect**. Plumages are not produced by feather wear; thus, a bird that loses the dull tips of its fresh feathers during the winter is not acquiring a new plumage. Conversely, a molt does not necessarily change a bird's plumage or appearance; it may produce a fresher version of the previous plumage or the differences between the old and new plumages may be too subtle for us to see. The name of each molt is the name of the plumage it produces plus the prefix 'pre'.

Molts, when they occur, vary considerably in extent.

Complete molts include all the feathers. **Incomplete** molts include the contour (body) feathers and some of the flight feathers (primaries and their coverts, secondaries, and rectrices). **Partial** molts include contour feathers (typically including secondary coverts) but no flight feathers (with the frequent exception of tertials and central rectrices, which may more accurately be considered body feathers). **Limited** molts include only some contour feathers and typically not secondary coverts. If a molt does not occur at all, it is termed **absent**. For more complete descriptions of these molt extents and when they are likely to occur, see Pyle (1997a). A **molt limit** (also known in the UK as a **molt contrast**) is the boundary, produced by a less-than-complete molt, between newer and older feathers; it is a plumage character that illustrates the extent of a previous molt.

The first plumage of all young birds is the **natal down** (which I abbreviate **ND**); there may be two or more sets of natal down or virtually none. Thereafter, each annual cycle is initiated by a molt that is nearly always complete; it is known as the **prebasic molt (PB)** and produces **basic plumage**. In the first cycle, the first prebasic (also called **prejuvinal**) molt (**PJ**) replaces the natal down with the first basic (**juvinal**) plumage (abbreviated **Juv**), which includes the bird's first set of contour and flight feathers. All molt strategies are alike in these respects; the differences among them concern the number, timing, and extent of additional molts within each cycle.

Molt strategies

The term **molt strategy** refers to the frequency, timing, and extent of molts throughout a bird's life. Howell and Corben (2000) and Howell et al. (2003) defined four underlying molt strategies, one of which is exhibited by every bird species: the **Simple Basic Strategy (SBS)**, **Simple Alternate Strategy (SAS)**, **Complex Basic Strategy (CBS)**, and **Complex Alternate Strategy (CAS)**. They are described in less technical terms by Howell (2003b) and provide a convenient means of grouping and contrasting strategies, even using traditional H-P terminology.

The "alternate" strategies differ from the "basic" strategies in the presence of a **prealternate molt (PA)** (and, of course, an **alternate plumage**) in each cycle. The "complex" strategies differ from the "simple" strategies in the presence of at least one "extra" molt and plumage, the **preformative molt(s) (PF)** and **formative plumage(s)**, unique to the first cycle. The main PF is the molt designated '1st PB' or 'PB: HY' in Pyle (1997a) and Froehlich (2003). All passerines and virtually all the "near-passerines" exhibit complex strategies (Pyle 1997a, Howell et al. 2003); only two species considered here are known to follow the SBS and none shows the SAS. Molt strategies are defined at the species rather than the individual level (P. Pyle, pers. comm.); thus, although many individuals of species that are classed as alternate strategists do not undergo PAs, they remain alternate strategists because the species has evolved the PA as part of its molt repertoire.

Age classes

Fundamentally, assigning a bird to an age class is a matter of ascertaining whether it is young (in this group, usually first-cycle) or adult based on the presence or absence, respectively, of juvenal features. The North American Banding Program uses the calendar-year approach, which superimposes an artificial time system onto birds' life cycles. Under this system, birds change age classes due to certain physiological events, such as molts; and also to change of calendar year, an event of no significance to them. Age classes are usually designated with acronyms or numeric codes.

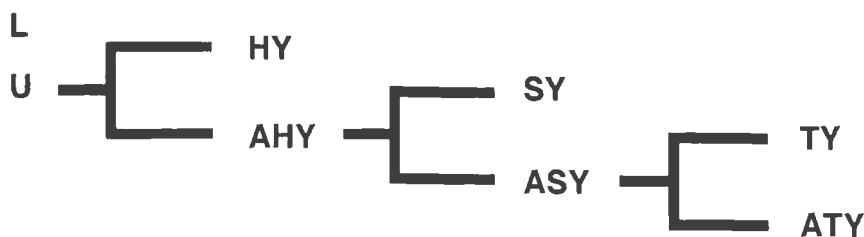
Very young birds, old enough to be banded but not yet capable of sustained flight, are called **local (L or 4)**. Birds capable of sustained flight but still clearly in their first calendar year are called **hatch-year (HY or 2)**. Those clearly in their second calendar year are called **second-year (SY or 5)**, those in their third calendar year are **third-year (TY or 7)**, etc. Less-precise categories exist for birds that cannot be assigned to a specific year: **after-hatch-year (AHY or 1)** birds are *at least* in their second calendar year, **after-second-year (ASY or 6)** birds are *at least* in their third calendar year, and **after-third-year (ATY or 8)** birds are *at least* in their fourth calendar year. Birds that could be either HY or AHY are simply called **unknown (U or 0)**. The age classes and their acronyms can be used interchangeably as adjectives or nouns.

As a rule, banders should be as precise as possible without sacrificing accuracy and thus should attempt to assign each bird to the most precise age class possible for the time of year at which it is captured. It is essential to understand the nested relationship of the age classes (Fig. 1). HY and AHY are subsets of the imprecise category, U. SY and ASY, in turn, are subsets of AHY, while TY and ATY are subsets of ASY. L is not considered a subset of U because it is always distinctive.

CASE STUDIES

I have devised artificial groupings of species that share certain aspects of molt extent and timing such that, collectively, they illustrate the relevant spectrum of molt terminology and the effects of molt strategy on age class assignment. The following six examples illustrate what I think are the most important aspects of passerine and "near-passerine" molt strategies, beginning with the two most common strategies. For each one I have chosen as an example a species that represents it without exception; that is, all individuals of that species always exhibit the strategy in question. Readers are invited to refer to the accounts in Pyle (1997a) for these species to reinforce the information presented here (with the exception of the SBS example, which is based on newer information). I illustrate each example with a schematic diagram that shows the sequence of plumages and molts, and the age class associated with each plumage, during each period of the year

Figure 1. The hierarchy of age classes used by the North American Banding Program. L = Local, U = Unknown, HY = Hatch-year, AHY = After-hatch-year, SY = Second-year, ASY = After-second-year, TY = Third-year, ATY = After-third-year.



through the first three to five calendar years of the bird's life. Each diagram reflects an "ideal" bird for which all the theoretically possible age classes always can be recognized; ambiguous individuals will have to be assigned with lower levels of precision. As one gains experience, the number of these ambiguous birds should decrease. Molts are shown as vertical bars and plumages as horizontal bars. The widths of the molt bars represent the extents of the molts, with limited molts being the narrowest and complete the thickest. Each plumage is represented consistently by a unique pattern. Do not take the timings of the molt bars too literally; they are intended merely to indicate the approximate times at which those molts typically occur and do not reflect protracted, suspended, or delayed molts.

The Complex Basic Strategy, typical version: American Robin (*Turdus migratorius*)

This is a good baseline for a discussion of passerine and "near-passerine" molts. Its characteristics are complete adult PBs; a single, less-than-complete PF; and no PAs. It characterizes all individuals of about 100 species, including (but not limited to) several small owls; some swifts, flycatchers, and vireos; all corvids and parids; most wrens and thrushes; all(?) mimids; and some warblers, sparrows, and finches (Appendix 1).

The event that moves a bird from the age class 'L' to the next age class, 'HY', is the ability to perform sustained flight, which is a product of both the PJ and the development of flight muscles (Fig. 2). This transition is essentially that from fledgling to juvenile. A juvenile American Robin can be recognized by its juvenal (1st basic) body plumage, which is distinct in texture and pattern (see Pyle 1997a, Froehlich 2003); by incomplete skull pneumatization; and initially by the presence of a fleshy gape. Its outer primaries, primary coverts, and rectrices are tapered (see Pyle 1997a, Froehlich 2003). In its first fall, it undergoes the PF, which is partial; thus, the juvenal flight feathers (sometimes with the exception of some tertials) and some juvenal coverts are retained. The resulting formative "plumage" is designated **F1**, the '1' indicating (redundantly) that it occurs in the first cycle. The newly-acquired formative feathers are adult-like in appearance, and fresh, and contrast

with the now faded and worn retained juvenal feathers, forming molt limits characteristic of the formative "plumage" (see Pyle 1997a, Froehlich 2003). The bird may be further recognizable as HY for some time by its incomplete skull pneumatization, but this tool is lost within the following few months.

It is a human event, the change of calendar year on January 1, that shifts the bird from HY to the next age class, SY, with no change in the appearance of the bird, to which it is just another day. Note that F1 carries over from HY to SY, hence its designation 'HY/SY' in Pyle (1997a). We are able to recognize the bird as SY using the same features (juvenal feathers, molt limits, and so on) that signified it was HY the previous day. The bird may breed in F1 and then undergoes its 2nd PB; this molt is complete, and all formative and remaining juvenal feathers are lost. It is then in definitive basic plumage (which I designate **B_d**), annual replacements of which it will carry for the rest of its life, and is indistinguishable from older birds; we now call it AHY, indicating that we know only that it isn't L or HY (because it lacks juvenal features). Note that we have dropped to a lower level of precision with this designation; yet, it is the best we can do.

The age class changes again on January 1 when we are able to add SY to the age classes that can be ruled out (based on the same criteria by which we ruled out HY the day before). Thus, the age becomes ASY. Note that, as with F1, **B_d** carries across the change in calendar years, from AHY to ASY, hence the designation 'AHY/ASY' in Pyle (1997a). Once the last of the old feathers is dropped at every subsequent PB, the age class will revert to AHY, despite the fact that the bird is not changing plumage, because the SY birds are losing their juvenal features at this time; and on every subsequent January 1, the age class will revert to ASY as we once again can rule out SY by the lack of juvenal characteristics.

Remember that this sequence reflects an "ideal" individual and that some ambiguous individuals will have to be called AHY during the SY/ASY period and U during part of the HY/AHY period. The main point in this example is that, although the distinctions between HY/SY and AHY/ASY sometimes may be too subtle for you to perceive, they are there nonetheless.

It is useful when determining the age of a bird to have in mind the age classes that are possible for that species at that time of year. To facilitate this, the calendar year can be broken down conveniently into three periods: pre-breeding, breeding and molt, and post-molt. For birds using this molt strategy and the next, the pre-breeding possibilities are SY and ASY (and a few ambiguous AHYs); no HYs exist yet and, in theory, the AHYs can be segregated. During the breeding season, SY and ASY (and AHY) are still options and L and HY are added to the mix. After the fall molt, the options are simply HY, AHY, and, after skulls pneumatize, a few ambiguous Us; the SYs and ASYs are now identical and thus the SY/ASY distinction is no longer even theoretically possible.

The Complex Alternate Strategy, typical version: American Goldfinch (*Carduelis tristis*)

This strategy differs from the first only in the addition of a less-than-complete PA prior to each breeding season (Fig. 3). It is exhibited by all individuals of at least 86 species, among them most *Empidonax* and all *Myiarchus* flycatchers, some vireos, the small nuthatches, *Cistothorus* wrens, most if not all gnatcatchers and motacillids, the majority of warblers and tanagers, most sparrows, and many finches (Appendix 1). Combined, these two strategies characterize most North American passerine and "near-passerine" species, and understanding them will equip you to deal with the majority of birds you are likely to encounter in a typical banding operation.

Because the 1st PA is not complete and typically does not include juvenal feathers (flight feathers and wing coverts) retained during the PF, the 1st alternate "plumage" (A1) is distinct and American goldfinches in that "plumage" are (theoretically) recognizable as SY based on the continuing presence of those feathers (Fig. 3). Thus, for these same reasons, the addition of alternate "plumages" has no effect on the sequence of age classes described for American Robin. At the end of the first breeding season, these birds have their first complete molt (as with American Robin) and attain their B₀. Each spring thereafter, they will undergo another PA, attaining their definitive alternate "plumage" (A₀) and then returning to B₀ in the fall. Note that the alternate "plumages" of these birds are typically not carried across changes of calendar

years; thus, Pyle (1997a) designates them 'SY' (A1) and 'ASY' (A₀). As with the previous example, this example illustrates an "ideal" individual for which all possible age classes can be recognized; some ambiguous individuals may force a less precise age class assignment.

As with any molts that are not complete, the PAs produce molt limits; banders should avoid the common mistake of thinking that any molt limit is a product of a PF and that any bird that has molt limits is in its first cycle. Both SY and ASY alternate strategists are likely to have molt limits, although the locations may differ because 1st and subsequent PAs may differ in extent. First alternate limits also may highlight persisting formative molt limits by contrast, thereby adding weight to some SY determinations.

A variation on the typical CAS is that of the Bobolink (*Dolichonyx oryzivorus*). This species typically, if not invariably, has complete PAs, making the SY/ASY distinction impossible by the time the birds arrive in North America.

Birds with a Complete PF: House Sparrow (*Passer domesticus*)

Approximately 75 species have or may have a complete PF (Appendix 1). This strategy is common among pigeons, cuckoos, hummingbirds, swallows, and blackbirds as well as species from groups better represented in the Old World (e.g., larks, long-tailed tits, sylvine warblers, babblers, starlings, and Old World sparrows). These species include basic and alternate strategists; because most are CBS, I have chosen one as an example (Fig. 4).

Up to this point, we have been recognizing immature birds until the 2nd PB by the presence of retained juvenal feathers; it should be obvious that this is not possible if the PF is complete. In this case, F1 is identical to B₀ and, in the absence of non-plumage criteria, no distinction can be made between HY/SY and AHY/ASY. The only way to recognize a HY House Sparrow after the PF is by skull; once pneumatization is complete, typically in late fall or early winter, the bird's age cannot be determined at all and it must be called U until the end of the year. Of course, on 1 Jan, we can rule out HY and call the bird AHY; but each

fall, when the first HYs complete their skulls, it will revert to U. Consequently, F1 and B₀ for this strategy are designated 'U/AHY' in Pyle (1997a).

Even with a complete PF, there are two conditions that allow the use of HY through December and SY for some portion of the second year: 1) if non-plumage juvenal characteristics persist past December (e.g., meadowlarks, which often complete skull pneumatization in spring or summer); or 2) if the PF itself extends past December (as in most swallows). Recognizing ASYs, however, is likely to be impossible if some HYs are truly identical to AHYs before January.

Some species, e.g., Northern Cardinal (*Cardinalis cardinalis*), have a PF that is complete in some individuals and not in others. The result of this is that the individuals with less-extensive PFs can be recognized (and designated HY or SY) throughout their first cycle but those with a complete PF cannot. Again, since all birds without juvenal characters must be designated U at the end of the calendar year, no birds can be designated ASY.

Birds with incomplete adult PBs: Great Horned Owl (*Bubo virginianus*)

About 80 species sometimes or always have incomplete adult PBs (Appendix 1). Incomplete adult PBs are characteristic, if not typical, of all "near-passerine" orders except Apodiformes and occur atypically in a few passerines. Most woodpeckers have incomplete 2nd PBs but complete subsequent PBs. If the 2nd PB is not complete, some juvenal feathers usually are retained at least until the 3rd PB, allowing year-specific age determination up to that point, a year longer than in the first two case studies (Fig. 5). The 2nd basic "plumage" (B2) contains fewer juvenal feathers than F1; it is designated 'SY/TY' in Pyle (1997a). Once a Great Horned Owl has undergone at least three PBs, it shows multiple generations of definitive feathers, differing subtly from each other in degree of wear and fade but not in structure (see Pyle 1997a,b; Froehlich 2003). F1 contains only juvenal remiges; B2 contains older juvenal feathers and definitive feathers; and B₀ ('ASY/ATY') contains at least three generations of feathers. Occasional birds with two definitive feather generations and some residual juvenal feathers may be designated 4Y/A4Y, adding yet

another cycle of year-specific age determination (Pyle 1997a,b).

Birds with multiple PFs: Blue Grosbeak (*Guiraca caerulea*)

A few species have more than one PF. About two dozen basic and alternate strategists from five families (Trochilidae, Ptilonotidae, Parulidae, Emberizidae, and Cardinalidae) undergo an additional, limited or partial, summer/fall post-juvenal molt. This molt was first reported by Sutton (1935). Thompson and Leu (1994) termed it the presupplemental molt (PS), the term used by Pyle (1997a). Howell et al. (2003) considered it a PF (PF1a). The more extensive typical PF follows, often after migration. A few species have a spring PF as well, usually less extensive, sometimes confined to males, and traditionally viewed as a PA absent from later cycles. The resulting "plumage" could be designated F1b. The molt producing this plumage is never complete and thus has no effect on age classes. Blue Grosbeak has all three PFs and thus is exemplary of this group (Fig. 6).

The Simple Basic Strategy: White-throated Swift (*Aeronautes saxatalis*)

As mentioned early in this paper, the simple strategies lack PFs. Simple strategists wear their juvenal plumage for an entire cycle (Fig. 7). In the case of White-throated Swift, the PBs are complete but B2 differs from B₀ in having white edging on the undertail coverts (Marín 2003). This edging quickly wears off and from then on the post-juvenal plumages (and age classes) are indistinguishable. Barn Owl (*Tyto alba*), the only other confirmed simple strategist among the species considered here, has two sets of natal down and incomplete AHY PBs, allowing year-specific age determination until the beginning of the third cycle.

SUMMARY

The sequence of plumages through which a bird passes in its lifetime ends with the definitive basic plumage in the basic strategies and switches between definitive basic and definitive alternate plumages in the alternate strategies (Table 1). However, because age classes are based on calendar years, adult age classes always alternate

Table 1. Plumage and age class sequences for the molt strategies described in this paper.

STRATEGY	EXAMPLE	PLUMAGES	AGE CLASSES
SBS	White-throated Swift	ND→Juv→B2→B _d	L→HY→SY→AHY↔ASY
CBS	American Robin	ND→Juv→F1→B _d	L→HY→SY→AHY↔ASY
CBS	House Sparrow	ND→Juv→F1→B _d	L→HY→U↔AHY
CBS	Great Horned Owl	ND→Juv→F1→B2→B _d	L→HY→SY→TY→ASY↔ATY
CBS	Blue Grosbeak	ND→Juv→F1a→F1→F1b→B _d	L→HY→SY→AHY↔ASY
CAS	American Goldfinch	ND→Juv→F1→A1→B _d ↔A _d	L→HY→SY→AHY↔ASY

as the year changes (hence the slashes in the descriptions of basic plumages in Pyle [1997a]).

While there are some other variations on these themes, nearly all North American passerines and “near-passerines” follow one of these six strategies and most of them closely resemble either the robin or the goldfinch. The most important take-home messages are that age determination by plumage is contingent on molt extents; and that year-specific age determination is theoretically possible until all juvenal features have been lost, usually at the 2nd PB but sometimes as early as skull completion (species with a complete fall PF) or as late as the 3rd or even 4th PB (species with incomplete adult PBs). My hope is that these six examples are representative enough to allow the reader to figure out the effects of other strategies on age determination, which, from the average bander’s standpoint, is the ultimate goal.

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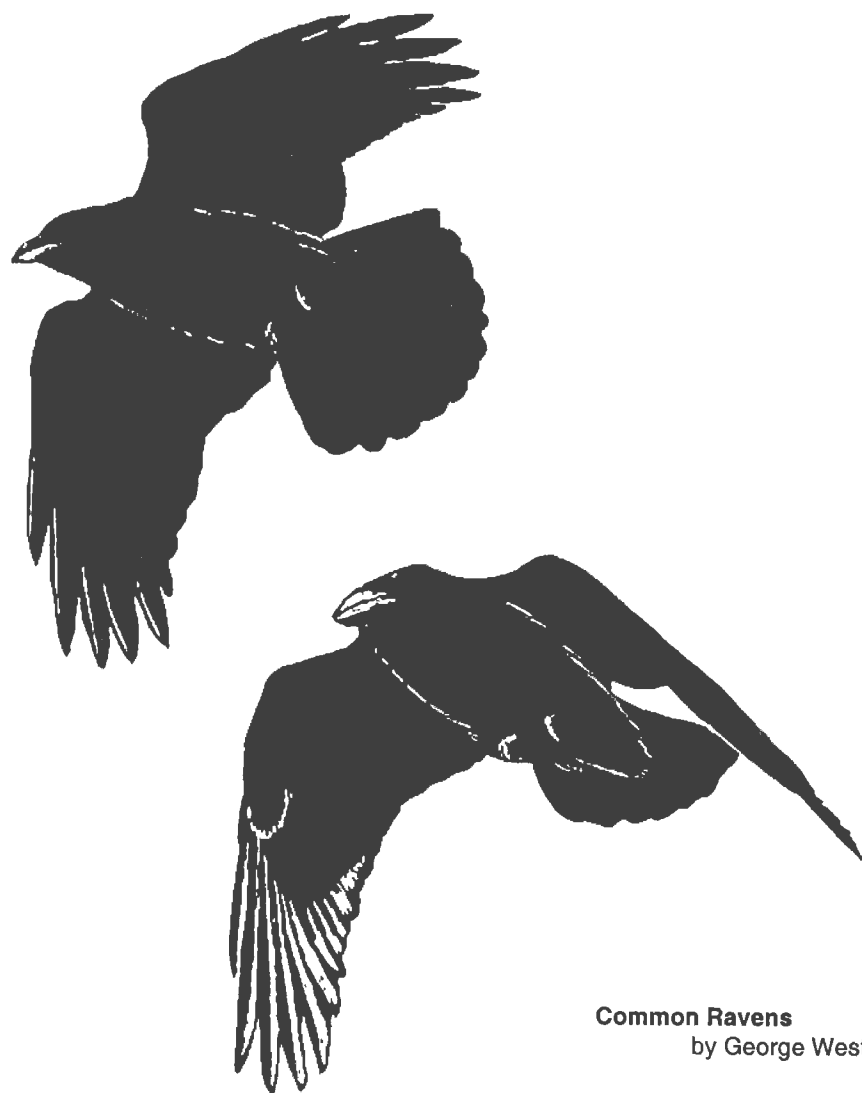
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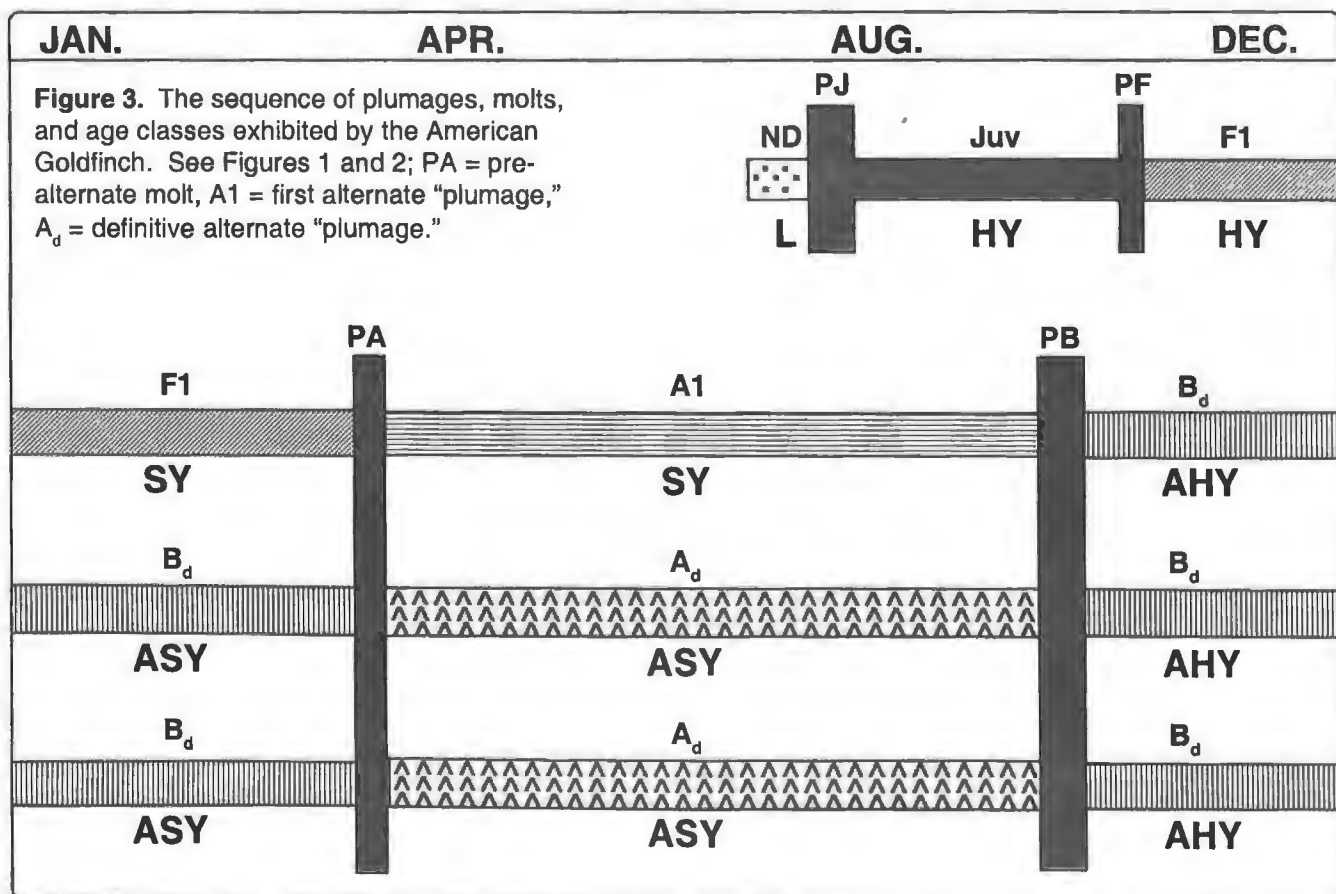
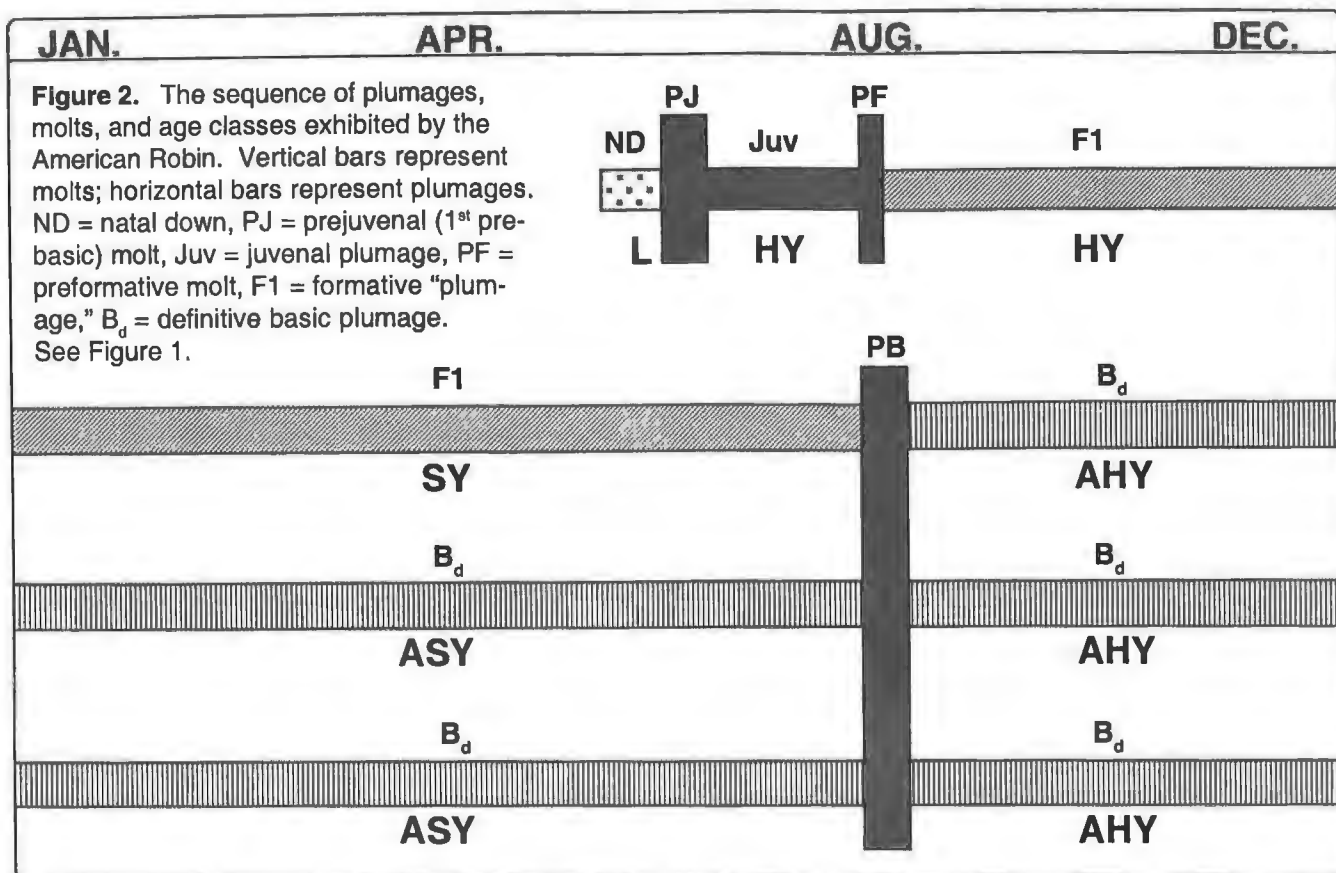
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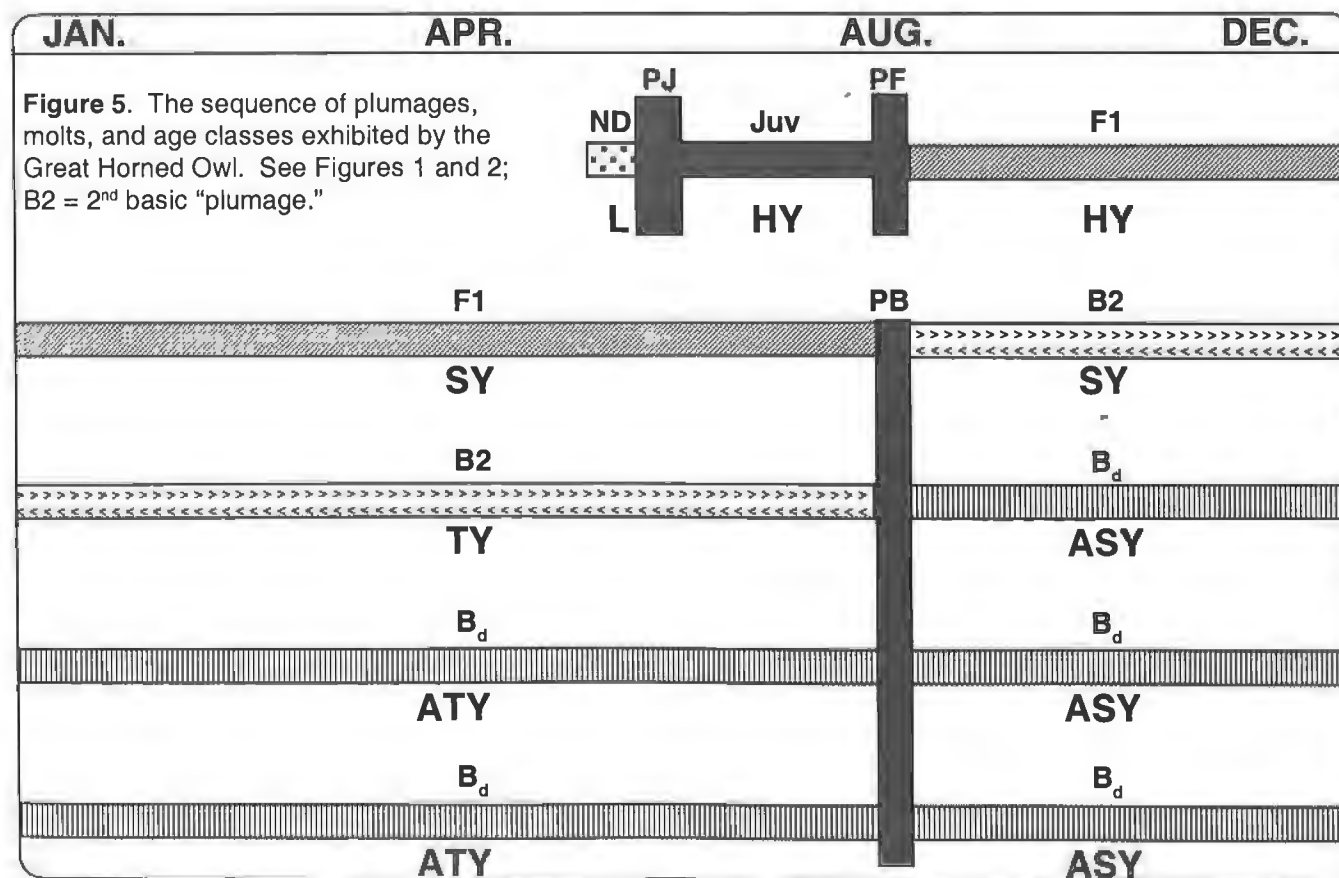
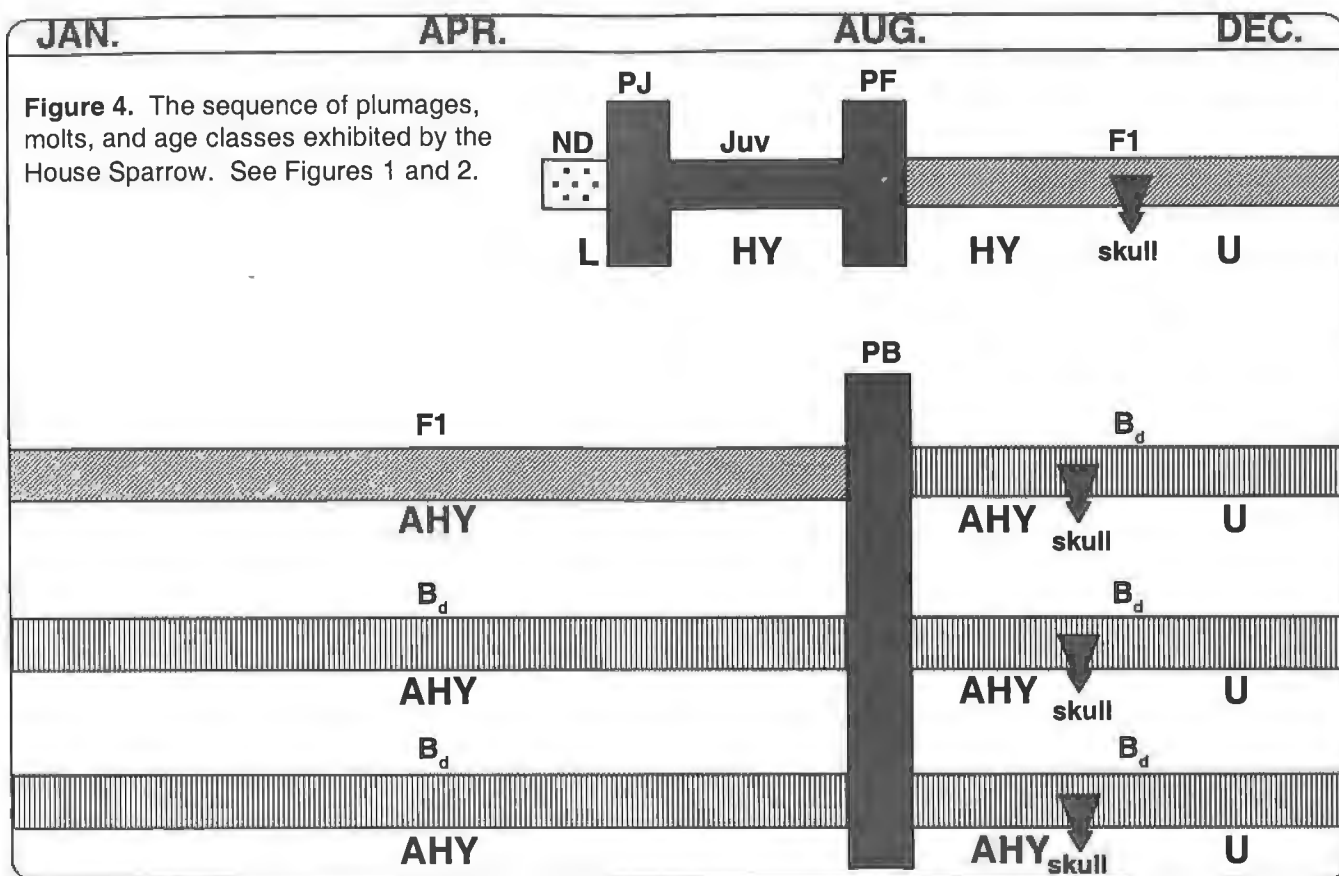
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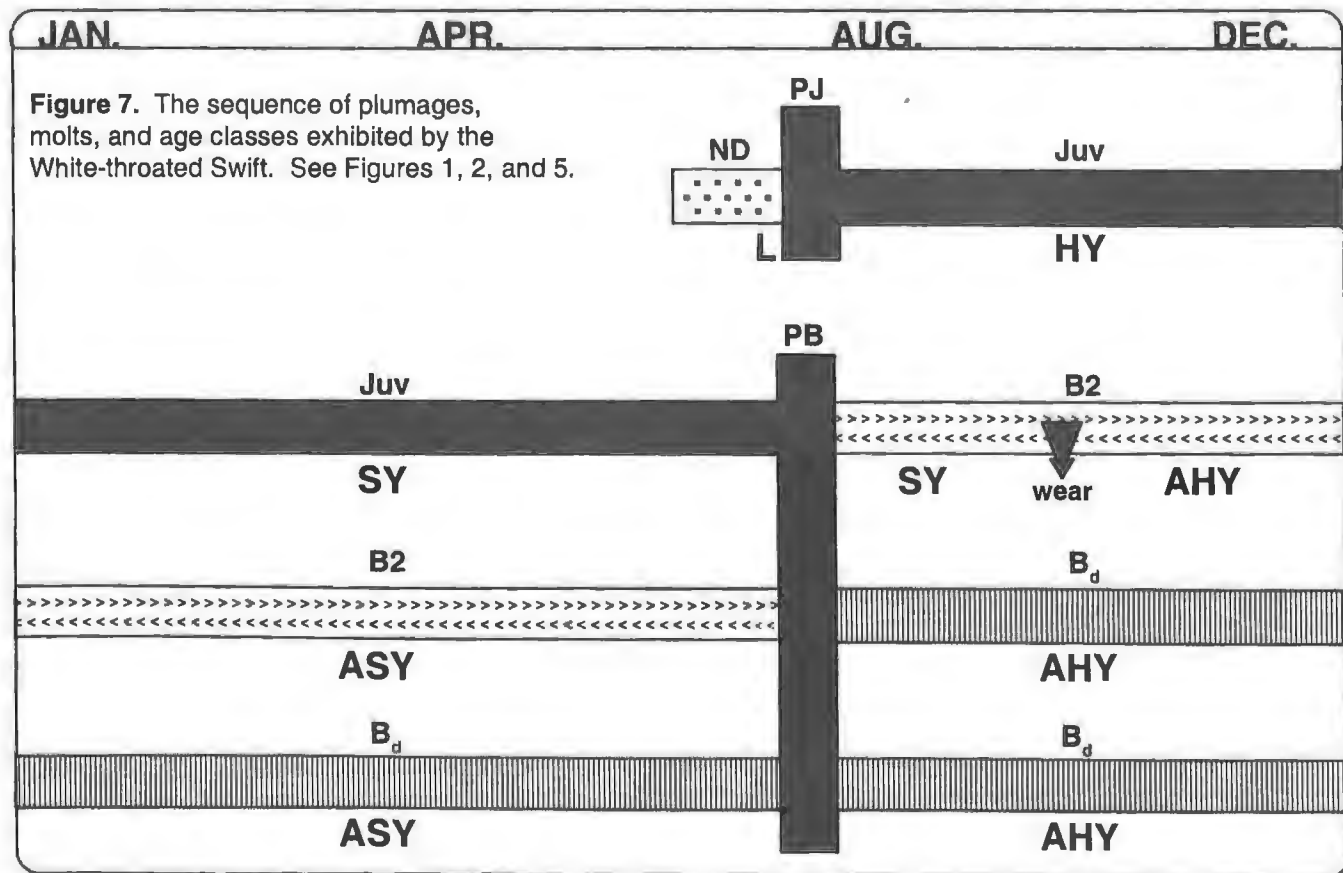
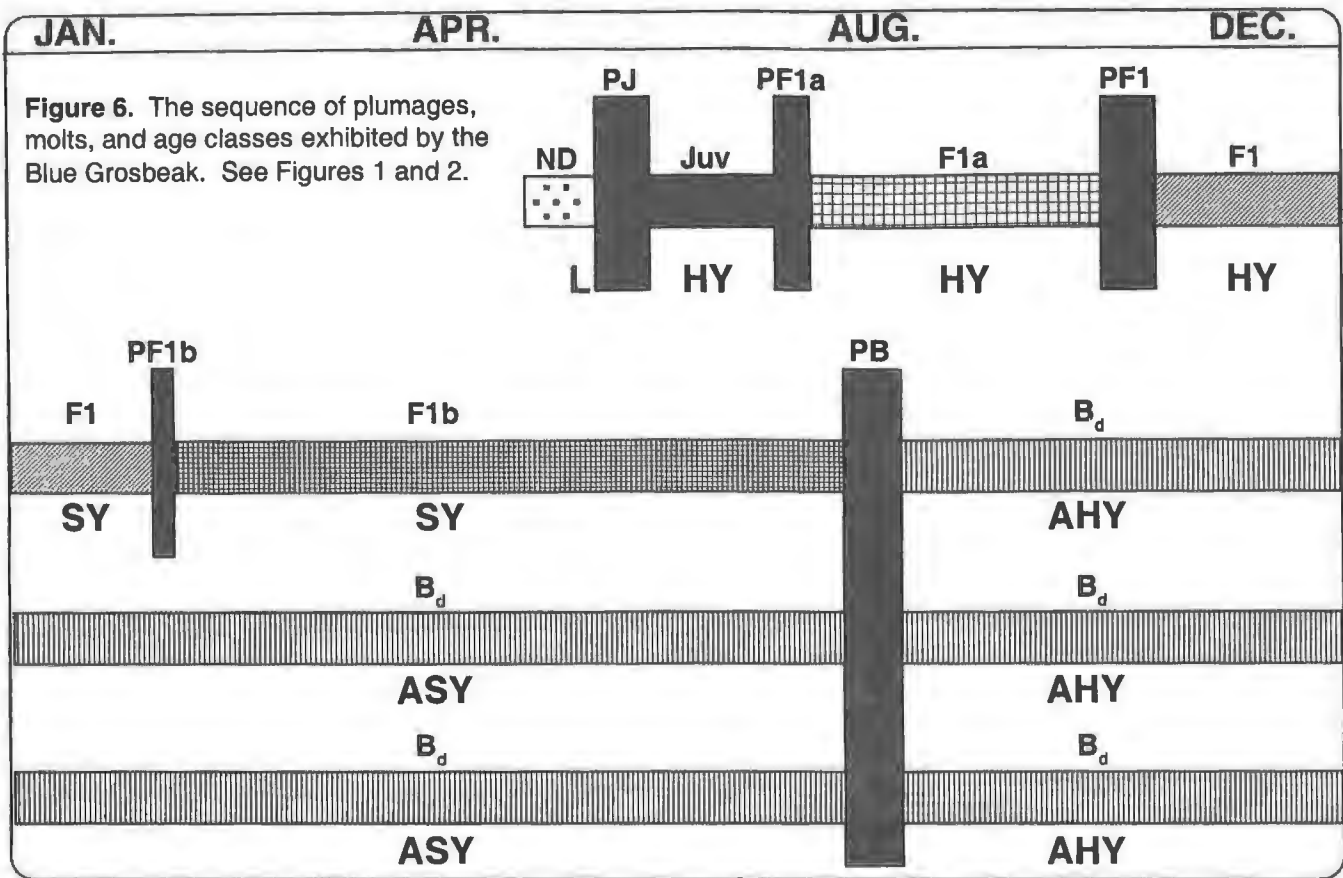
Figures 2 - 7 and the Appendix may be found on the following pages.



Common Ravens
by George West







Appendix 1. Molt strategies and extents of North American passerines and "near-passerines."

PF = preformative molt, PB = prebasic molt, PA = prealternate molt. CAS = Complex Alternate Strategy; CBS = Complex Basic Strategy; SBS = Simple Basic Strategy. A/a = absent, L/l = limited, P/p = partial, I/i = incomplete, C/c = complete. Upper case indicates typical extent; lower case indicates atypical extent (typical extent may be inferred between two atypical extents). Asterisks indicate molts that may be protracted or suspended, extending from one calendar year to the next. Parentheses indicate uncertainty or ambiguity. Information is derived solely from Pyle (1997a) unless modified based on newer information as noted.

SPECIES	STRATEGY	PF(s)	1 ST PA	2 ND PB	ADULT PA	ADULT PB
White-crowned Pigeon	(CBS)	(I-c)*	(A)	(I-C)*	(A)	(I-C)*
Red-billed Pigeon	(CBS)	(I-c)*	(A)	(I-C)*	(A)	(I-C)*
Band-tailed Pigeon	CBS	I-C*	A	I-C*	A	I-C*
White-winged Dove	CBS	I-C*	A	I-C	A	I-C
Mourning Dove	(CBS)	I-C*	(A)	I-C	(A)	I-C
Inca Dove	(CBS)	C	(A)	C	(A)	C
Common Ground-Dove	CBS	I-C*	A	I-C*	A	I-C*
Ruddy Ground-Dove	(CBS)	(I-C)*	(A)	(I-C)*	(A)	(I-C)*
White-tipped Dove	(CBS)	(I-C)*	(A)	(I-C)*	(A)	(I-C)*
Black-billed Cuckoo	CBS	(A)/I-C*	A	I-C*	A	I-C*
Yellow-billed Cuckoo	CBS	(A)/I-C*	A	I-C*	A	I-C*
Mangrove Cuckoo	CBS	(A)/(I-C*)	A	(I-C*)	A	(I-C*)
Greater Roadrunner	CBS	(I-)C*	A	(I-)C*	A	(I-)C*
<i>Crotophaga</i> (2 spp.)	CBS	(I-)C*	A	C*	A	C*
Barn Owl ¹	(SBS)	(A)	A	I*	A	I*
Flammulated Owl	CBS	P	A	I(-c)	A	I-C
Western Screech-Owl	CBS	P	A	I-C	A	C
Eastern Screech-Owl	CBS	P	A	(I-)C	A	C
Whiskered Screech-Owl ²	CBS	P	A	C	A	C
<i>Bubo</i> (2 spp.)	CBS	P*	A	I*	A	I*
Northern Hawk Owl	CBS	P	A	I(-c)	A	I(-c)
<i>Glaucidium</i> (2 spp.)	CBS	P	A	C	A	C
Elf Owl	CBS	P	A	C	A	C
Burrowing Owl	(CBS)	P	A(-I)	C	A(-I)	C
Spotted Owl	CBS	P	A	I(-c)	A	I-c
Barred Owl	CBS	P	A	I(-c)	A	I(-c)
Great Gray Owl	(CBS)	(P)	(A)	(I-c)	(A)	(I-c)
Long-eared Owl	CBS	P	A	I-C	A	I-C
Short-eared Owl	(CBS)	P	A(-I)	I-C	A(-I)	I-C
<i>Aegolius</i> (2 spp.)	CBS	P	A	I(-c)	A	I(-c)
Lesser Nighthawk	CBS	P	A	I-c	A	I-c
Common Nighthawk	CBS	I*	A	I-c*	A	I-c*
Antillean Nighthawk	(CBS)	(I*)	(A)	(I-c*)	(A)	(I-c*)
Common Pauraque	CBS	P	A	I-C	A	I-C
Common Poorwill	CBS	P	A	I-C	A	I-C
Chuck-will's-widow	CBS	P	A	I-C	A	I-C
Buff-collared Nightjar	(CBS)	(P)	(A)	(I-C)	(A)	(I-C)
Whip-poor-will	CBS	P	A	I-C	A	I-C
Black Swift	CBS	(I-)C ^(*)	A	C ^(*)	A	C ^(*)
<i>Chaetura</i> (2 spp.)	CBS	P ^(*)	A	C ^(*)	A	C ^(*)
White-throated Swift ³	SBS	A	A	C ^(*)	A	C ^(*)
Broad-billed Hummingbird	CBS	(I-)C*	A	C*	A	C*
White-eared Hummingbird	CBS	(I-)C*	A	C*	A	C*
Berylline Hummingbird	CBS	(I-)C ^(*)	A	C ^(*)	A	C ^(*)
Buff-bellied Hummingbird	CBS	(I-)C*	A	C*	A	C*
Violet-crowned Hummingbird	CBS	(I-)C*	A	C*	A	C*

SPECIES	STRATEGY	PF(s)	1 ST PA	2 ND PB	ADULT PA	ADULT PB
Blue-throated Hummingbird	CBS	(i-)C*	A	C*	A	C*
Magnificent Hummingbird	CBS	A(-I)/(i-)C*	A	C	A	C
Lucifer Hummingbird	CBS	(L)/(i-)C*	A	C*	A	C*
Archilochus (2 spp.)	CBS	(L)/i-C*	A	C*	A	C*
Anna's Hummingbird	CBS	(L)/i-C*	A	C*	A	C*
Costa's Hummingbird	CBS	(L)/i-C	A	C	A	C
Calliope Hummingbird	CBS	(L)/(i-)C*	A	C*	A	C*
Broad-tailed Hummingbird	CBS	(L)/i-C*	A	C*	A	C*
Rufous Hummingbird	CBS	(L)/i-C*	A	C*	A	C*
Allen's Hummingbird	CBS	(L)/(i-)C*	A	C*	A	C*
Trogonidae (2 spp.)	CBS	P*	A	i-C	A	i-C
Ringed Kingfisher	CBS	(i-c*)	A	(i-C*)	A	(i-C*)
Belted Kingfisher	CBS	I-i*	A	i-C*	A	i-C*
Green Kingfisher	CBS	p-I*	A	(i-)C	A	(i-)C
Lewis's Woodpecker	CBS	P*	A	I	A	I-c
Red-headed Woodpecker	CBS	I*	A	I	A	I-C
Acorn Woodpecker	CBS	P	A	I	A	I-c
Gila Woodpecker	CBS	I	A	I	A	I-C
Golden-fronted Woodpecker	CBS	I	A	I	A	I-C
Red-bellied Woodpecker	CBS	I	A	I	A	I-C
Williamson's Sapsucker	CBS	I	A	I	A	I-C
Yellow-bellied Sapsucker	CBS	I*	A	I	A	I(-c)
Red-naped Sapsucker	CBS	I	A	I	A	I(-c)
Red-breasted Sapsucker	CBS	I	A	I	A	I(-c)
Ladder-backed Woodpecker	CBS	I	A	I	A	I-C
Nuttall's Woodpecker	CBS	I	A	I	A	I-C
Downy Woodpecker	CBS	I	A	I	A	I-C
Hairy Woodpecker	CBS	I	A	I	A	I-C
Arizona Woodpecker	CBS	I	A	I	A	I-C
Red-cockaded Woodpecker	CBS	I	A	I	A	I-C
White-headed Woodpecker	CBS	I	A	I	A	I-C
Amer. Three-toed Woodpecker	CBS	I	A	I	A	I-C
Black-backed Woodpecker	CBS	I	A	I	A	I-c
Colaptes (2 spp.)	CBS	I	A	I	A	I-C
Pileated Woodpecker	CBS	I	A	I	A	I-C
Northern Beardless-Tyrannulet	CAS	C	(a-P)	C	(a-p)	C
Olive-sided Flycatcher	CBS	I*	A	C*	A	C*
Greater Pewee	CBS	P	A	C	A	C
Western Wood-Pewee	CBS	I*	A	C*	A	C*
Eastern Wood-Pewee ⁴	CBS	(i-C)*	A	C*	A	C*
Yellow-bellied Flycatcher	CAS	P	I	i-C	P-i	i-C
Acadian Flycatcher	CAS	P	P-i	C	P	C
Alder Flycatcher ⁵	(CBS)	I-c*	(A)	i-C*	(A)	i-C*
Willow Flycatcher ⁶	CAS	P	I-C	(i-C)	P-i	(i-C)
Least Flycatcher	CAS	P	P-i	C	P	C
Hammond's Flycatcher	CAS	P	P	C	P	C
Dusky Flycatcher	CAS	P	P	C	L-p	C
Gray Flycatcher	CAS	P	P-i	(i-)C	P-i	(i-)C
Pacific-slope Flycatcher	CAS	P-i	P	C	P	C
Cordilleran Flycatcher	CAS	P	P	C	P	C
Buff-breasted Flycatcher	CAS	P	L	C	L	C
Black Phoebe	CBS	P-i	A	C	A	C
Eastern Phoebe	CBS	P	A	C	A	C
Say's Phoebe	CAS	P	A-I(-p)	C	A-I(-p)	C
Vermilion Flycatcher	CAS	I	(A-I)	C	(A-I)	C
Dusky-capped Flycatcher	CAS	I*	L-(i)	C	L-p	C
Ash-throated Flycatcher	CAS	I	I-i	C	L-p	C

SPECIES	STRATEGY	PF(s)	1 ST PA	2 ND PB	ADULT PA	ADULT PB
Great Crested Flycatcher	CAS	I*	P-i	C	P	C
Brown-crested Flycatcher	CAS	I*	I-I	C	L-p	C
Great Kiskadee	CAS	P	(a-L)	C	(a-L)	C
Sulphur-bellied Flycatcher	CAS	I*	I	C*	L	C*
Tropical Kingbird	CAS	(p-l)	(p-l)	i-C	P-i	i-C
Couch's Kingbird	CAS	(P-i)	(p-l)	i-C	P-i	i-C
Cassin's Kingbird	CAS	P-i	a-l	C	a-p	C
Thick-billed Kingbird	CAS	P	P	i-C	P-i	i-C
Western Kingbird	CAS	I	I	I-c	p-l	I-c
Eastern Kingbird	CAS	(i-C)*	P	C*	P	C*
Gray Kingbird	(CAS)	(I)*	A(-p)	C*	A(-p)	C*
Scissor-tailed Flycatcher	CAS	p-l	I	I-c	p-l	I-c
Fork-tailed Flycatcher	(CAS)	(P*)	(a-P)	(C*)	(a-p)	(C*)
Rose-throated Becard	CAS	P	(a-P)	C	(a-L)	C
Loggerhead Shrike	CAS	(A)/p-l	(a-L)	C	(A-I)	C
Northern Shrike	CAS	(A)/P	P	C	(A-I)	C
White-eyed Vireo	CBS	p-l	A	C	A	C
Bell's Vireo	CBS	P-i	A	C	A	C
Black-capped Vireo	CAS	P-i	I-P	C	I-P	C
Gray Vireo	CAS	P-l	I-P	C	(a-L)	C
Yellow-throated Vireo	CAS	P	P	C	P	C
Plumbeous Vireo	CAS	P	a-p	C	a-p	C
Cassin's Vireo	CAS	P	a-p	C	a-p	C
Blue-headed Vireo	CAS	P	a-p	C	a-p	C
Hutton's Vireo	CBS	P	A	C	A	C
Warbling Vireo	CAS	P	L	C	L(-p)	C
Philadelphia Vireo	(CBS)	P	(A)	(i-C)	(A-i)	(i-C)
Red-eyed Vireo	(CBS)	P	(A)	(C*)	(A)	(C*)
Yellow-green Vireo	(CBS)	(P)	(A)	(C*)	(A)	(C*)
Black-whiskered Vireo	(CBS)	(P)	(A)	(C*)	(A)	(C*)
Gray Jay	CBS	P	A	C	A	C
Steller's Jay	CBS	P	A	C	A	C
Blue Jay	CBS	P-i	A	C	A	C
Green Jay	CBS	p-l	A	C	A	C
Brown Jay	CBS	P	A	C	A	C
Florida Scrub-Jay	CBS	P-i	A	C	A	C
Island Scrub-Jay	CBS	P	A	C	A	C
Western Scrub-Jay	CBS	P	A	C	A	C
Mexican Jay	CBS	P	A	C	A	C
Pinyon Jay	CBS	P-i	A	C	A	C
Clark's Nutcracker	CBS	P*	A	C	A	C
Pica (2 spp.)	CBS	P	A	C	A	C
Corvus (5 spp.)	CBS	P	A	C	A	C
Horned Lark	CAS	C	a-L	C	A-l	C
Purple Martin	(CBS)	C*	(A)	C*	(A)	C*
Tree Swallow	CAS	C	A-l	C	A-l	C
Violet-green Swallow	(CBS)	C	(A)	C	(A)	C
Northern Rough-winged Swallow	CAS	C*	a-L	C	(A-l)	C
Bank Swallow	(CBS)	C*	(A)	C*	(A)	C*
Cliff Swallow	(CBS)	C*	(A)	C*	(A)	C*
Cave Swallow	(CBS)	C(*)	(A)	C	(A)	C
Barn Swallow	(CBS)	C*	(A)	C*	(A)	C*
Carolina Chickadee	CBS	P-i	A	C	A	C
Black-capped Chickadee	CBS	P	A	C	A	C
Mountain Chickadee	CBS	P	A	C	A	C
Mexican Chickadee	CBS	P	A	C	A	C
Chestnut-backed Chickadee	CBS	P	A	C	A	C
Boreal Chickadee	CBS	P	A	C	A	C

SPECIES	STRATEGY	PF(s)	1 ST PA	2 ND PB	ADULT PA	ADULT PB
Gray-headed Chickadee	CBS	P	A	C	A	C
Bridled Titmouse	CBS	P-i	A	C	A	C
Oak Titmouse	CBS	p-l	A	C	A	C
Juniper Titmouse	CBS	p-l	A	C	A	C
Tufted Titmouse	CBS	p-l	A	C	A	C
Black-crested Titmouse	CBS	p-l	A	C	A	C
Verdin	CBS	l	A	C	A	C
Bushtit	CBS	C	A	C	A	C
Red-breasted Nuthatch	CAS	P	a-L	C	a-L	C
White-breasted Nuthatch	CBS	P	A	C	A	C
Pygmy Nuthatch	CAS	P	L	C	L	C
Brown-headed Nuthatch	CAS	P	L	C	L	C
Brown Creeper	CBS	(l)	A	C	A	C
Cactus Wren	CBS	l	A	C	A	C
Rock Wren	CBS	(P-i)	A	C	A	C
Canyon Wren	CBS	P	A	C	A	C
Carolina Wren	CBS	p-l	A	C	A	C
Bewick's Wren	CBS	P-i	A	C	A	C
<i>Troglodytes</i> (2 spp.)	CBS	P-i	A	C	A	C
Sedge Wren	CAS	P-i	P-i	C	P-i	C
Marsh Wren	CAS	l	P-i	C	P-i	C
American Dipper	(CBS)	P	A(-l)	C	A(-l)	C
Golden-crowned Kinglet	CBS	P	A	C	A	C
Ruby-crowned Kinglet	CAS	P	A-l	C	A-l	C
Arctic Warbler ⁸	(CBS)	(C*)	(A)	(C*)	(A)	(C*)
Blue-gray Gnatcatcher	CAS	P-i	P-i	C	P	C
California Gnatcatcher	CAS	P-i	P-i	C	P	C
Black-tailed Gnatcatcher	CAS	P-i	P	C	P	C
Black-capped Gnatcatcher	(CAS)	(P-i)	P(-i)	C	(P)	C
Bluethroat	CAS	P	a-L	C	a-L	C
Northern Wheatear	CAS	P	P	C	P	C
Eastern Bluebird	CBS	P-i	A	C	A	C
Western Bluebird	CBS	P-i	A	C	A	C
Mountain Bluebird	CBS	P	A	C	A	C
Townsend's Solitaire	CBS	P-i	A	C	A	C
<i>Catharus</i> (5 spp.)	CBS	P	A	C	A	C
Wood Thrush	(CAS)	P	(A-l)	C	(A-l)	C
<i>Turdus</i> (2 spp.)	CBS	P	A	C	A	C
Varied Thrush ⁹	CBS	P	A	C	A	C
Wrentit ¹⁰	CBS	i-C	A	C	A	C
Gray Catbird	(CBS)	P	A(-l)	C	A(-l)	C
Northern Mockingbird	CBS	p-l	A	C	A	C
Sage Thrasher	CBS	P	A	C	A	C
Brown Thrasher	CBS	P	A	C	A	C
Long-billed Thrasher	CBS	P-i	A	C	A	C
Bendire's Thrasher	(CBS)	(p-l)	(A)	C	(A)	C
Curve-billed Thrasher	CBS	P-i	A	C	A	C
California Thrasher	CBS	P-i	A	C	A	C
Crissal Thrasher	CBS	p-l	A	C	A	C
Le Conte's Thrasher	CBS	P-i	A	C	A	C
European Starling	CBS	i-C	A	C	A	C
Eastern Yellow Wagtail	CAS	(A)/P	P(-i)	C	P(-i)	C
White Wagtail	CAS	(P-i)	(P-i)	C	(P-i)	C
Red-throated Pipit	CAS	(A)/P	I-P	C	I-P	C
American Pipit	CAS	P	P	C	P	C
Sprague's Pipit	CAS	P-i	P	C	P	C
Bohemian Waxwing ¹¹	CBS	P	A	C	A	C
Cedar Waxwing	CBS	P	A	(i-)C*	A	(i-)C*

SPECIES	STRATEGY	PF(s)	1 ST PA	2 ND PB	ADULT PA	ADULT PB
Phainopepla	CBS	L-p/p-c	A	C	A	C
Olive Warbler	CAS	P	A-l	C	(A)	C
Bachman's Warbler	CAS	P	L	C	L	C
Blue-winged Warbler	(CBS)	P	A(-l)	C	A(-l)	C
Golden-winged Warbler	(CBS)	P	A(-l)	C	A(-l)	C
Tennessee Warbler	CAS	P	L	C	L	C
Orange-crowned Warbler	CAS	P	a-L	C	a-L	C
Nashville Warbler	CAS	P	L(-p)	C	L	C
Virginia's Warbler	CAS	P	L(-p)	C	L	C
Colima Warbler	CAS	P	L	C	L	C
Lucy's Warbler	CBS	P	A	C	A	C
Northern Parula	CAS	P	a-L	C	a-L	C
Tropical Parula	CAS	P	a-(p)	C	a-L	C
Yellow Warbler	CAS	P	P-i*	C	P*	C
Chestnut-sided Warbler	CAS	P	P(*)	C	P(*)	C
Magnolia Warbler	CAS	P	P(*)	C	P(*)	C
Cape May Warbler	CAS	P	L(*)	C	L(*)	C
Black-throated Blue Warbler	CAS	P	a-L(*)	C	A-l(*)	C
Yellow-rumped Warbler	CAS	P	P*	C	P*	C
Black-throated Gray Warbler	CAS	P	L(*)	C	L(*)	C
Golden-cheeked Warbler	CAS	P	L(*)	C	L(*)	C
Black-throated Green Warbler ¹²	CAS	P	L*	C	L*	C
Townsend's Warbler ¹³	CAS	P	L*	C	L*	C
Hermit Warbler	CAS	P	L(*)	C	L(*)	C
Blackburnian Warbler	CAS	P	P*	C	P*	C
Yellow-throated Warbler	(CBS)	P	(A)	C	(A)	C
Grace's Warbler	(CBS)	P	A(-l)*	C	A(-l)*	C
Pine Warbler	CBS	P(-i)	A	C	A	C
Kirtland's Warbler	CAS	P	L(-p)(*)	C	L(-p)(*)	C
Prairie Warbler	CAS	P	L*	C	L*	C
Palm Warbler	CAS	P	L(*)	C	L(*)	C
Bay-breasted Warbler	CAS	P	P(*)	C	P(*)	C
Blackpoll Warbler	CAS	P	P(*)	C	P(*)	C
Cerulean Warbler	CAS	P	P(*)	C	P(*)	C
Black-and-white Warbler	CAS	P	P	C	P	C
American Redstart	CAS	P	a-L*	C	a-L*	C
Prothonotary Warbler	CBS	P	A	C	A	C
Worm-eating Warbler	CBS	P	A	C	A	C
Swainson's Warbler	CBS	P	A	C	A	C
Ovenbird	CAS	P	a-L(*)	C	a-L(*)	C
Northern Waterthrush	CAS	P	L*	C	L*	C
Louisiana Waterthrush	CAS	P	a-L(*)	C	a-L(*)	C
Kentucky Warbler	CAS	P	L(*)	C	L(*)	C
Connecticut Warbler	CAS	P	L(*)	C	L(*)	C
Mourning Warbler	CAS	P	L(*)	C	L(*)	C
MacGillivray's Warbler	CAS	P	L-p(*)	C	L-p(*)	C
Common Yellowthroat	CAS	P-i	a-p*	C	a-p*	C
Gray-crowned Yellowthroat	(CAS)	P(-i)	(a-L)*	C	(a-L)*	C
Hooded Warbler	CBS	P(-c)	A	C	A	C
Wilson's Warbler	CAS	P	a-L(*)	C	a-L(*)	C
Canada Warbler ¹⁴	CAS	P	L-p	C	L-p	C
Red-faced Warbler	CBS	P	A	C	A	C
Painted Redstart	CBS	P	A	C	A	C
Rufous-capped Warbler	CAS	P	(A-l)(*)	C	(A-l)(*)	C
Yellow-breasted Chat	CBS	(l)/l(-c)	A	C	A	C
Hepatic Tanager	CAS	P	a-L(*)	(i-)C	a-L(*)	(i-)C
Summer Tanager	CAS	P	P-i	C	L-p	C
Scarlet Tanager	CAS	P	I	C	P	C

SPECIES	STRATEGY	PF(s)	1 ST PA	2 ND PB	ADULT PA	ADULT PB
Western Tanager	CAS	P	P-i	C	L-p	C
Flame-colored Tanager	(CBS)	(P)	(A)	C	(A)	C
White-collared Seedeater ¹⁵	CAS	(p-C) ^(*)	L-p ^(*)	C ^(*)	L-p ^(*)	C ^(*)
Olive Sparrow	CBS	P	A	C	A	C
Green-tailed Towhee	CAS	P	a-L	C	a-L	C
Spotted Towhee	CAS	P-i	A-l	C	A-l	C
Eastern Towhee	CAS	P-i	A-l	C	A-l	C
Canyon Towhee	CBS	P-i	A	C	A	C
California Towhee	CBS	P-i	A	C	A	C
Abert's Towhee ¹⁶	CBS	P-i	A	C	A	C
Rufous-winged Sparrow	CAS	P-i	P-i	C	P-i	C
Cassin's Sparrow	CAS	I/C	P	C	P	C
Bachman's Sparrow	CAS	I/C	P	C	P	C
Botteri's Sparrow	CAS	(a-P)/(i-)C	P(-i)	C	P(-i)	C
Rufous-crowned Sparrow ¹⁷	(CBS)	P-i ^(*)	A(-l)	C	(A)	C
Five-striped Sparrow	CAS	(L)/P-i	L	C	L	C
American Tree Sparrow	CAS	P	L-p	C	L-p	C
Chipping Sparrow	CAS	P-i	L*	C	L*	C
Clay-colored Sparrow	CAS	P	P	(i-)C	P	(i-)C
Brewer's Sparrow	CAS	P	I-P	C	I-P	C
Field Sparrow	CAS	(L)/p-l	L	(i-)C	L	(i-)C
Black-chinned Sparrow	CAS	P	I-P	C	L-p	C
Vesper Sparrow	CBS	P	A	C	A	C
Lark Sparrow	CAS	P/p-l	a-L	C	a-L	C
Black-throated Sparrow	CBS	(A)/l	A	C	A	C
Sage Sparrow	CBS	P-i	A	C	A	C
Lark Bunting	CAS	I	P-i	C	P-i	C
Savannah Sparrow	CAS	P	L-i	C	L-i	C
Grasshopper Sparrow	CAS	(A-l)/i-C	a-L	(i-)C	a-L	(i-)C
Baird's Sparrow	CAS	P	I-P	C	I-P	C
Henslow's Sparrow	CAS	(A-l)/P-(c)	L	C	L	C
Le Conte's Sparrow	CAS	P-i	P	C	P	C
Nelson's Sharp-tailed Sparrow	CAS	P	I	C	I	C
Saltmarsh Sharp-tailed Sparrow	CAS	P-i	I	C	I	C
Seaside Sparrow	CAS	(A)/p-l	a-P	C	a-P	C
Fox Sparrow	CAS	P	a-L	C	a-L	C
Song Sparrow	CBS	p-(c)	A	C	A	C
Lincoln's Sparrow	CAS	P	L-p	C	L-p	C
Swamp Sparrow	CAS	P	L	C	L	C
White-throated Sparrow	CAS	P	L	C	L	C
Harris's Sparrow	CAS	P	P	C	P	C
White-crowned Sparrow	CAS	P	P	C	P	C
Golden-crowned Sparrow	CAS	P	P	C	P	C
Dark-eyed Junco	CAS	P	L	i-C	L	i-C
Yellow-eyed Junco	CAS	P	L	C	L	C
McCown's Longspur	CAS	P	L	C	L	C
Lapland Longspur	CAS	P	L	C	L	C
Smith's Longspur	CAS	P	L-p	C	L-p	C
Chestnut-collared Longspur	CAS	L-p	L	C	L	C
<i>Plectrophenax</i> (2 spp.)	CBS	P	A	C	A	C
Northern Cardinal	CBS	P/p-C	A	C	A	C
Pyrrhuloxia ¹⁸	CBS	L-p/p-c	A	C	A	C
Rose-breasted Grosbeak	(CAS)	(P)/P	(P-i*)	(i-)C	A(-l)	(i-)C
Black-headed Grosbeak	(CAS)	(A)/P	(P-i*)	i-C	A(-l)	i-C
Blue Grosbeak	CBS	P/p-c/L-p*	A	i-C	A	i-C
Lazuli Bunting	CAS	(a-)L(-p)/l	L	C	L	C
Indigo Bunting	CAS	(a-)L(-p)/l	P-i	C	P-i	C
Varied Bunting	CBS	L-p/l	A	C	A	C

SPECIES	STRATEGY	PF(s)	1 ST PA	2 ND PB	ADULT PA	ADULT PB
Painted Bunting	CAS	L-p/l	I-P*	C	I-P*	C
Dickcissel	CAS	(A)/P	L-p*	C	L-p*	C
Bobolink	CAS	P(-i)	i-C	(i-)C	(i-)C	(i-)C
Red-winged Blackbird	CAS	I-C	L-p	C	(a-L)	C
Tricolored Blackbird	CAS	(i-)C	L-p	C	a-L	C
<i>Sturnella</i> (2 spp.)	CBS	C	A	C	A	C
Yellow-headed Blackbird	(CBS)	P	A(-I)	C	A(-I)	C
Rusty Blackbird	CBS	(i-)C	A	C	A	C
Brewer's Blackbird ¹⁹	(CBS)	I-c/L	A	C	(A)	C
Common Grackle	CAS	(i-C)	(a-)L	C	(a-)L	C
Boat-tailed Grackle	(CBS)	(i-C)	(A-I)	C	(A-I)	C
Great-tailed Grackle ²⁰	CAS	I-c	a-L	C	A	C
Shiny Cowbird	CBS	I-c	A	C	A	C
Bronzed Cowbird	CAS	(i-)C	a-L	C	A-I	C
Brown-headed Cowbird	CAS	I-c	(a-)L	C	(a-)L	C
Orchard Oriole	CAS	(A)/I	(a-)L ^(*)	C	(a-L) ^(*)	C
Hooded Oriole	CAS	(A)/p-I	(a-)L ^(*)	C	(a-L) ^(*)	C
Streak-backed Oriole	(CAS)	P-I	(a-p)	C	(a-p)	C
Altamira Oriole ²¹	(CAS)	(p-I)	A(-I)	C	A	C
Audubon's Oriole	CBS	P-I	A	C	A	C
Baltimore Oriole	CAS	P	(I-I)*	C	(a-L)	C
Bullock's Oriole	CAS	(p-I)	A-I	C	A	C
Scott's Oriole	CAS	P-I	(A-I)	C	(A-I)	C
<i>Leucosticte</i> (3 spp.)	CBS	P	A	C	A	C
Pine Grosbeak	CBS	P	A	C	A	C
Purple Finch	CAS	P	L	C	L	C
Cassin's Finch	CAS	P	L	C	L	C
House Finch	(CAS)	p-(c)	A(-I)	C	A(-I)	C
Red Crossbill	CBS	I-(i)	A	i-C	A	C
White-winged Crossbill	(CBS)	(I-i)	(A)	(i-C)	(A)	C
Common Redpoll	CBS	P	A	i-C	A	i-C
Hoary Redpoll	CBS	P	A	C	A	C
Pine Siskin	CAS	P	L	C	L	C
Lesser Goldfinch	CAS	p-I	L-i(-c)	(i-)C	L-i(-c)	(i-)C
Lawrence's Goldfinch	CAS	(P-i)	L-p	C	L-p	C
American Goldfinch	CAS	P	P	C	P	C
Evening Grosbeak	CAS	P	(a-L)	C	(a-L)	C
<i>Passer</i> (2 spp.)	CBS	C	A	C	A	C

¹Howell *et al.* (2003)

²Gelbach and Gelbach (2000)

³Marin (2003)

⁴Burton (2002)

⁵Lowther (1999)

⁶Pyle (1998)

⁷Gardali and Ballard (2000)

⁸P. Pyle (pers. comm.)

⁹George (2000)

¹⁰Flannery and Gardali (2000)

¹¹Witmer (2002)

¹²Morse and Poole (2005)

¹³Wright *et al.* (1998)

¹⁴Conway (1999)

¹⁵Eitner (1997)

¹⁶Tweit and Finch (1994), pers. obs.

¹⁷Collins (1999)

¹⁸Tweit and Thompson (1999)

¹⁹Martin (2002)

²⁰Johnson and Peer (2001)

²¹Brush (2005)