



Ageing and Sexing Passerines

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Importance for rehab?

- Migration
- Life experience
- Banding permits
- Record keeping



© Ana Mendes

Outline

- Age classification system
- Feather topography
- Moults
- Ageing
 - Plumage
 - Skulling
- Sexing
- Case studies
 - Spotted Towhee
 - Hermit Thrush
 - Black-capped Chickadee
 - Rufous Hummingbird
 - Dark-eyed Junco (Oregon Junco)



Age classification system

- From North American Banding Council (NABC)



- Bird aged according to number of **calendar** years it has survived

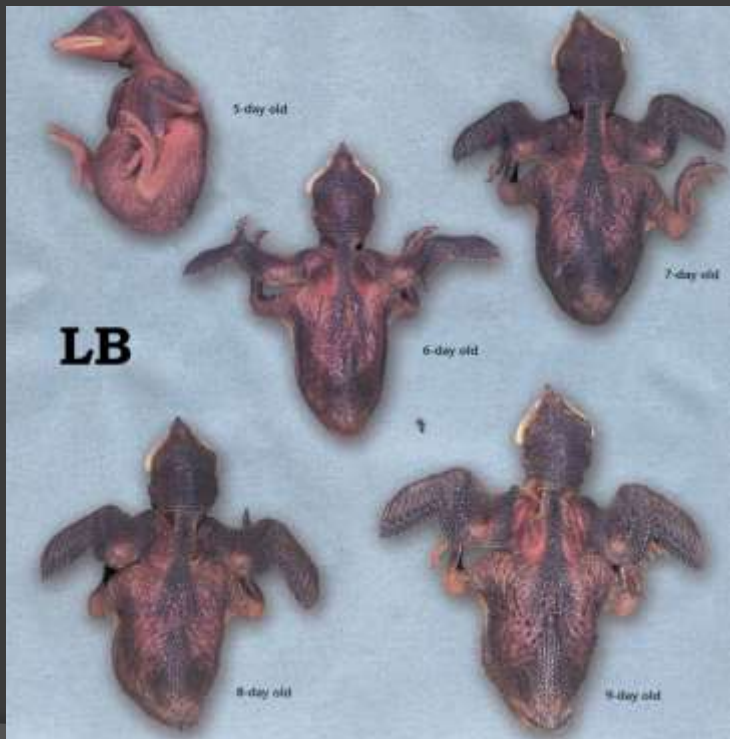
- HY – Hatch year
- January 1st = every bird's birthday



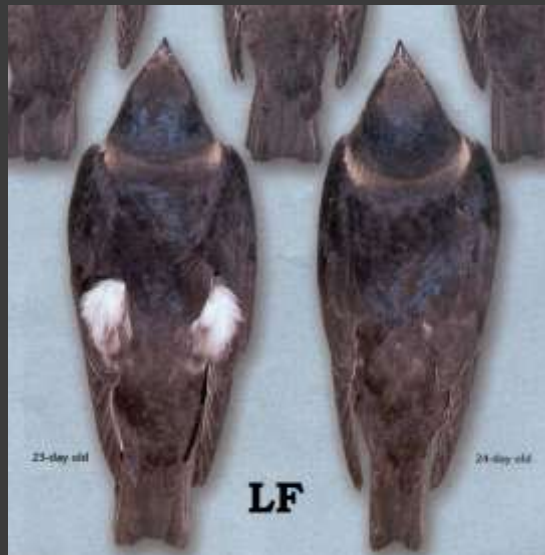
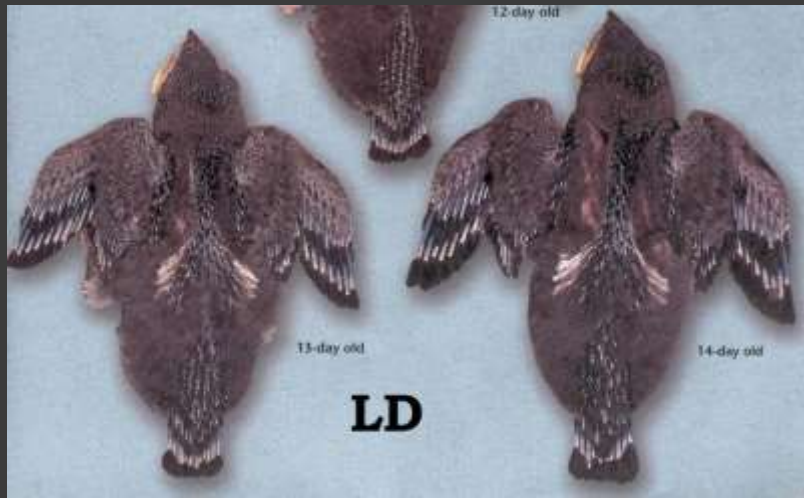
- SY – Second year
- TY – Third year

- ⦿ AHY – After hatch year
- ⦿ ASY – After second year
- ⦿ ATY – After third year

◎ L – Local (Not yet flighted)



◎ L – Local



⦿ L – Local



© Kiyoshi Takahashi

⦿ Once LG (fledgling) is capable of sustained flight it becomes **HY**



© James Kennerley

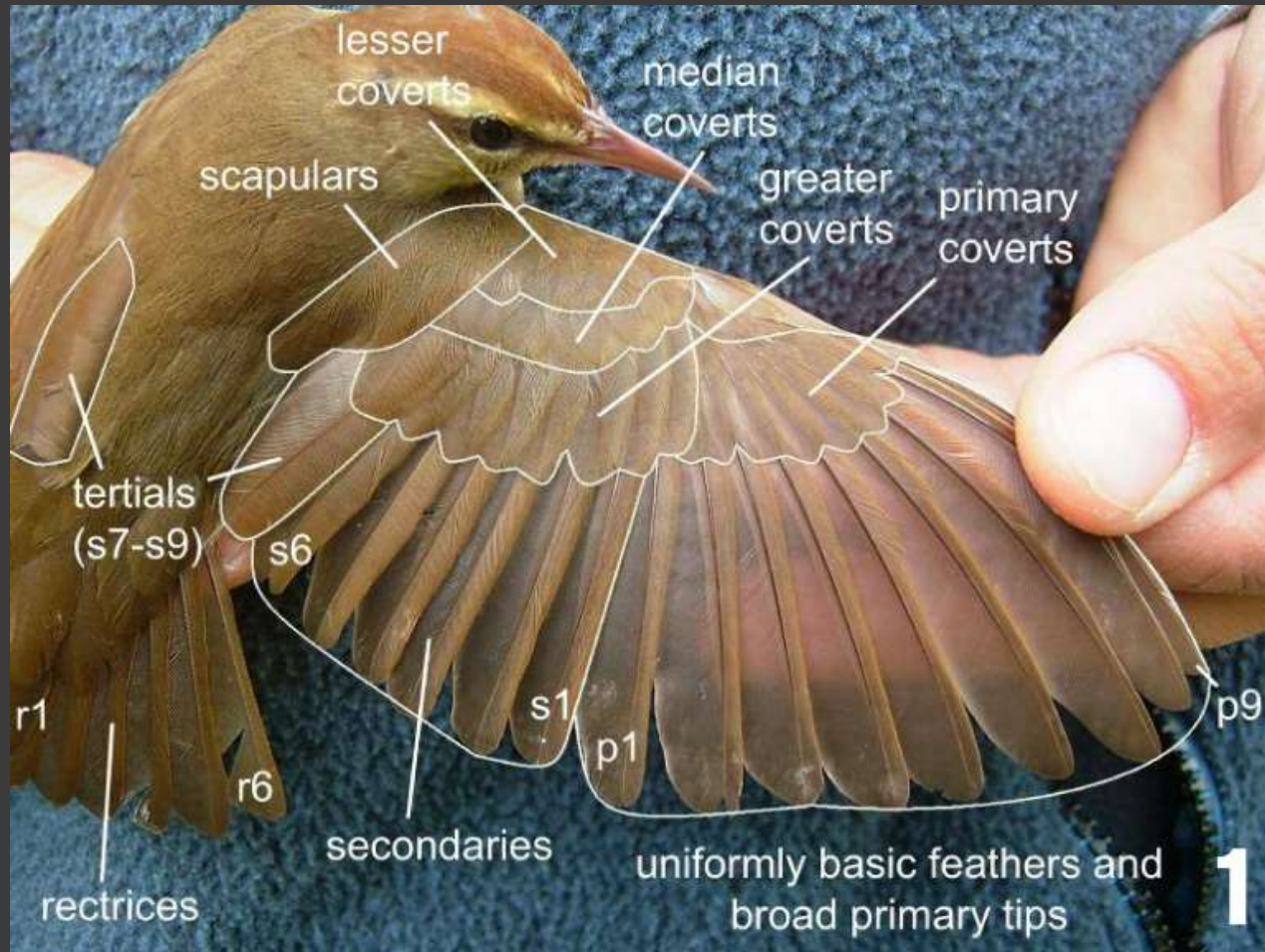
U – Unknown



?

Undeterminable
-no criteria available

Feather topography



Commonly used abbreviations

- ⦿ Primaries 1-10
 - P1-P10
- ⦿ Secondaries 1-6
 - S1-S6
- ⦿ Tertials (technically secondaries)
 - S7-S9
- ⦿ Rectrices 1-6
 - R1-R6
- ⦿ Greater coverts
 - Gr covs
- ⦿ Primary coverts
 - Pp covs
- ⦿ Alula 1-3
 - A1-A3

Carpal covert



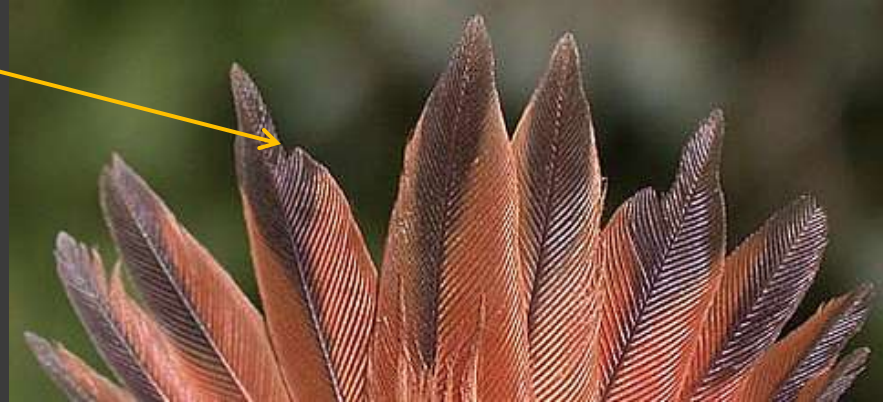
© 2011 Tyler Christensen

Be careful not to
mistake for growing
feather

Feather shape

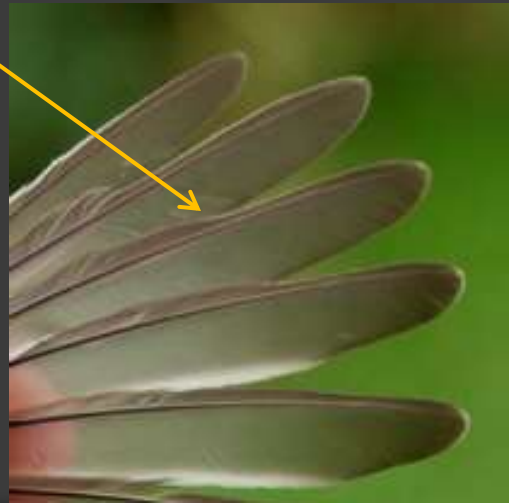
- ◎ Notch

- Inside edge



- ◎ Emargination

- Outside edge



Moult

- ⦿ “A loss of feathers, hair, or skin, especially as a regular feature of an animal’s life cycle”
- ⦿ Elaborate and intense process



- ⦿ Adventitious feather replacement is not moult
 - e.g. Predator attack resulting in lost rectrs



- All North American passerines have a moult strategy that includes a single, predominant replacement of feathers during the year

Second prebasic moult

- In juveniles it is referred to as the **preformative moult**

Second prebasic moult

breakdown

An adult's **second prebasic moult** will result in it having *adult-basic plumage*



- Usually takes place on summer grounds and often in the breeding territory

Preformative moult breakdown

A juvenile's **preformative moult** will result in it having *formative plumage*



- ⦿ *But before that happens:*
 - *1st Pre-basic moult*
 - *Natal down → Juvenile plumage*

- ◉ With one or two exceptions, the **second prebasic moult** of adults is *complete*



- ◎ In near-passerine families, it can be less than complete
 - Includes most body feathers, but not all flight feathers

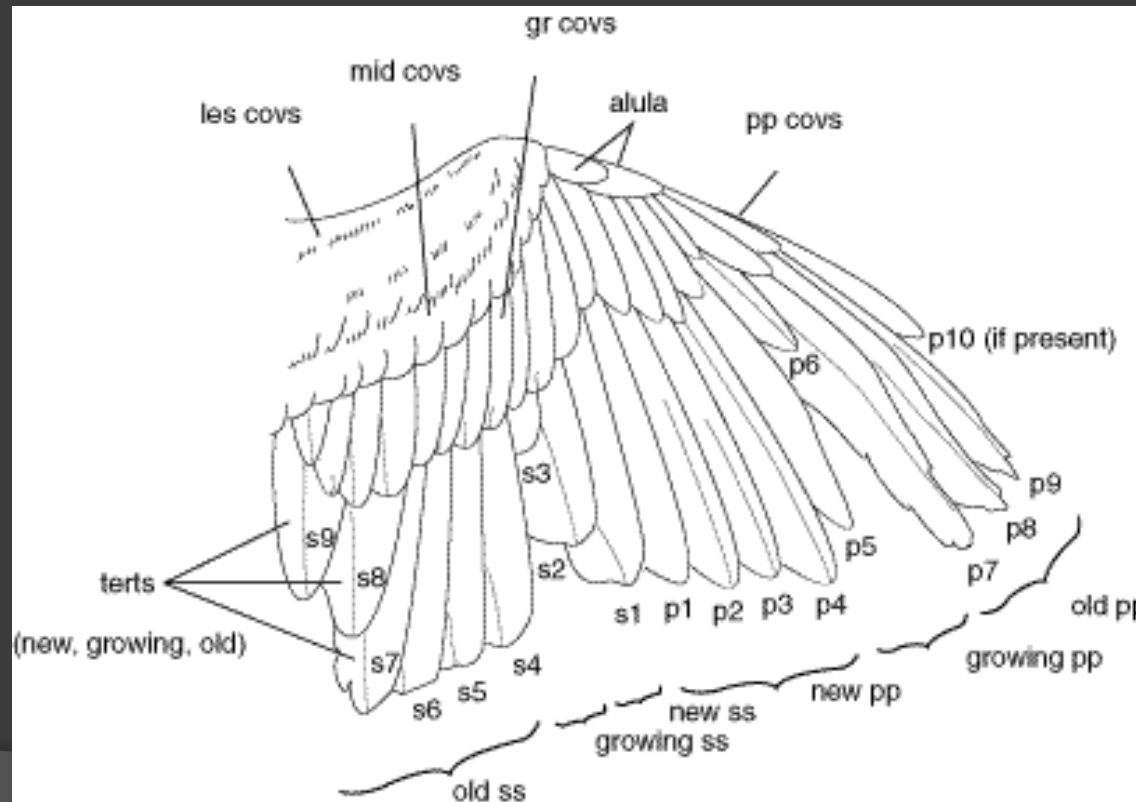


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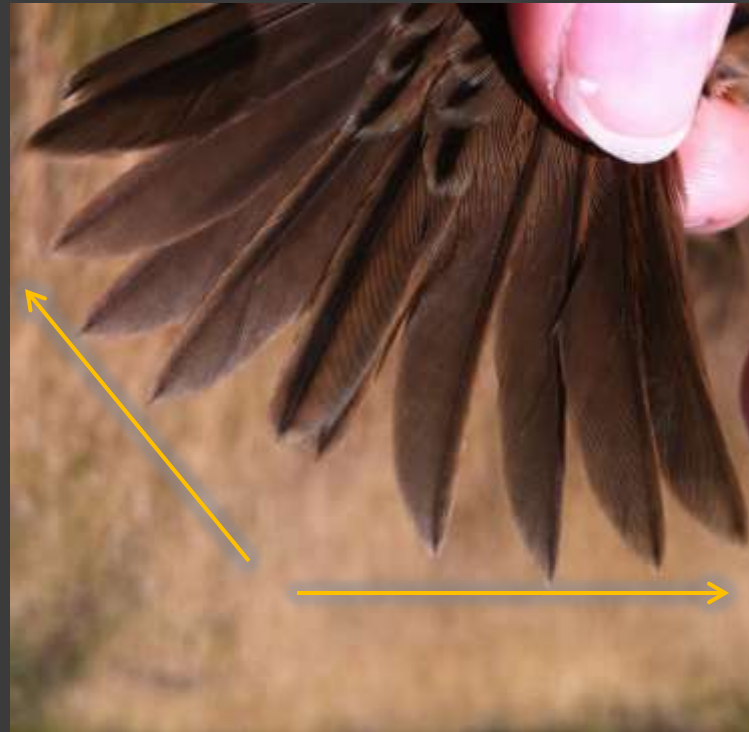
Moult Sequence

Typical **second prebasic moult** sequence of flight feathers:

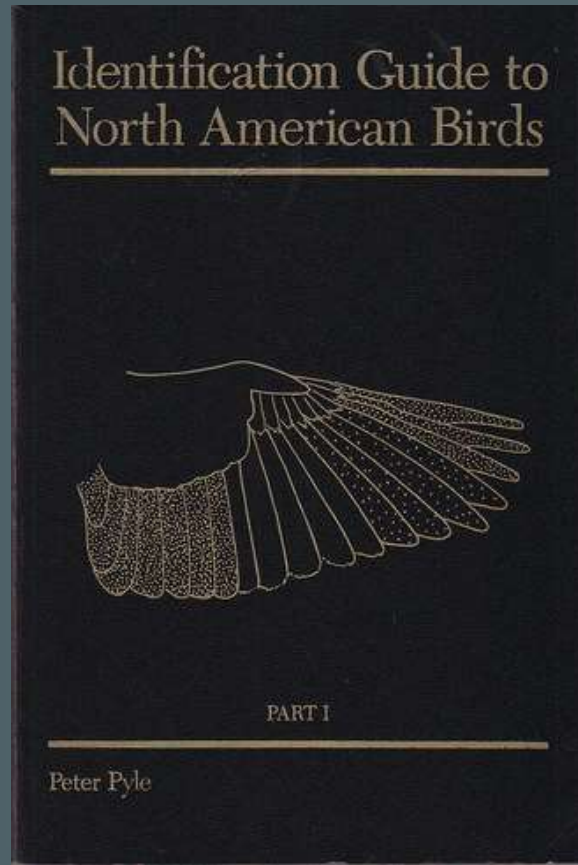
- 1. Tertiaries and innermost primaries (P1-P4)
- 2. Secondaries, beginning at S1



- Replacement of the rectrices occurs while the primaries and secondaries are moulting
 - Begins at centre (R1) and proceeds *centrifugally*



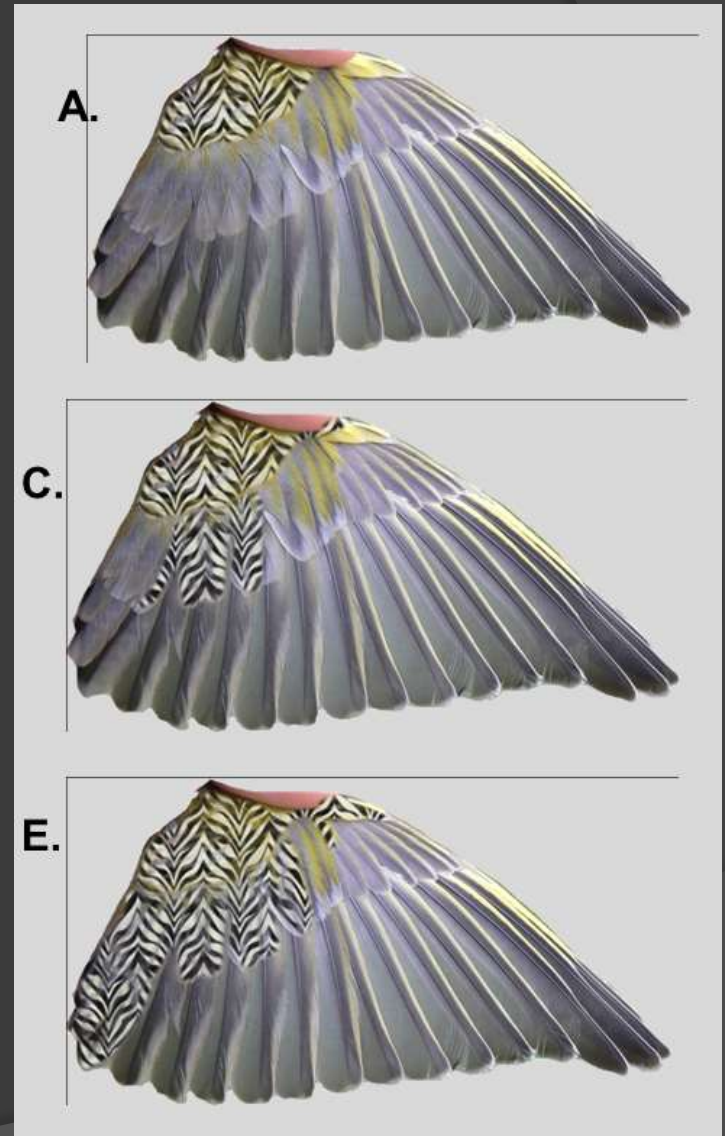
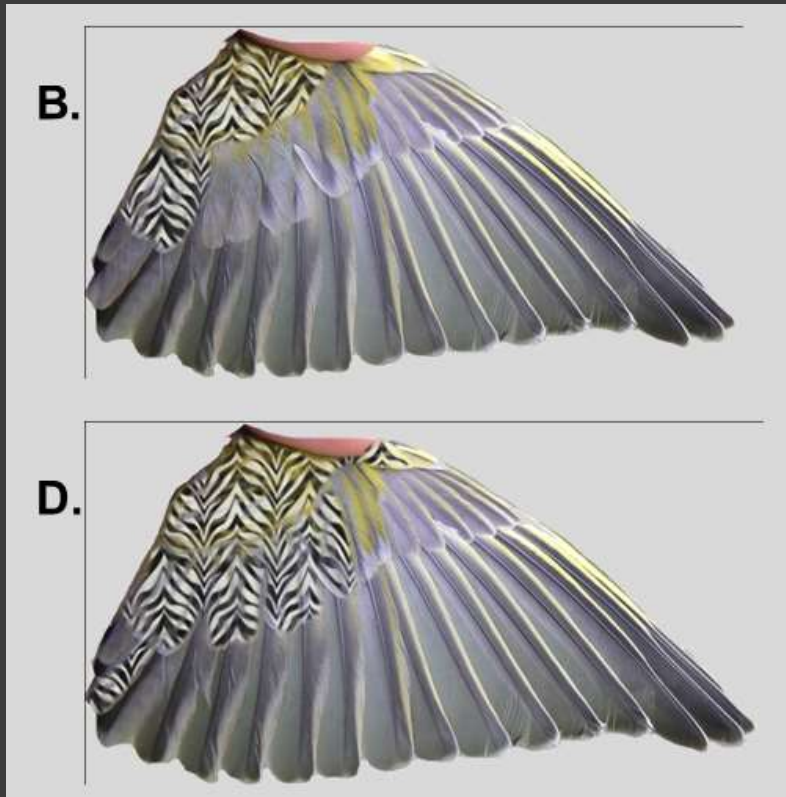
Look up the species account in *Pyle* to determine extent of moult



◎ With one or two exceptions, the **preformative moult** of juveniles is not complete, but *partial*

- It includes:
 - body feathers
 - none, some, or all wing coverts
 - none, some, or all tertials
 - sometimes the central rectrices

Preformative moult



◎ Certain juvenile passerines and near-passerines undergo *complete preformative moults*

- Swallows
- Bushtits
- House Sparrows
- Hummingbirds



Almost all ageing criteria is related to variation in flight feather colour, shape, and wear

→ based on differences between the **preformative moult** of juveniles and **second prebasic moult** of adults

- The boundaries between replaced and retained feathers are termed ***moult limits***

Moult limit



© Ruthven Blog

Moult limit



Another type of moult

- 161 of the 303 species in *Pyle* undergo a second moult in spring

prealternate moult

- Includes:
 - some or all body feathers
 - occasionally flight feathers
- Occurs in HY/SY & AHY/ASY birds

Prealternate moult

- Occurs prior to the breeding season, typically March – April
- Results in HY/SY birds having *first-alternate plumage*
- Results in AHY/ASY birds having *adult-alternate plumage*



⦿ After February, care must be taken to separate SY birds from ASY

- SY – 3 generations of feathers
 - Formative + juvenile + first-alternate
- ASY – 2 generations of feathers
 - Adult-basic + adult-alternate

ASY Myrtle Warbler showing 2 generations of feathers, post prealternate moult



© Vancouver Avian Research Centre (VARC)

Ageing

- Apply what you know about moult!



BHGR

Age?
(March)

SY

© RPBO



FOSP

Age?
(February)



ASY



FOSP

Age?
(February)



SY

Ageing

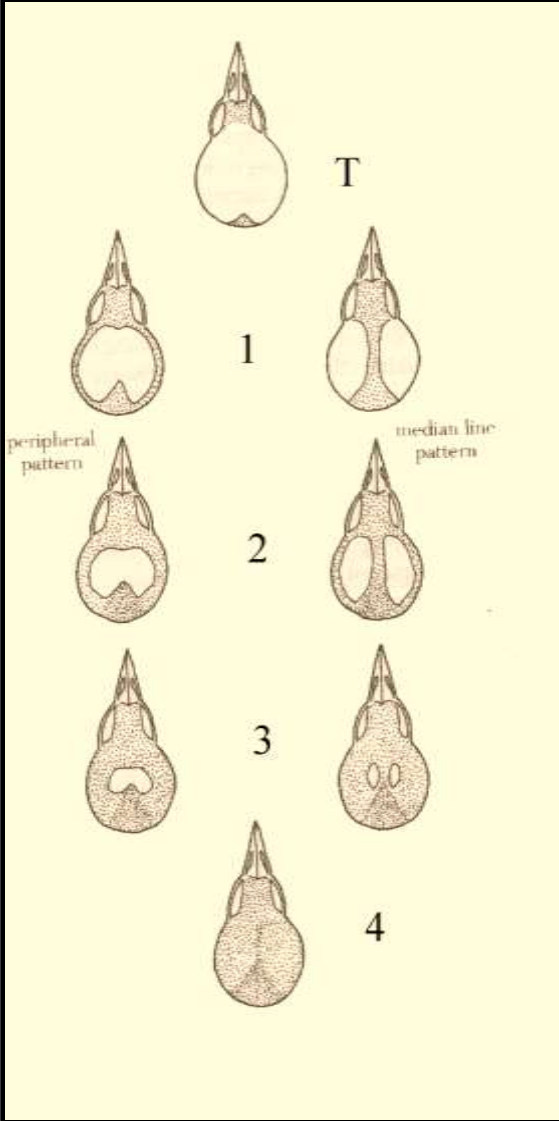
- Other plumage characteristics







Ageing by skulling



Sexing

- For sexually dimorphic species, refer to field guide
- Beware of juvenile males or males in non-breeding (basic) plumage



Sexually dimorphic



Male GCKI



Female GCKI



Male VATH



Female VATH

Sexually monomorphic

- Sex = Unknown



- Except during breeding season (May – July)...
 - Brood patch (BP) = female (generally)
 - Cloacal protuberance (CP) = male

Cloacal protuberance

- Develops in male passerines to store sperm and assist with copulation



vent

Brood patch

- ◉ Developed by incubating birds as means of maximizing heat transfer to eggs in nest
- ◉ In many near-passerines, and almost all NA passerines, females perform all or most of the incubating
 - birdpop.org - cheat sheet



Case study

Spotted Towhee



Spotted Towhee

- ⦿ Year-round resident
- ⦿ Juveniles undergo partial-incomplete preformative moult on breeding grounds
 - Includes:
 - all med and gr covs (occasionally outermost gr cov retained)
 - often 1-3 terts
 - 0 (~63%) to all (~27%) rects
- ⦿ Easy to age using iris colour and moult

Iris colour



© VARC



© VARC

Moult



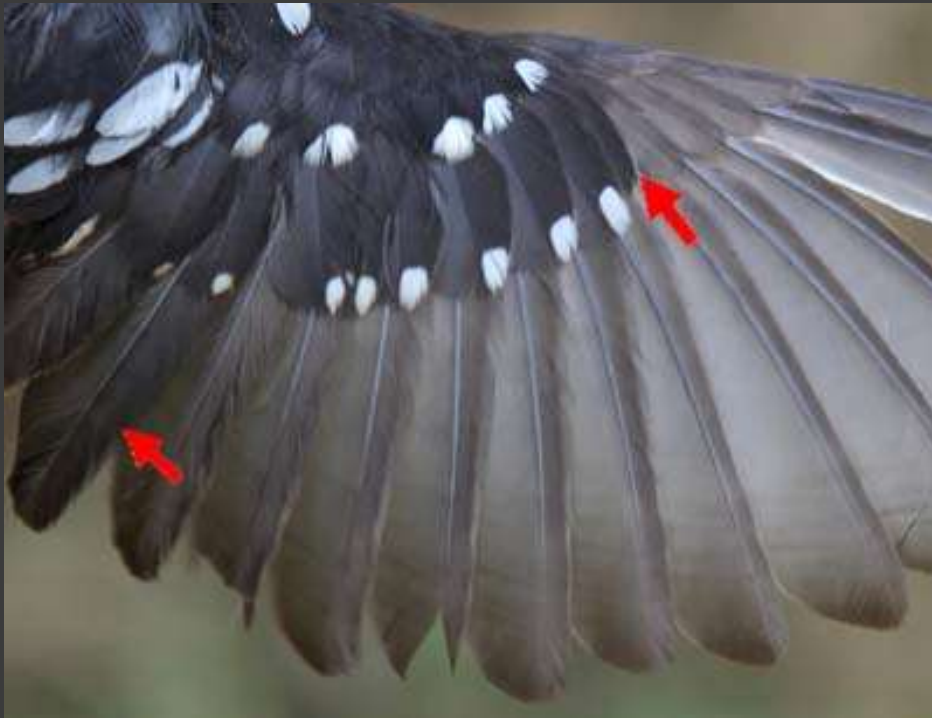
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© VARC

If this bird came into care today, what would be its age?

AHY



© VARC



© VARC

If this bird came
into care today,
what would be
its age?

HY

Case study

Hermit Thrush



© Chris Petrak

Hermit Thrush

- ⦿ Short distance migrants and the only *Catharus* thrush to overwinter in Victoria
- ⦿ Juveniles undergo partial preformative moult on summer grounds
 - Includes:
 - some to all med covs
 - 0 (~28%) to 4 inner gr covs
 - no terts or rects
- ⦿ Like all *Catharus* thrushes (we only have SWTH & HETH), ageing is relatively easy

Moult

- HY/SY birds often have buffy ('washed with white') tear drops on retained juvenile gr covs

If this bird came into care today, what would be its age?

HY



- Our HY HETH also shows a “step” between the retained outer and replaced inner gr covs



P10

- Vestigial outer primary (P10) also helpful



© 2011 VARC

Rectrices



© Marcel Gahbauer

Retained juvenile
rects will have
more tapered tips

Replaced rects will be broader and more truncate, with blunt tips



© Peter Pyle

If this bird came into care today, what would be its age?

AHY

From what you can observe, how would you age this HETH?

AHY



How about this guy?

HY



Case study

Black-capped Chickadee

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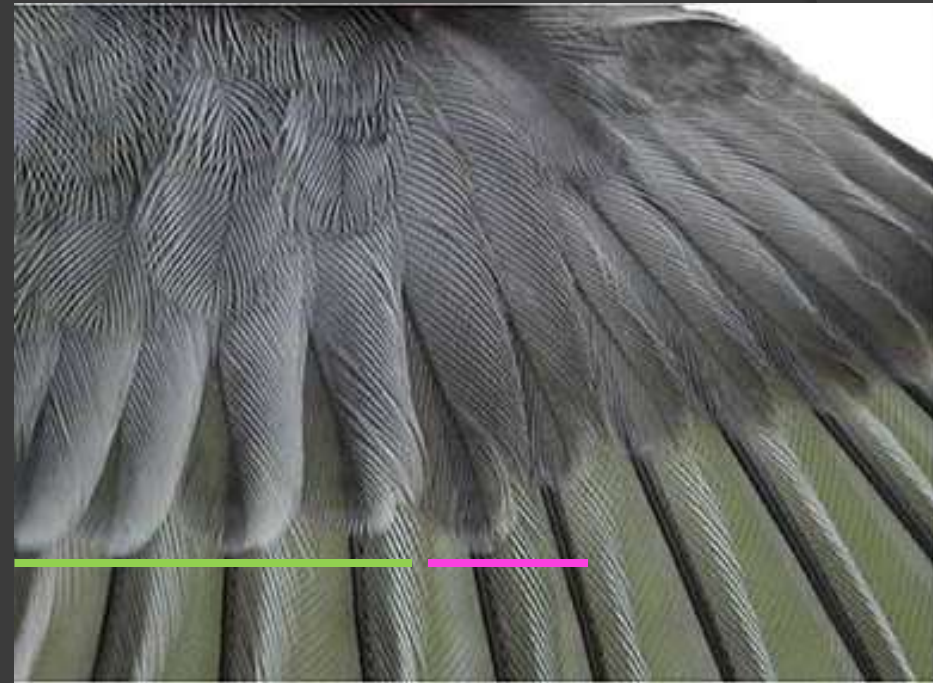


Black-capped Chickadee

- ⦿ No BCCH on Vancouver Island
- ⦿ Juveniles undergo partial preformative moult
 - Includes:
 - 6-10 inner gr covs
 - occasionally 1-2 terts
 - no rects
- ⦿ Pseudo-moult limit among outer Gr covs is confusing
- ⦿ Retained feathers on members of *Paridae* (tits) sometimes longer than replaced ones

Moult

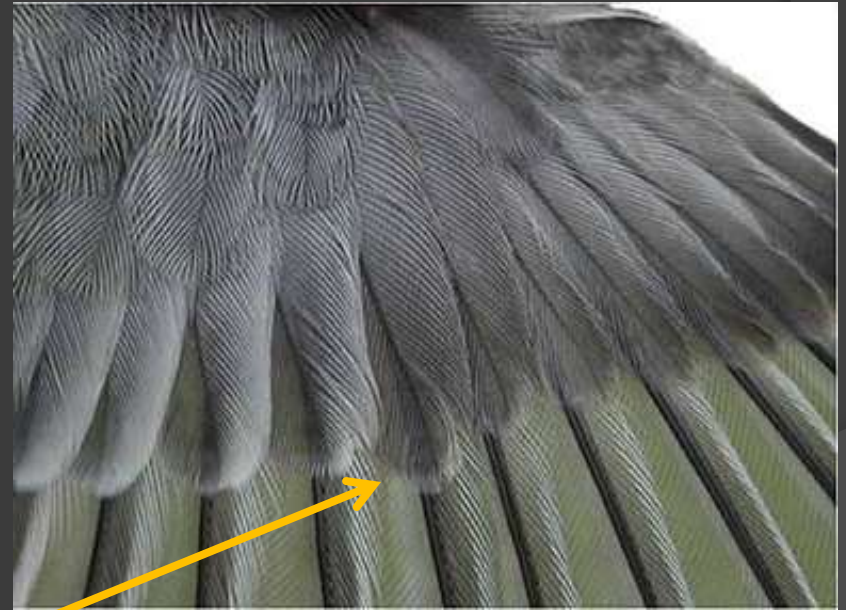
- Molt limit within the gr covs
 - Two outermost gr covs: retained juvenile feathers
 - Inner four visible gr covs: replaced adult feathers



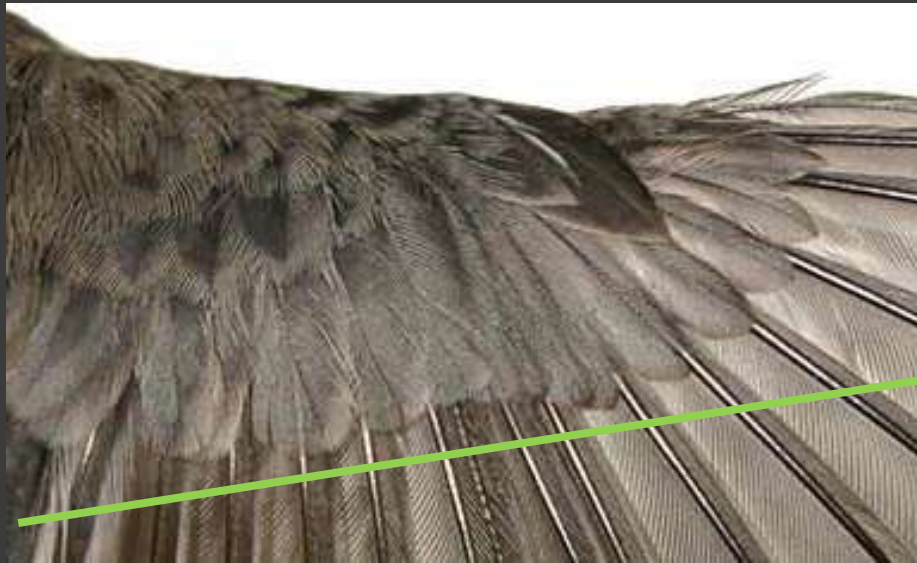
Age? HY

Additional support for HY bird:

- Retained carpal, alula, and pp cov = much more washed out, worn, and lightly pigmented appearance
- Retained feathers on members of the tit family (*Paridae*) will sometimes be longer than replaced ones



All of these feathers were replaced in the bird's *complete* second prebasic moult this summer



© 2011 VARC

Age?

AHY

Rectrices

- More tapered (pointed), little or no white edging and **white doesn't wrap around onto the inner web**

- Wear

HY



- ◎ Quintessential adult BCCH tail
 - Broad & truncate
 - Extensive white edging on the outer web
- ◎ Unfortunately, not many BCCH tails are quite so definite



Adult tail?



Age?

LG...probably



Case study

Rufous Hummingbird



Rufous Hummingbird

- Breeds in BC and Alaska, overwinters in Mexico and along Gulf of Mexico
- Juveniles undergo complete preformative moult on wintering grounds
- Easy to age and sex
 - (Basically) only codes = HY & AHY

Bill



- Hummingbirds can readily aged by the occurrence and extent of corrugations on the lateral portions of the maxilla



© Devin Manky

Age? HY



Age?

AHY

Plumage

- HY males:
 - won't have a fully developed gorget
 - more green on back and head



Age? HY



Age? AHY

◎ HY females:

- slight buffy edging on body feathers
- usually less gorget feathers
- lighter throat



Age? HY



Age? AHY

HY male & female



Rectrices



AHY male



AHY female



HY male



HY female



Age & sex?

AHY male



Age & sex?

female

...would have to look at bill to determine age



Age & sex?

HY male

Case study

Dark-eyed Junco (Oregon Junco)



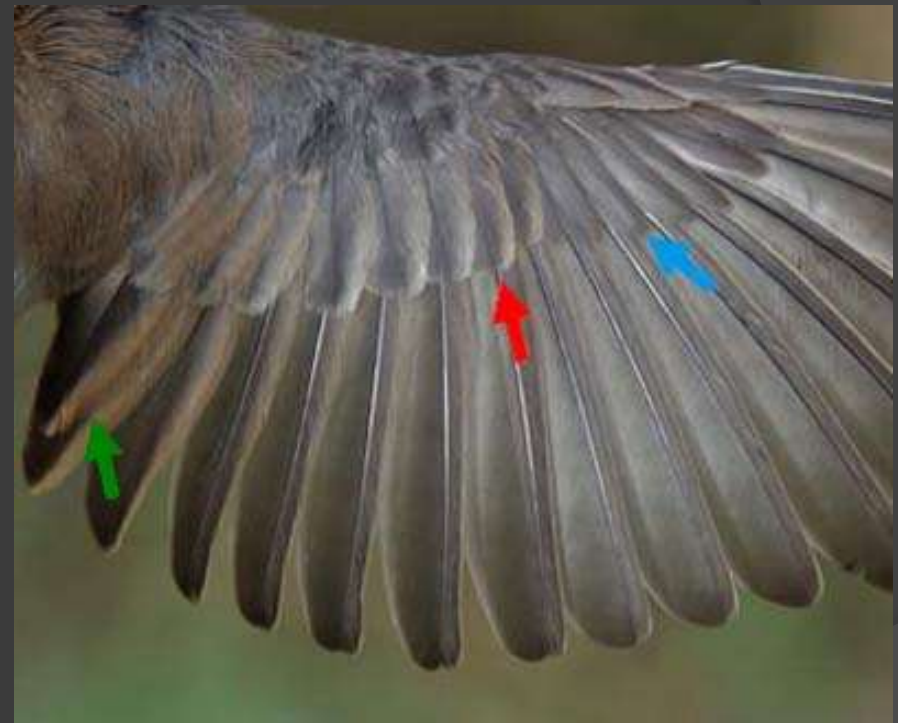
Dark-eyed Junco

- ◉ Primarily altitudinal migrants moving from colder, higher ground to lower, warmer elevations in the winter
- ◉ Juveniles undergo partial preformative moult on summer grounds
 - Includes:
 - most to all median covs
 - usually 3-10 inner gr covs
 - sometimes 1-2 terts
 - occasionally (~6%) 1-2 central rects
- ◉ Six subspecies groups in NA
 - Oregon Junco (*Junco hyemalis simillimus*) is our local subspecies

Moult

Support for HY:

- Limit between replaced 8 inner gr covs and 2 retained outermost (red arrow)
- Limit between 2 innermost tertials (S8 & S9) (green arrow)
- Pp covs (blue arrow) are always retained in all examples of partial preformative moult
 - thin, tapered, and somewhat worn



Rectrices



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What do you think?



Age? AHY

Let's practice!



Acknowledgements

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