

Identifying Sparrows in Juvenile Plumage

Even as adults, these “LBJs” can be tricky. To identify the juveniles, pay special attention to the flight feathers and subtle facial patterns.

Priscilla Lai • Fort McMurray, Alberta • plai@owlmoon.ca

Peter Pyle • Bolinas, California • ppyle@birdpop.org

Kenneth R. Foster • Fort McMurray, Alberta • kfoster@owlmoon.ca

Christine M. Godwin • Fort McMurray, Alberta • cgodwin@owlmoon.ca

Sparrows in the family *Emberizidae* constitute a large group of “little brown jobs” that range across the Americas, with multiple species often occurring in the same location. Their skulking behavior and preference for dense habitats can make identifying them a challenge, even as adults. Many of the features we use to identify adults are not fully developed in juveniles, making their identification even trickier! For example, juvenile sparrows of most species have uniformly streaky breasts, which may or may not be expressed in later plumages.

Here we provide a primer on the identification of juvenile sparrows found in northeastern Alberta. Our findings are based on extensive notes we have taken on birds captured for banding. Although we rely heavily on measurements and morphology for adult birds in the hand, we have found that many of these traditional metrics may not apply to juveniles that have not fully developed. We therefore concentrate on plumage features, and we anticipate that these will be especially useful for birders who encounter juvenile sparrows in the field.

Accurate identification of mist-netted birds is a critical component of the Monitoring Avian Productivity and Survivorship (MAPS) program (tinyurl.com/MAPS-banding), an intensive continental bird-banding program aimed at measuring landbird vital rates (DeSante et al. 2015). One part of the broader MAPS

program is the Boreal MAPS initiative, which we have undertaken in habitats of varying vegetative age and complexity in northeastern Alberta since 2011 (Foster et al. 2012, 2016). Because inaccurate identification of tricky species and plumages would compromise our analyses of productivity and survivorship, we make every effort to properly identify all birds we capture. As with juvenile warblers (Pyle et al. 2015), identifying juvenile sparrows can be a challenge, but subtle differences offer clues that permit accurate and confident species identification.

Sparrows are widespread and speciose in northeastern Alberta. Generalists like the White-throated Sparrow are present in a diversity of habitat types, whereas others like the Le Conte’s Sparrow prefer specific wet, grassy breeding habitats. Lincoln’s, Swamp, and Song sparrows, species that can pose identification challenges even in adult plumages, share habitats that range in vegetative age and complexity, providing that wetter areas are available. The MAPS program operates during the breeding season (spring and summer months)

and involves the capture of juveniles just before and as they undergo their preformative molt—the unique first-cycle molt clarified by Howell et al. (2003). Juvenile sparrows are characterized by their rather plain and streaky plumage, and they are typically a lot harder to identify to species than adults.

The preformative molt in most North



Featured Photo—Juvenile Song Sparrow. Although adult and first-winter (formative) Song Sparrows are boldly patterned, juveniles are amorphaously marked. In this article, we apply lessons from the Boreal MAPS (Monitoring Avian Productivity and Survivorship) program to the identification of sparrows in juvenile plumage. Differences are slight and variation is considerable, but with good study—ideally, in conjunction with analysis of digital photos—many juvenile sparrows may be field-identifiable. On this bird, note the relatively long tail, brown wings, un-streaked throat, and broad malar streaks, features that separate it from juvenile Lincoln’s and Swamp sparrows. Brooklyn, New York; August 2014. Photo by © Laura Meyers.



Fig. 1. Juvenile **Lincoln's Sparrows** (Fig. 1a), **Swamp Sparrows** (Fig. 1b), and **Song Sparrows** (Fig. 1c) resemble each other closely. As adults, these species differ morphologically (Pyle 1997a), with Lincoln's Sparrow having a finer bill, moderately long tail, and longer wing morphology; Swamp Sparrow having a moderately stout bill and shorter tail and wing morphology; and Song Sparrow having a larger and stouter bill, longer tail, and shorter wing morphology. As juveniles, however, the bill, tail, and primaries may not be fully grown, requiring plumage features to be examined for accurate identifications. *Fig. 1a: July 20, 2012. Fig. 1b: July 7, 2012. Fig. 1c: July 12, 2016. Photos courtesy of © Boreal MAPS Program.*

American sparrows is partial, including most to all body feathers and upper-wing secondary coverts, and sometimes one or more tertials and central rectrices (Rising 1996; Pyle 1997a, 1997b). Juvenile flight feathers differ subtly—primarily in shape, wear, and fading—from the flight feathers of adults. So one of the best ways to identify juvenile sparrows is by looking for clues among the flight feathers, in particular the coloration of feather fringing along with the morphology of individual tail feathers and the effect this has on tail shape. The bill size, body shape, and facial profile provide additional clues to a juvenile sparrow's identity, although these features may not be fully developed in juveniles. Here we present our “Juvenile Sparrow Challenge” and describe the morphological and plumage-related characteristics that we find useful for quickly and accurately identifying recently fledged sparrows.

Our biggest challenges involve the separation of juvenile Lincoln's, Swamp, and Song sparrows, and one of these species is the subject of our challenge bird. Both Lincoln's and Swamp sparrows prefer various types of wetland habitats. Song Sparrows, while able to nest in a wider variety of open habitats, also breed in wetland and riparian habitats.

As can be seen in Fig. 1, deciding

whether a bird in hand is a juvenile Lincoln's, Swamp, or Song sparrow is not always an easy task. High intraspecific variability occurs in juveniles of all three species, and juveniles are often present in relatively good numbers in the same habitat and at the same MAPS station—so lots of juveniles appear at the same time! What follows is a summary of the most useful criteria in distinguishing these three species.

Lincoln's Sparrow juveniles tend to be relatively browner than the others, covered in fine dark streaks and with an indistinct gray superciliary stripe (Fig. 1a). The crown tends to show distinct streaking and usually shows an indistinct median stripe (Fig. 2a), which can become more prominent as the preformative molt progresses. Juvenile Lincoln's Sparrows

also have some streaking in the chin and throat, an indistinct malar streak, and moderate streaking to the breast, often with heavier streaks than in juvenile Swamp Sparrows, but with thinner (albeit often denser) individual streaks than in juvenile Song Sparrows (Fig. 3a). The tail is longer than in Swamp Sparrow but shorter and with more pointed rectrices than in Song Sparrow (Fig. 4a), and the edging to both the rectrices (Fig. 4a) and secondaries (Fig. 5a) can be duller brown and not as rusty-red as in Swamp and some Song sparrows. All of these characteristics are variable and can approach those of the other two species; they must be used with caution and consideration of all features simultaneously.

As with the Lincoln's Sparrow, Swamp Sparrow juveniles (Fig. 1b) show high variability in plumage among individu-

als. We have found that the mainly unstreaked dark crowns of the juvenile Swamp Sparrow (Fig. 2b), usually with a more-distinct median stripe than in juvenile Lincoln's and Song sparrows, is one of the best ways to identify a juvenile Swamp Sparrow. Juvenile Swamp Sparrows also usually lack streaking on the chin and throat, and have an indistinct malar streak and finer streaking to the breast than the other two species (Fig. 3b). The breast streaking is usually sparser than on juvenile Lincoln's Sparrow, the tail is shorter than in the other two species and with more pointed rectrices than in Song Sparrow (Fig. 4b), and both the rectrices (Fig. 4b) and secondaries (Fig. 5a) can be darker with redder edging.

Song Sparrows in northeastern Alberta are of the eastern subspecies group (Pyle 1997a), being browner (less reddish) than individuals of other subspecies groups. Juveniles tend to show more distinct eye lines, sub-auricular stripes, and malar streaks (Fig. 1c). The crown is dark with indistinct streaking and a variable (often very indistinct) median stripe (Fig. 2c). Perhaps the best features to identify a juvenile Song Sparrow are an unstreaked chin and throat, a distinct and widening malar streak, and sparse but thick streaking to the breast (Fig. 3c), with the individual streaks being thicker than in the

other two species. The tail is longer than in the other two species, and the rectrices are not as pointed (Fig. 4c). The edging to the rectrices (Fig. 4c) and secondaries (Fig. 5c) are variable, but tend to be not as rusty as with Swamp Sparrow.

In working through the differences among the three *Melospiza* sparrows, we hope we've given you a feel for some of the issues involved in identifying juvenile sparrows. The task is challenging, but not impossible—and it's rewarding. Also, it doesn't end with the genus *Melospiza*! In the expanded version of this article, available online (publications.aba.org), we present field marks for juveniles of other sparrows—Savannah, Chipping, Clay-colored, Le Conte's, and White-throated sparrows, along with Dark-eyed ("Slate-colored") Junco—that breed in northeastern Alberta.

Note: Unless otherwise indicated, all photos in this article are courtesy of the Boreal MAPS bird-banding program operated in northeastern Alberta.

References

DeSante, D. F., D. R. Kaschube, and J. F. Saracco. 2015. *Vital Rates of North American Landbirds* (tinyurl.com/land-birds-vital). Institute for Bird Populations, Point Reyes Station.

Foster K. R., C. M. Godwin, and P. Pyle. 2012. Moni-

toring avian productivity and survivorship in the oil sands region of northeastern Alberta, pp. 563–571 in: A. B. Fourie and M. Tibbett, eds. *Mine Closure 2012*. Australian Centre for Geomechanics, Perth.

Foster, K. R., C. M. Godwin, P. Pyle, and J. F. Saracco. 2016. Reclamation and habitat-disturbance effects on landbird abundance and productivity indices in the oil sands region of northeastern Alberta, Canada. *Restoration Ecology*—open access (onlinelibrary.wiley.com/doi/10.1111/rec.12478/full).

Howell, S. N. G., C. Corben, P. Pyle, and D. I. Rogers, D. I. 2003. The first basic problem: A review of molt and plumage homologies. *Condor* 105: 635–653.

Pyle, P. 1997a. *Identification Guide to North American Birds: Part I*. Slate Creek Press, Bolinas.

Pyle, P. 1997b. Molt limits in North American passerines. *North American Bird Bander* 22: 49–90.

Pyle, P., and D. A. Sibley. 1992. Juvenal-plumaged Le Conte's Sparrows on migration. *Birding* 24: 70–76

Pyle, P., C. M. Godwin, and K. R. Foster. 2015. Identifying juvenile warblers: The fun really begins here. *Birding* 47(6): 58–69.

Rising, J. D. 1996. *A Guide to the Identification and Natural History of the Sparrows of the United States and Canada*. A&C Black, London.



Additional content and image comparisons available to members in the digital edition of *Birding*: publications.aba.org



Fig. 2. The crown patterns of juvenile Lincoln's (Fig. 2a), Swamp (Fig. 2b), and Song (Fig. 2c) sparrows are useful for ID. Note especially the unstreaked crown of Swamp Sparrow, in this case also with a rather distinct median stripe; this is perhaps the best criterion for identifying juveniles of this species. Lincoln's Sparrow juveniles tend to have a heavily streaked crown and a short and indistinct median stripe, whereas the crowns of Song Sparrow juveniles are variable but typically have more streaking than on Swamp Sparrow (see also Fig. 3). *Fig. 2a: July 24, 2015. Fig. 2b: August 2, 2015. Fig. 2c: July 21, 2014. Photos courtesy of © Boreal MAPS Program.*



Fig. 3. Pay attention to the throat and breast pattern of juvenile **Lincoln's** (Fig. 3a), **Swamp** (Fig. 3b), and **Song** (Fig. 3c) sparrows. Note especially the unstreaked throat and broad triangular malar streaks of juvenile Song Sparrow, perhaps the best criterion for identifying juveniles of this species. Lincoln's Sparrow juveniles tend to have some streaking to the chin and throat, an indistinct malar streak, and denser but thinner individual breast streaks, whereas juvenile Swamp Sparrow usually lacks streaking on the chin and throat, can have an indistinct or no malar streak, and shows finer and sparser breast streaks. Note, however, that these features in juvenile Lincoln's and Swamp sparrows are variable and can overlap (see Fig. 1). Note also the patterns to the crowns in these three birds, as described in Fig. 2. *Fig. 3a: July 20, 2012. Fig. 3b: July 28, 2011. Fig. 3c: July 2, 2015. Photos courtesy of © Boreal MAPS Program.*



Fig. 4. These are the tails of the same juvenile **Lincoln's** (Fig. 4a), **Swamp** (Fig. 4b), and **Song** (Fig. 4c) sparrows shown in Fig. 1. Lincoln's Sparrow rectrices are medium in length, relatively pointed, and edged brown to reddish-brown. The rectrices of Swamp Sparrow are shorter than in the other two species, relatively pointed, and edged reddish-brown to reddish. And the rectrices of Song Sparrow are longer than and not as pointed as in the other two species, and can be edged brownish to reddish-brown. Note that there can be overlap among all three species in the coloration of the rectrix edging. *Fig. 4a: July 20, 2012. Fig. 4b: July 7, 2012. Fig. 4c: July 12, 2016. Photos courtesy of © Boreal MAPS Program.*



Fig. 5. These are the wings of the same juvenile **Lincoln's** (Fig. 5a), **Swamp** (Fig. 5b), and **Song** (Fig. 5c) sparrows shown in Fig. 1. Note that the greater coverts and secondaries tend to be darker and with more extensive redder edging in Swamp Sparrow than in the other two species, although, as with the tail edging, there can be overlap in this pattern and coloration among all three species. We have found that wing morphology, specifically the comparative lengths among p6, p7, and p8 described in Pyle (1997a), must be used with caution in fledglings and young juveniles, as feathers may not be completely grown and the relative length comparisons may not be the same as in older birds. When fully grown, Lincoln's Sparrow shows longer outer primaries (p8, p9) relative to the other primaries than Song and Swamp sparrows (Pyle 1997a). *Fig. 5a: July 20, 2012. Fig. 5b: July 7, 2012. Fig. 5c: July 12, 2016. Photos courtesy of © Boreal MAPS Program.*



Fig. 6. The short, notched tail with sharp, pointed retrices, the outer rectrix washed whitish toward the tip, a beak with pinkish lower mandible and gray upper mandible, and bright pink legs and feet are quick clues to differentiate **Savannah Sparrow** juveniles from the young of other similarly sized sparrows present in the same habitat. As with juvenile White-throated Sparrows, the distinctive yellow lores are not always apparent until the preformative molt is under way. Rectrix edging is typically tan, other sparrows. The malar stripe is less pronounced than on a juvenile Song Sparrow. *Figs. 6a, 6b: July 15, 2016. Fig.6c: July 6, 2013. Photos courtesy of © Boreal MAPS Program.*



Fig. 7. The small size, slender profile, and long, pointed retrices of this bird leads us to consider the *Spizella* genus of sparrows. A dark eye line extending through the eyes to the base of the beak, the absence of a gray nape, and distinctly reddish tones to the edging of the crown and back feathers differentiate this juvenile **Chipping Sparrow** from a juvenile Clay-colored Sparrow. *Figs. 7a, 7b: July 2, 2016. Fig. 7c: July 21, 2014. Photos courtesy of © Boreal MAPS Program.*



Fig. 8. Overall shape and size of **Clay-colored Sparrow** are very similar to that of the juvenile Chipping Sparrow. However, the buffy face with an eye line that does not extend through the eye to the base of the beak, combined with little or no reddish to the crown and back feathers, may allow the identification of the juvenile Clay-colored. A grayer nape and supercilium, along with retrices showing tan or pale edging, may further support the identification of this bird as a juvenile Clay-colored, rather than a Chipping Sparrow. The extent of breast streaking varies in juveniles of both species, and caution is required in using breast streaking as a primary identifying characteristic. *Figs. 8a, 8b, 8c: July 5, 2016. Photos courtesy of © Boreal MAPS Program.*



Fig. 9. The proportionally large, chunky bill compared to the head, the short, rounded wings, and the thin, sharply pointed tail feathers identify this bird to the genus *Ammodramus*. It is a juvenile **Le Conte's Sparrow**, similar to its adult counterpart, except with fine streaking on the breast and down the flanks, streaking on the crown, and a muted ochre hue that is more apparent on adults. Knowing that this species is present in the area is the first step in quickly identifying a juvenile Le Conte's Sparrow; but beware that this species can migrate in juvenile plumage (Pyle and Sibley 1992). For more on the identification and comparison of Le Conte's Sparrow juveniles to other *Ammodramus* species, see Pyle and Sibley (1992). Figs. 9a, 9b, 9c: July 21, 2014. Photos courtesy of © Boreal MAPS Program.



Fig. 10. Despite an overall mottled appearance, the **White-throated Sparrow** is one of the easier juvenile sparrows to identify due to its stocky build and relatively large body, chunky head, and gray face with broad whitish supercilium over the dark eye line. Juvenile White-throats have a russet crown streaked with black, combined with a light-colored median crown stripe. Note also the rusty edging to the secondaries that fade into tan edging among the primaries. The rusty-edged tail feathers are long and broad. The photo of the body also shows the dull, pinkish feet that can be seen on both juveniles and adults. As with the Savannah Sparrow, the yellow lores of the adult are lacking until after the preformative molt is under way, and sometimes even then it can be obscure in duller individuals. White-throated Sparrow juveniles have longer and straighter wing morphology; this can be important in differentiating them from juvenile Song Sparrows with a diminished malar stripe and breast spot. Finally, although White-throated Sparrow adults divide into tan-striped and white-striped morphs, identification of a juvenile White-throated Sparrow to morph level does not appear possible. Figs. 10a, 10b: July 21, 2012. Fig. 10c: July 8, 2012. Photos courtesy of © Boreal MAPS Program.

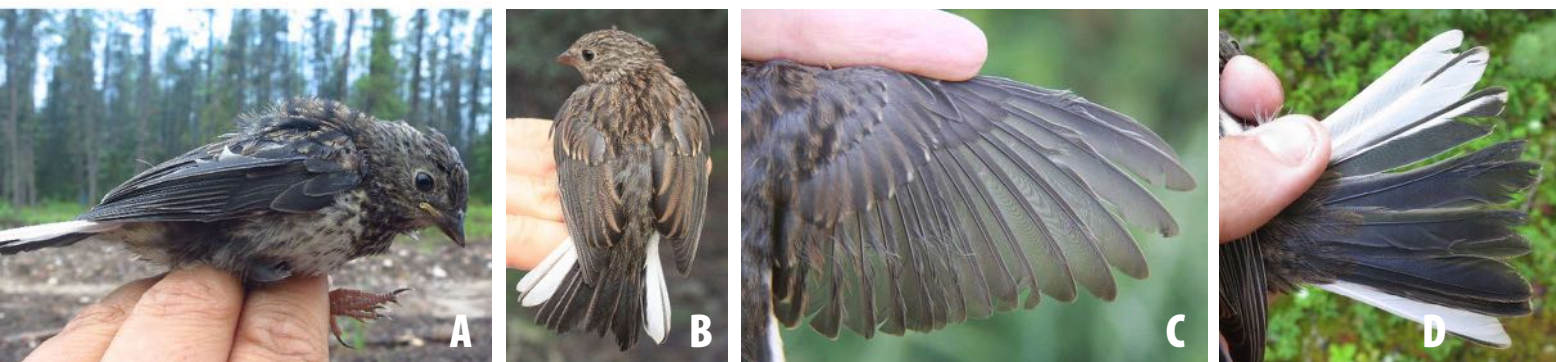


Fig. 11. Although the head and body plumage superficially resembles that of the other sparrows, the juvenile **Slate-colored Junco** is an easy one! Juncos are readily identified by their distinctive, flashy white outer tail feathers and bright pinkish legs. On a juvenile junco, the head, breast, and back are densely mottled or streaked with dark brown, contrasting with the belly and under-tail coverts, which are white and unmarked. Juvenile juncos also start with a dark-colored beak which becomes pink as they age. Males average greater amounts of white on their outer rectrices than females. Fig. 11a: June 28, 2013. Fig. 11b: August 2, 2014. Fig. 11c: July 21, 2014. Fig. 11d: July 10, 2014. Photos courtesy of © Boreal MAPS Program.

The
brilliant
answer is
always...



They are the notorious “LBJs,” or little brown jobs. Even as adults, sparrows can be a challenge to identify. In some species, immature sparrows in their first-winter, or “formative,” plumage differ from the adults and add an extra dimension to the challenge. And then there is the matter of sparrows in their juvenile plumages, held briefly until their first-fall (“preformative”) molt. This is a juvenile sparrow. But which one?

• Read Priscilla Lai and colleagues’ analysis of the Featured Photo, beginning on p. 62 of this issue.



The field identification of passerines in juvenile plumage is an area of active research for field ornithologists and serious birders. In a recent article in *Birding* (December 2015 issue, pp. 58–69), researchers with the Boreal MAPS (Monitoring Avian Productivity and Survivorship) team presented methods and field marks for identifying juvenile warblers. Now they engage what might be the most vexing of all groups in the ABA Area: juvenile sparrows. This is a new frontier in bird identification. Do you have questions, ideas, or data regarding the field ID of juvenile sparrows? Please join the discussion online: publications.aba.org

