

# THE CHANGE OF APPEARANCE OF THE BALD EAGLE FROM JUVENILE TO DEFINITIVE

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The Bald Eagle (*Haliaeetus leucocephalus*) is unique to North America. Many Bald Eagles live near oceans but there are inland populations. The images of birds in this article were photographed between June 1 and October 1 on Lac La Ronge, a large glacial lake on the southern border of the pre-Cambrian shield in Northern Saskatchewan, Canada. Lac La Ronge has a shoreline of 1,015 km and a surface area of 1,413 km<sup>2</sup>. The surface of the lake is interrupted by 1,035 rocky islands that serve Bald Eagles well by allowing them to establish well-defined breeding territories on a large body of water. Bald Eagles do not remain at Lac La Ronge year-round. The birds migrate south in late fall at freeze-up and return before break-up in the spring.

A Bald Eagle does not attain its characteristic appearance of an evenly colored brown body, white head and tail, light yellow iris and yellow beak until it reaches maturity in its fifth year.<sup>10</sup> The juvenile Bald Eagle (birth year) is a uniform sooty-gray or olive brown with a dark head, dark tail, dark beak and dark iris of the eye. The appearance of the bird changes during each of the first four annual summer molts.<sup>10</sup> There is significant individual variation in the overall appearance of sub-adult Bald Eagles, including the juveniles.<sup>2</sup> An accurate assessment of the age of any sub-adult Bald Eagle is complicated by the gradual change

of appearance of the individual during the summer season, when they are in Saskatchewan. The most profound change occurs during the third molt, the so-called transitional stage. However, one can make an accurate estimate of the age of a sub-adult Bald Eagle by considering the constellation of changes including the body plumage, the head, the tail, the beak, the cere and iris of the eye.

What follows is an illustrated description of the change in appearance of the Bald Eagle, with each molt, from juvenile (birth year) to the definitive appearance of the adult when it reaches five years of age. The changes, and the various methods of describing them, are summarized in a table adapted from Arenholtz (2001)<sup>1</sup> (Table 1). The age classification system that uses the terms juvenile, adolescent, transitional, adult and definitive (seen at the at the bottom of Table 1) is well-suited to the casual observer. Others tend to identify the bird by molt, one through five.

## **Juvenile - birth year - 'even smoke gray or brown body, dark eye'**

Bald Eagles are fully feathered at 11-14 weeks of age<sup>2</sup> (Figure 1). The immature flight feathers are larger than mature flight feathers, which can make a fledgling appear larger than an adult. The juvenile plumage can vary in color from a uniform sooty gray (Figure 2) to olive brown. The most consistent characteristic of a juvenile Bald Eagle is the dark head, the uniform smoke-gray beak and cere, and dark iris of the eye (Figure 3).

## **Adolescent - Basic I second year - first molt**

The first molt begins when the Bald Eagle migrates north in the spring after its first winter in the south. A juvenile Bald Eagle appears sooty gray or olive brown when it returns to the north in early spring. During the first molt the bird becomes more mottled, the beak and cere remain dark but some yellow can be appreciated on the cere and a crème/yellow colour begins to creep out along the beak (Figure 4). A tan coloured 'cap' appears on the top of the head. The iris is less dark and appears to be more sepia in colour. A white inverted triangle, best appreciated from a distance, is prominent on the back (Figure 5). The most distinguishing feature of a Bald Eagle in its first molt is the ragged trailing edge of the wing while in flight (Figure 6). This is a sign that mature flight feathers are replacing the immature ones.

## **Adolescent - Basic II third year - second molt**

During the second annual molt, the plumage becomes darker and more heavily mottled. The light 'cap' is prominent and the white triangle remains on the back. The main distinguishing features occur around the beak. The cere is yellow as is the area around the nares. The beak remains more gray than yellow. The color of the iris appears a lighter, crème color (Figure 7). The mature flight feathers now give the appearance of an even trailing edge. This is the most reliable characteristic to distinguish a bird in its second molt from a first molt bird.  
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**FIGURE 1.** A young Bald Eagle testing its wings on August 8, 2013. All figures by Dale Mierau.



**FIGURE 2.** Uniform coloured plumage of a juvenile Bald Eagle.



**FIGURE 3.** A juvenile Bald Eagle with its dark eye and beak.



**FIGURE 4.** Light yellow begins to show on the cere and beak along with a tan 'cap' of a first-year adolescent Bald Eagle.



**FIGURE 5.** An inverted white triangle identifies an adolescent Bald Eagle from afar.



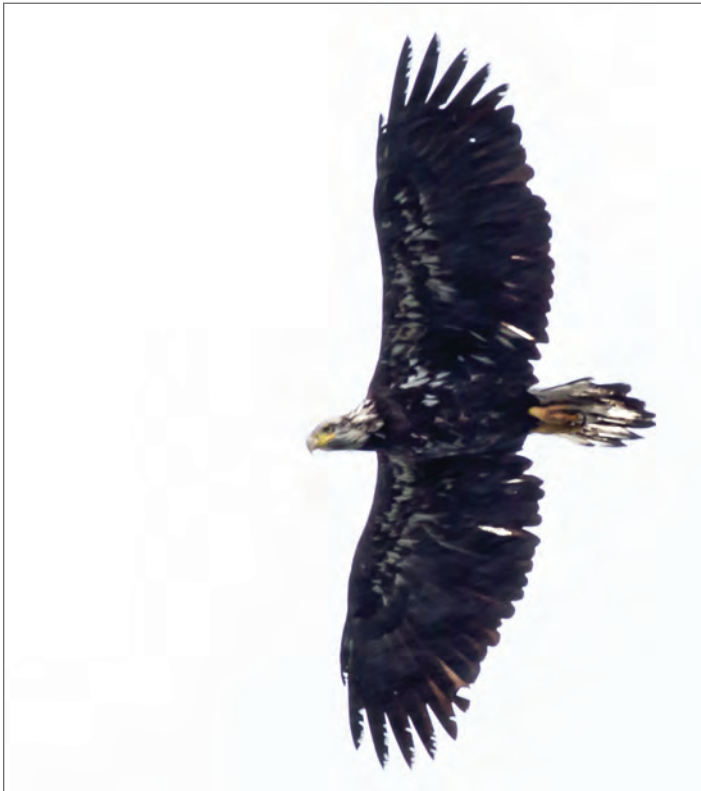
**FIGURE 6.** The ragged trailing wing of a first-year adolescent Bald Eagle.



**FIGURE 7.** The progressing yellow along the beak and the crème coloured eye of a second-year adolescent Bald Eagle.



**FIGURE 8.** A transitional Bald Eagle with a lighter coloured head, lighter neck feathers, a dark band across the eye and an iris, beak and cere that are mostly yellow.



**FIGURE 9.** A transitional Bald Eagle has a black terminal band on the mostly white tail.



**FIGURE 10.** There is an obvious change in the appearance of a transitional Bald Eagle during the summer season with the progression of the molt.



**FIGURE 11.** An adult Bald Eagle with its nearly definitive appearance.



**FIGURE 12.** A fully mature Bald Eagle sits with an adult illustrating the subtle differences.



**FIGURE 13.** A breeding pair demonstrates the definitive plumage. The female on the left is larger, the 'shoulders' appear broader and she has a beak that is deeper in its vertical dimension.

**TABLE 1. Summary of the change in appearance of a Bald Eagle from Juvenile to Definitive\***  
 \* Adapted from Arenholtz A. Friends of the Bosque Newsletter. 2001;8:6.

| YEAR                | BIRTH                       |          | SECOND             |                         | THIRD                                      | FOURTH                  |                 | FIFTH | SIXTH |
|---------------------|-----------------------------|----------|--------------------|-------------------------|--|-------------------------|-----------------|-------|-------|
|                     |                             |          | 1                  |                         | 2  |                         | 3               | 4     | 5     |
| Stage               | Hatchling                   | Juvenile | Basic I            | Basic II                | Basic III                                  | Basic IV                | Basic V         |       |       |
| Overall             | Dark above light brown/gray |          | Gray/Brown mottled | Gray/brown more mottled | Gray/brown above light                     | Brown with little white | Even brown      |       |       |
| Head                | Smoky gray                  |          | Tan crown feathers | Light cap – some white  | 50% White with dark flecks - 'osprey head' | Dingy white             | Bright White    |       |       |
| Cere                | Gray                        |          | Light gray         | Gray with buffy yellow  | >50% yellow                                | >75% yellow             | Yellow          |       |       |
| Beak                | Dark Gray                   |          | Light gray         | Gray with buffy yellow  | >50% yellow                                | >75% yellow             | Yellow          |       |       |
| Iris                | Dark                        |          | Sepia              | Crème                   | Pale yellow                                | >50% yellow             | Yellow          |       |       |
| Tail                | Dark                        |          | Dingy gray         | Dingy gray              | Mottled - terminal bar                     | White – no terminal bar | White           |       |       |
| Trailing wing edge  | Smooth                      |          | Ragged             | Smooth                  | Smooth                                     | Smooth                  | Smooth          |       |       |
| White wing linings  | Yes                         |          | Yes                | Yes                     | No   | No                      | Even dark brown |       |       |
| White back triangle | No                          |          | Yes                | Yes                     | No   | No                      | No              |       |       |
|                     | JUVENILE                    |          | ADOLESCENT         | ADOLESCENT              | TRANSITIONAL                               | ADULT                   | DEFINITIVE      |       |       |

### Transitional - Basic III fourth year - third molt

The greatest change in the appearance of a Bald Eagle occurs in the third molt during the fourth summer. The plumage is darker and less mottled. The feathers of the neck become a lighter colour and there appears a dark 'eye band' between the neck and the top of the head giving the appearance of an 'Osprey head' (Figure 8). The tail has a dark terminal band (Figure 9). The cere is yellow and the beak is mostly yellow with a dark area on the top. The iris is pale yellow. As the summer progresses, the head and tail become progressively whiter as dark feathers on the head and tail are replaced by white ones (Figure 10).

### Adult - Basic IV fifth year - fourth molt

The appearance of a Bald Eagle in its fourth molt is close to definitive. The head and tail are predominately white. There remain some subtle signs associated with immaturity including a dingy tinge to the head, subtle dark areas on the beak and some body mottling (Figure 11). These subtleties can be appreciated when a fourth molt bird sits near a more mature bird (Figure 12).

### Definitive - Basic V sixth year - fifth molt

The Bald Eagle, in its sixth year, has acquired the definitive plumage with a completely white head and tail feathers. The body plumage appears clean without mottling. The beak, cere and iris are bright yellow. A breeding pair of Bald Eagles demonstrate the gender differences (Figure 13). The female on the left is larger, bulkier (wider shoulders giving it an inverted V-shape). She has a beak with a larger vertical dimension that is shaped like a parrot. The male on the right is smaller with a more streamlined appearance and a beak that appears more like that of a hawk.

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