

**Red-tailed Hawk (RTHA)**  
*Buteo jamaicensis*

**A North American Banding  
Council Guide to Age  
Determination**

**Photos and text by Buzz Hull**

**All birds banded by the Golden  
Gate Raptor Observatory or Buzz  
Hull**

**April, 2007**

Golden Gate Raptor Observatory  
Building 1064, Fort Cronkhite

This is one of a series of species accounts produced by the North American Banding Council. These accounts use live and specimen material to illustrate photographically age- and, where possible, sex-related criteria described in other references, especially Peter Pyle's *Identification Guide to North American Birds*. No attempt is made here to validate those criteria or describe new criteria.

Although skull, gonad, and/or bursa data are known for many of the birds depicted, in many cases age or, less often, sex was deduced from external characteristics. It is possible that some errors were made in age or sex determination of the birds depicted in these accounts due to published information being either inaccurate or misapplied.

Every species exhibits individual and/or geographic variation in coloration, molt extent, feather shape, etc. It is not possible to illustrate the full range of variation in a work of this nature. Where possible, the birds depicted represent the majority of individuals (as per Pyle) for the characters shown. However, they were selected because they show these characters especially well and the norm may be more ambiguous. Month and location of capture/collection are indicated for each bird shown.

New material for these accounts is always welcome. If you have photos that show criteria or plumages not depicted here, or better examples, or wish to write an account yourself, please contact the Chairman of NABC's Education Committee (see <http://www.nabanding.net/nabanding/nabcoff.html>). Thank you for your assistance.

### **Identifying Juvenile Red-tailed Hawks**

Juvenile Red-tailed Hawks do not possess the characteristic brick-red tails of adults. Fortunately there is a reliable alternate field mark for identifying light-morph juvenile Red-tails -- the dark patagial mark.

Other characteristics of light-morph juvenile Red-tails include:

- ◆ a large creamy white area on the breast
- ◆ dark streaking in the belly area
- ◆ tarsi not feathered to the toes
- ◆ four emarginated outer primaries
- ◆ marked contrast between dark brown secondaries and tan primaries as seen from the dorsal side
- ◆ a variable degree of mottling in the scapular area
- ◆ a gray-brown tail with numerous darker brown bands
- ◆ a white terminal band on the unworn tail

Because of the variability in buteo plumage, especially in the West, there will be some birds that cause identification problems. Size, combined with tarsi not feathered to the toes and four emarginated outer primaries, should resolve any identification uncertainties.

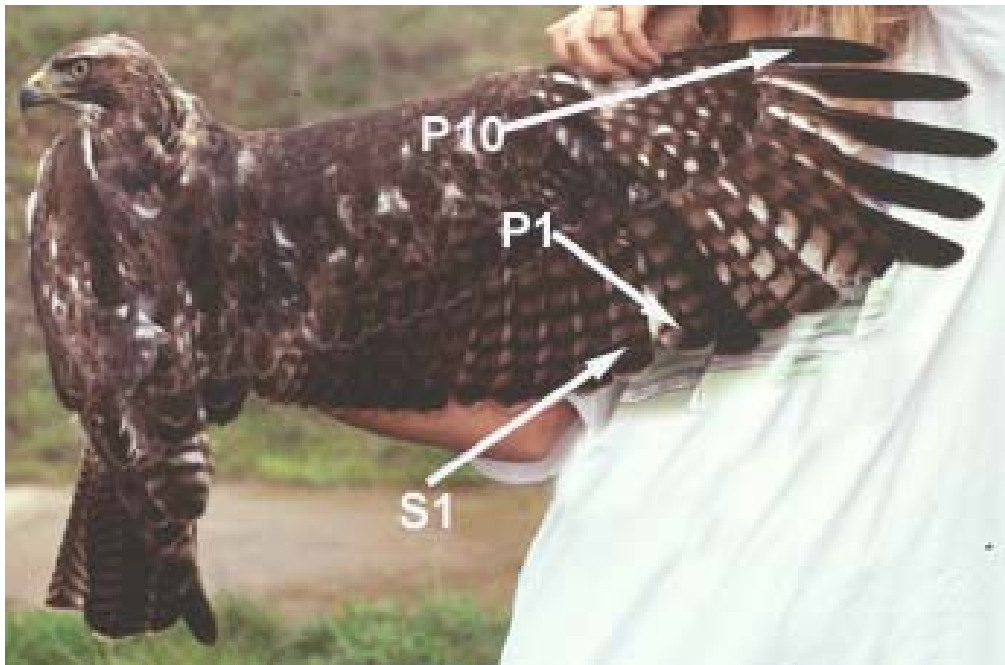
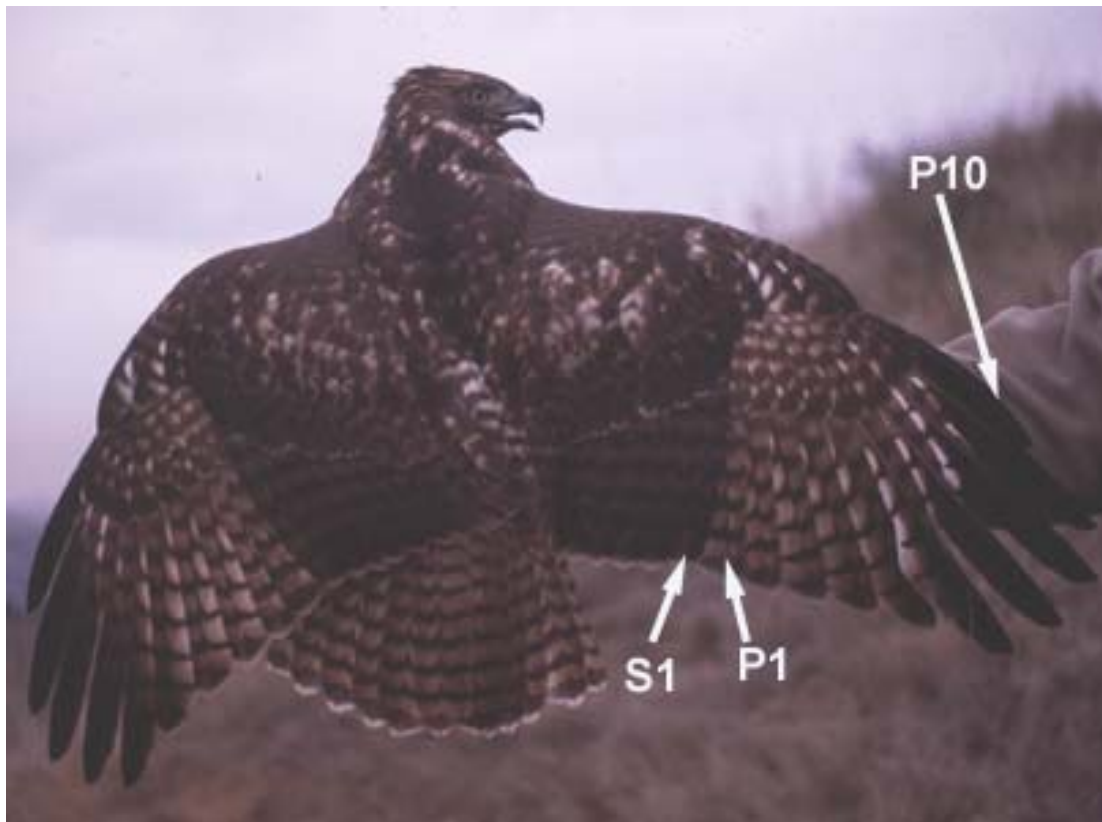


Figure 1: Dorsal views of these two juvenile Red-tails show the contrast in color between secondaries and primaries. The bird below also gives a clear view of the white terminal band in the tail, often worn away before the next molt. The mottled appearance in the scapular area is also visible.



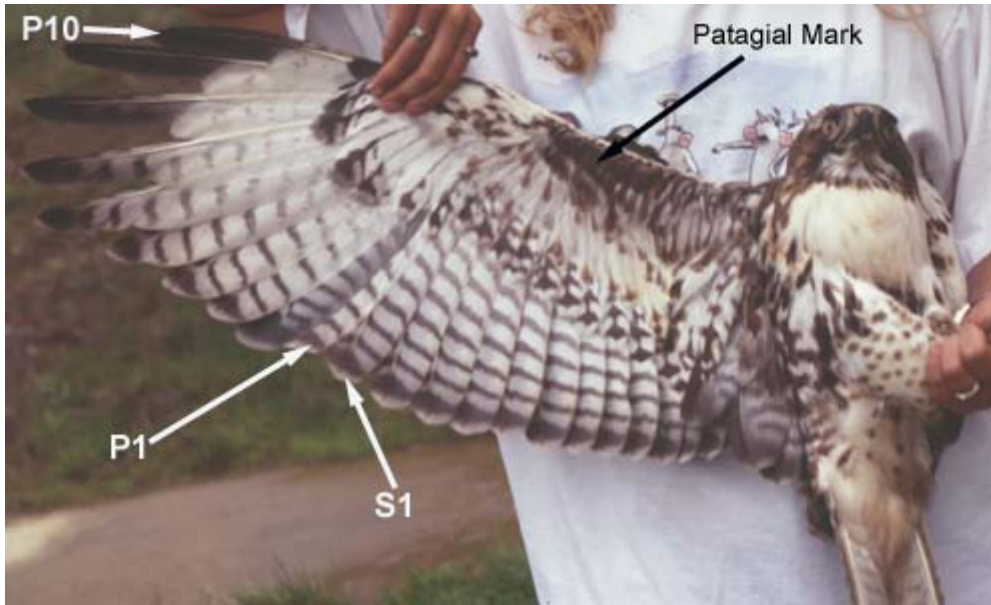
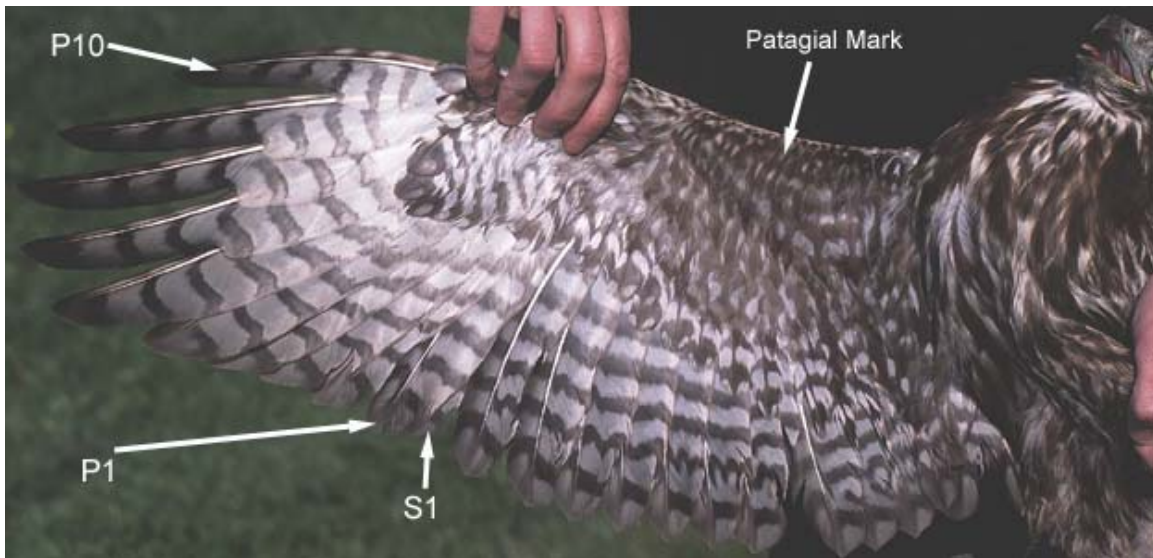


Figure 2: The ventral view of the typical light-morph Red-tail above shows most of the features needed to identify this species, including the patagial mark, light breast with streaked belly, and four outer primaries with emargination. The bird below shows some of the potential problems with darker juvenile Red-tails. The patagial mark blends in with generally darker underwing coverts and the heavily streaked breast blends with the streaked belly. Size, tarsi that are not feathered to the toes, and the four outer emarginated primaries would provide adequate clues for a correct identification.



## Ageing Red-tailed Hawks

Most Red-tailed Hawks go through an incomplete annual molt. Figures 1 and 2 show typical SY Red-tails banded during fall migration in the Marin Headlands of the Golden Gate National Recreation Area, Marin Co., CA., and Figure 3 shows an older (A4Y) Red-tail trapped in Sutter Co., CA. in the winter. These are examples of the incomplete molt typical of Red-tails in Northern California. Figures 1 and 2 show the maximum or near maximum number of retained juvenal remiges seen in SY Red-tails in the fall and winter in the Marin Headlands.

### **Remex Molt**

Flight feather molt in juvenal Red-tails begins with P1 and proceeds distally, usually retaining P9 and P10. Secondary molt begins at S1 and S5 and proceeds proximally, usually retaining S3, S4, and S8. Secondary molt also begins at S12 and proceeds both distally and proximally. Sometimes, as in the examples provided, additional juvenal primaries and secondaries are retained.

Retained juvenal secondaries are shorter and have a narrower subterminal band than the adjacent new adult secondaries. This comparison is usually more obvious in a ventral view than from the dorsal side. Retained juvenal secondaries are evidence that the hawk has only molted once and are therefore diagnostic of an SY/TY bird.

Retained juvenal primaries are not easily determined by pattern, and are often only slightly different in color and wear pattern from the adjacent new adult primaries.

Retained adult secondaries are faded and worn but are essentially the same length and have the same width subterminal band as the newly replaced adult secondaries and thus indicate a bird that is at least in its third calendar year (ASY/ATY). It is important to look for differences in color, fading, and wear in direct light. Additional clues to the relative age of a particular feather may be differences in the color of the shaft --especially fading -- and the greater coverts, which often molt at or near the same time as the associated remiges and when retained are very likely to be even more faded.

### **Rectrix Molt**

Tail molt is somewhat irregular and individual in sequence, usually starting with the number ones on both sides and followed by the number sixes. The remaining pairs are replaced in an alternation of inner pairs and outer pairs, the exact sequence appearing to be somewhat variable. The R1s are somewhat shorter than R2 through R6 and due to greater weathering are usually more faded than other rectrices of the same age. The number six rectrices are also often different in color and pattern from the rest, often having more banding and may

sometimes be more brown than red on the outer vane. There is no evidence that the degree of tail banding is related to age in an individual Red-tail.

### **Iris Color**

The rate and details of iris color change can be extremely variable in different individuals; therefore iris color is not a reliable guide to the age of the hawk. The sequence and timing given below are typical, but should not be taken as a recommendation that iris color can be used for ageing.

Iris color changes slowly from a pale gray/green in nestlings to a pale straw color in older HY birds. As a bird ages, the iris gradually darkens, usually from the bottom. A typical SY/TY Red-tail has an iris that is about one-half to three-fourths medium brown at the bottom, with the upper one-fourth to one-half straw-colored. Finally, the whole iris becomes a uniform rich, dark brown in older Red-tails.

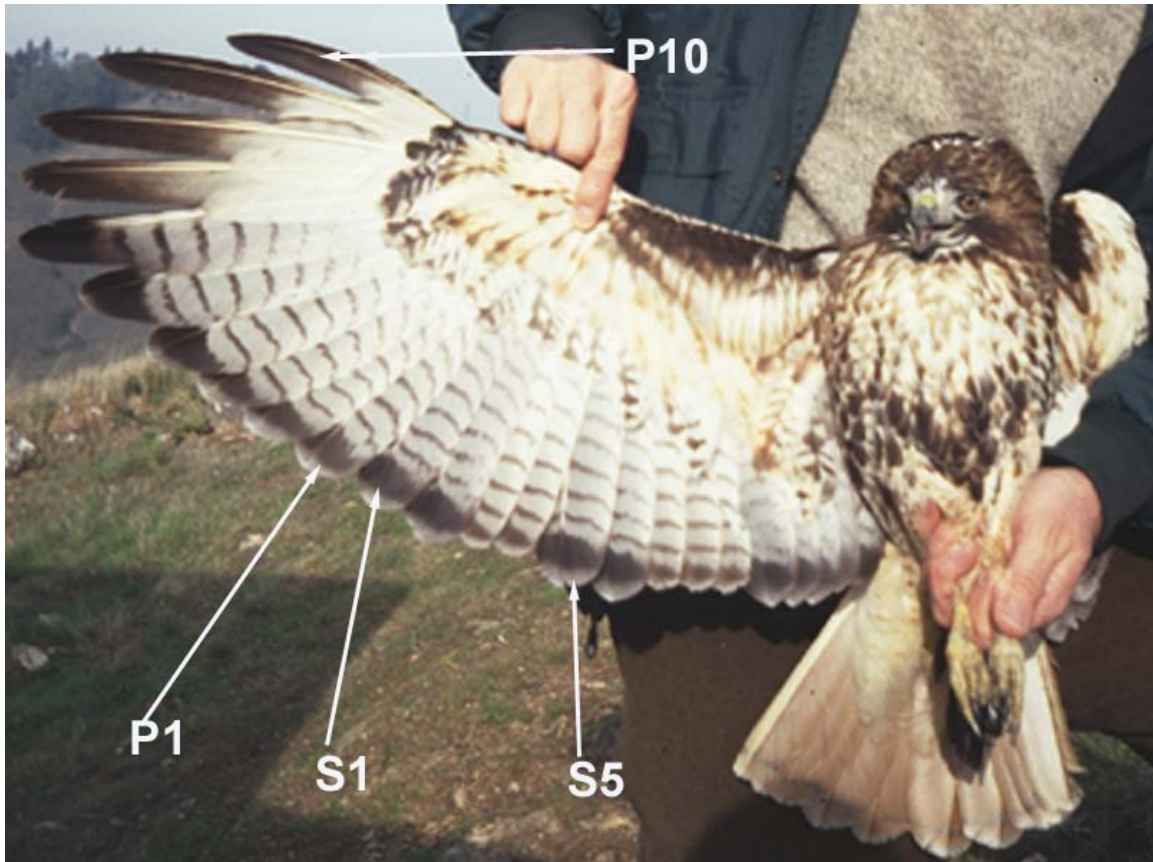


**Figure 1:** SY Red-tailed Hawk, band # 1387-17095, Nov 23, 1991, Marin Co., CA



In Figure 1, the hawk has replaced primaries P1 - P7 and retained P8 - P10. Secondaries S1 and S2 have been replaced and S3 and S4 have been retained; S5 and S6 have been replaced and S7, S8, and S9 have been retained; and finally S10 through S14 have been replaced. Please note that the contrast of pattern and length between retained juvenal secondaries 3,4,7,8, and 9, and the replacement adult secondaries is much easier to see from the ventral surface

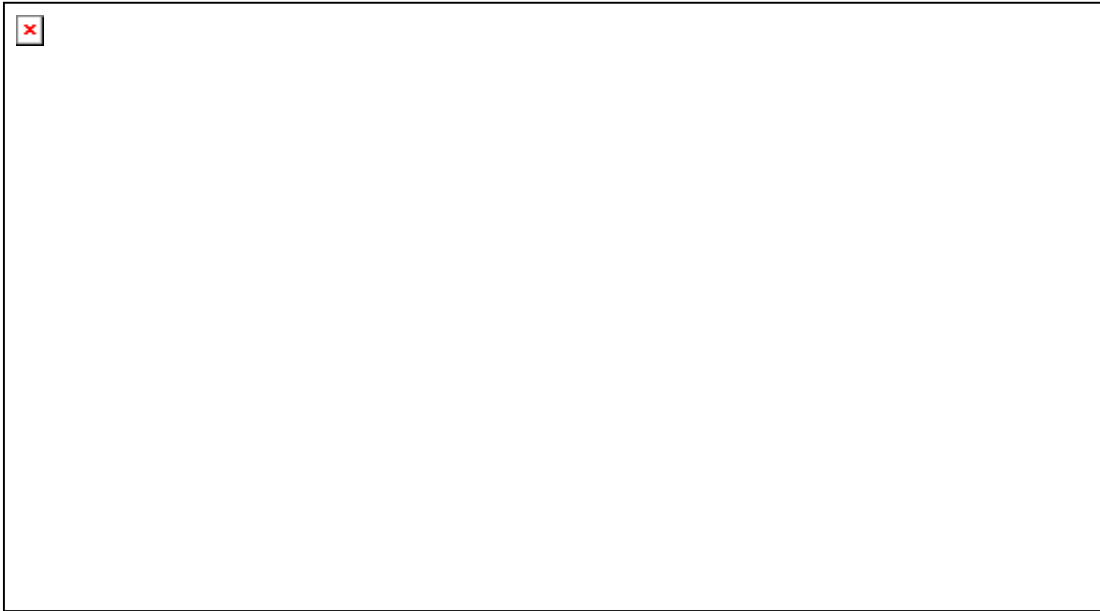




**Figure 2:** SY Red-tailed Hawk, band # 1177-14217, Dec 5, 1999, Marin Co., CA



In Figure 2, the hawk has replaced primaries P1 - P6 and retained P7- P10. Secondaries S1 and S2 have been replaced and S3 and S4 have been retained; S5 and S6 have been replaced and S7, S8, and S9 have been retained; and finally S10 through S14 have been replaced. Please note that the contrast of pattern and length between retained juvenal secondaries 3,4,7,8, and 9, and the replacement adult secondaries is much easier to see from the ventral surface of the wing.



**Figure 3:** A4Y (after fourth year) Red-tailed Hawk, band number 0877-41087, 02-01-2001, Sutter Co., CA.

This Red-tail wing shows 4 waves of stepwise molt or "*Staffelmauser*" in the primaries, indicating a bird in at least its 5<sup>th</sup> calendar year (A4Y). The waves are P1 through P3; P4, P5, and P6; P7 and P8, and P9 and P10. The secondaries show two waves of molt in each of the series S1 through S4, and S5 through S8. These shorter "units" of molt seldom show more than two waves in each, with an occasional 3-wave unit. The secondaries thus are of limited utility in determining more precisely the age of older birds.

The next annual molt begins with replacement of the oldest retained feathers, followed shortly thereafter by replacement of P1, S1, S5, and S12. In older Red-tails, this replacement sequence can create many active molt centers in both the primaries and secondaries.