

---

# News, Notes, Comments

---

## Errata

NABB Jan - Jun 2022 Vol. 47 No. 1 & 2.

Migration and Summer Ranges of Golden Eagles Tracked by Tail Mounted Satellite Transmitters

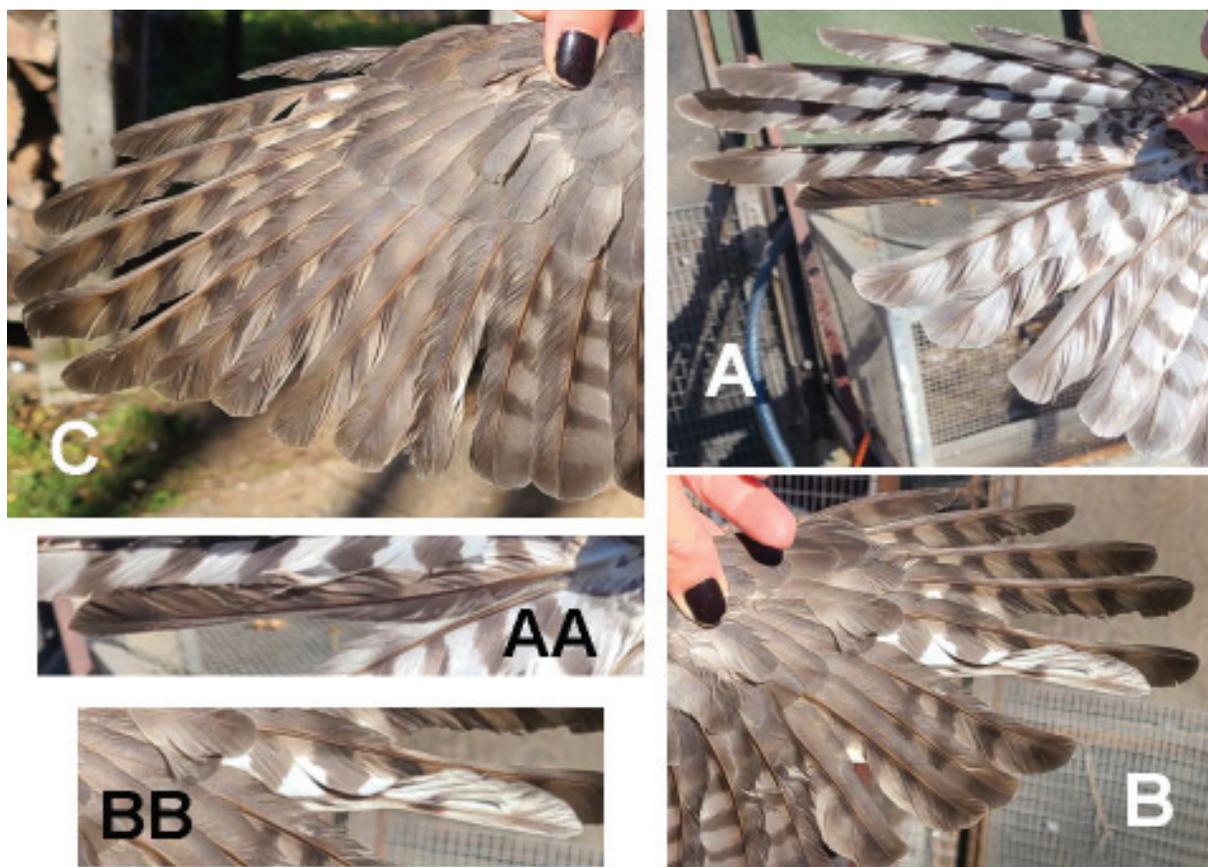
Page 26, Right col. 1st full par. 2nd line value should be 46.5

Page 30, on Graph, col. 7, entry on 8th row is blank. Should be 27.4.

---

### An upside-down primary in a Sharp-shinned Hawk

Proper feather development in birds is key to maintaining their habits and survival, and feathers start growing in specialized pockets called follicles (Gill 2007, Krawinkel 2012). Feather growth and development has been well described (Prum and Brush 2003, Gill 2007, Krawinkel 2012) and primary feather regrowth from damaged follicles has been studied within rehabilitation contexts (Delnatte et al. 2014), however there are few reports of follicular growth defects in free-living birds. Further, for Sharp-shinned Hawks (*Accipiter striatus*), one of the most well-studied North American raptors (Bildstein et al. 2020), there are no published accounts of abnormal flight feather growth. Here, I report the observation of a primary feather grown in reversed orientation – basically, upside-down – in a wild Sharp-shinned Hawk caught during fall migration.



**Figure 1.** Ventral (A) and dorsal (B) views of right wing showing the fifth primary that grew in upside-down. AA and BB represent enlarged portions of A and B, respectively, showing the fifth primary. Dorsal view of the left wing (C) show normal primary orientation.

At 1008 on 2 Nov 2021 at Cedar Grove Ornithological Research Station in eastern Wisconsin, staff caught an after-hatch year female Sharp-shinned Hawk during normal banding operations. We processed the bird, banding it with a USGS band (1893-44316) and took morphometric measurements (wing 206 mm, tail 157 mm, mass 168 g). We observed that primary 5 (P5) in the right wing had grown in entirely upside-down (Figure 1A, 1B). The feather was neither loose nor broken, but switched dorsal and ventral planes of the feather. The feather itself appeared brown, lacking the blue cast of adult feathers and was visually shorter than the surrounding primaries. The individual bird showed no other signs of molt in the right or left wings (Figure 1C), tail, or body plumage. All other plumage appeared typical.

Aside from this abnormal feather, this bird appeared healthy on all other metrics. Through palpation I scored this female as having an evenly-rounded keel, indicating developed breast muscle. The apparent gap in the wing and angle of the ingrown feather suggests her flight capabilities were not hindered. Different groups of birds employ different modes of molt depending on lifestyle. Raptors and other large birds employ a stepwise molt where remiges at different locations are replaced at the same time, producing multiple smaller gaps while maintaining the wing's surface integrity and the bird's ability to fly (Pyle 2006).

The exact cause of this feather abnormality is uncertain. Cannell et al. (1983) noted a conspicuously browner tail feather without any wear in an adult Rose-breast Grosbeak (*Pheucticus ludovicianus*), which they suggested was due to a defect in the feather follicle or that the follicle itself had been damaged. Throughout the life of a bird, the same follicle will produce feathers of different forms and function, but once fully grown, molt of the entire feather is the only mechanism to repair damage (Gill 2007). Any genetic changes in this chain of feather growth may impact the resulting feather phenotype. Additionally, though P5 in the Sharp-shinned Hawk is shorter than the surrounding primaries, it does not indicate it was the last to molt based on the observed molt pattern in the group of raptors (Bildstein et al. 2020, Jul. - Sep. 2022

Liguori et al. 2020). I suggest that this feather was molted in during the second or third prebasic molt, but some follicular defect, due to prior injury or genetics, caused the development of an otherwise normal primary to be flipped.

## LITERATURE CITED

- Bildstein, K. L., K. D. Meyer, C. M. White, J. S. Marks and G. M. Kirwan. 2020. Sharp-shinned Hawk (*Accipiter striatus*), version 1.0. In Birds of the World (S. M. Billerman, B. K. Keeney, P. G. Rodewald and T. S. Schulenberg, Editors). Cornell Lab of Ornithology, Ithaca, NY.
- Cannell, P. F., J. D. Cherry and K. C. Parkes. 1983. Variation and migration overlap in flight feather molt of the Rose-breasted Grosbeak. *Wilson Bulletin* 95:621-627.
- Delnatte, P., S. Lair, G. Beauchamp and G. Fitzgerald. 2014. Assessment of regrowth of flight feathers after manual removal in American Kestrels (*Falco sparverius*). *Journal of Zoo and Wildlife Medicine* 45: 600-610.
- Gill, F. B. 2007. Ornithology, third edition. W. H. Freeman and Company, New York, NY.
- Krawinkel, P. 2012. Feather follicle extirpation: operative techniques to prevent zoo birds from flying, pp 275-280 in *Zoo and Wild Animal Medicine*, Vol. 7, *Current Therapy* (Miller, R.E. and M. E. Fowler, eds), Elsevier, Amsterdam, Netherlands.
- Liguori, J., J. L. Watson, F. Nicoletti and D. Oleyar. 2020. In-hand guide to diurnal North American raptors. HawkWatch International, Inc., Salt Lake City, UT.
- Prum, R. O. and A. H. Brush. 2003. Which came first, the feather or the bird? *Scientific American* 288: 84-93.
- Pyle, P. 2006. Staffelmauser and other adaptive strategies in larger birds. *Western Birds* 37: 179-185.

**Daniel E. Erickson**, 7044 Auburn Ave  
Wauwatosa, WI 53213  
email: ericksda56901@gmail.com

## American Goldfinch banded in Ohio recaptured in spring and fall in Michigan

On 14 April 2021, during the regular spring migration monitoring and stopover ecology research conducted at the Meadow Station at