

‘Green-winged’ Teal

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Quick! What is the color of the inner part of the speculum on a Green-winged Teal?

“What is a ‘speculum,’” you might ask. To paraphrase a couple of online definitions, it is a patch of colorful secondaries that contrast with the color of much of the rest of the wing and, in the ABA area, used primarily with ducks. I am something of a purist in preferring to use the term only for patches of iridescent color, rather than those created by pigment. Thus, I do not consider White-winged Scoter to have a speculum, but I am almost certainly in the minority with that belief. Of course, even those that do believe that White-winged Scoter has a speculum are in the minority, as most people who know the term—and that is certainly a minority in itself—think of the medical tool used by gynecologists.

So, what is the color of the inner part of the speculum on a Green-winged Teal? Now, if you paid attention to the last paragraph, you might be able to waffle on the response, with something like, “Well, it depends on the angle of light.” That is true, because iridescence in “animals such as on the feathers of birds and the scales of butterflies, interference is created by a range of photonic mechanisms, including diffraction gratings, selective mirrors, photonic crystals, crystal fibres, matrices of nanochannels and proteins that can vary their configuration” (Wikipedia 2016).

Whew! Did you get that? I think I need to get me some of them there photonic crystals. Perhaps this one will work (CLO 2016): “The iridescent colors... are the result of the refraction of incident light caused by the microscopic structure of the feather barbules. The refraction works like a prism, splitting the light into rich, component colors. As the viewing angle changes, the refracted light becomes visible in a glowing, shimmering iridescent display.”

That’s better. Even simpler, however, iridescence in feathers is created by the structure of those feathers and their ability to affect the wavelength of light that enters the feather in such a way as to emit only certain parts of the color spectrum. Additionally, which part of the spectrum that an observer sees is dependent upon the angle created by the light source, the bird, and the viewer. This last is the reason that male Mallards sometimes look like they have blue or purple heads rather than green heads. Why head color in scaup is a very poor ID character. Why male Broad-tailed Hummingbirds can suddenly become Black-chinned Hummingbirds when they turn their heads slightly. Typically, the “true” color—or what we birders often think is the true color (such as Mallard’s

green head)—of any iridescent feather requires the observer to have the light source (usually, the sun) nearly behind her/him *and* the feather in question facing the sun. In actuality, the feather does have a “true” color, but it is usually not the color that we perceive. As example, those iridescent feathers that make up the train of uppertail coverts of Indian Peafowl males—the feathers that are usually called the “tail,” but which aren’t tail feathers at all—are actually pigmented brown.

Now that I am five paragraphs along in this essay, I will get back to the subject. What is the color of the inner part of the speculum on a Green-winged Teal? If you answered, “green,” good on ya. That green speculum is the reason that we call *Anas crecca carolina* Green-winged Teal.

Now that we’ve got the easy question out of the way, what is the color of the inner part of the speculum on a Blue-winged Teal? Did you answer, “green?” We-elllllll...

Very good.

For those that stumbled, this is one of the problems of naming bird species based on a field character that is not unique to the species. I mean, if Green-winged Teal has a green speculum, certainly Blue-winged Teal would have a blue speculum. Right? As those that responded “green” to the second question know, Blue-winged Teal got its name, not from the speculum, but from the lesser and median coverts – the front part of the topside of the wing, rather than the back part of the topside of the wing. Blue-winged Teal has a green speculum. In fact, all duck species that occur in the ABA area that have “teal” in their name (as well as the teal that does not have “teal” in its name, Northern Shoveler) have green specula. In fact, of the nine duck species in the genus *Anas* (most of the so-called “dabbling ducks”) that occur regularly in Colorado (“regular” being defined as not on the state’s review list), seven of them sport green specula; Gadwall and Mallard are the odd ducks out.

On the back cover of this issue are photographs of the speculum of each of five ducks, all having green specula. Can you find the Green-winged Teal? What other species are represented?

LITERATURE CITED

- [CLO] Cornell Laboratory of Ornithology. 2016. How birds make colorful feathers. Cornell Lab of Ornithology, Ithaca, NY. Accessed October 2016 from <https://academy.allaboutbirds.org/how-birds-make-colorful-feathers/>.
- Wikipedia. 2016. Structural coloration. Wikipedia, the Free Encyclopedia. Accessed October 2016 from https://en.wikipedia.org/wiki/Structural_coloration.

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Note: Complete captions will be provided for the pictures when the solution is presented in a subsequent installment of "In The Scope."



Fig. 1. Fish Springs N.W.R., Juab County, UT, 24 June 2009. Photo by Ken Behrens



Fig. 2. Hay Lake, Glacier County, MT, 19 August 2015. Photo by Tony Leukering



Fig. 3. Cape May, Cape May County, NJ, 13 December 2015. Photo by George Armistead



Fig. 4. Antelope Island Causeway, Davis Co., UT, 14 January 2008. Photo by Ken Behrens



Fig. 5. Hudson Beach, Pasco County, FL, 17 January 2016. Photo by Tony Leukering