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ISABELLINE COLORATION IN AMERICAN RED SQUIRRELS (*TAMIASCIURUS HUDSONICUS*) FROM THE YUKON

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Key words: albinism, American Red Squirrel, color aberration, Isabelline, *Tamiasciurus hudsonicus*, Yukon

Aberrations in coat color are common in Scuriidae. However, various workers have concluded that coat color aberrations in American Red Squirrels (*Tamiasciurus hudsonicus*) are apparently rare (Banfield 1974; Obbard 1987; Steele 1998; Yahner 2003; S Boutin, University of Alberta, pers. comm.), presumably because coat color is adaptive (Wauters and others 2004; Caro 2005). Regardless, genetic mutations occur. Benton (1958) and Mengel and Jenkinson (1971) reported melanistic Red Squirrels, and Wood (1965) reported albinistic individuals. Several records of unusual color variants, that are neither albinistic nor melanistic, have also been reported, although these also appear to be rare. For example, Svihla (1931) and Layne (1954), reported individuals that were piebald (leucistic), and a similarly-colored individual was photographed in 2010 near Edmonton, Alberta, Canada (S Boutin, University of Alberta, pers. comm.). Banfield (1974) noted that in so-called partial albinos “the general tone may be pale grey, or perhaps only the tail will be white”. Dapson (1963) reported a coat color variation that was also unique, in that “(t)he dorsum and sides

are dirty white, due to the underfur, which is dark gray, tipped with faint rufous”. The eyes and vibrissae in Dapson’s specimen were normal color. Here, we report an observation of unusual coloration in an American Red Squirrel.

On 23 August 2011, we received information and photographs from local residents about an unusually colored Red Squirrel seen in a residential neighborhood in Whitehorse, Yukon, Canada (UTM: Zone 8V, 497272E, 6731229N, WGS 84). We set 3 Tomahawk live-traps (model 201, Tomahawk, Wisconsin, USA), baited with apples and peanut butter, in the area, and on 24 August we captured an unusually colored Red Squirrel. We examined its coloration, determined its sex and age-class, weighed it with a spring scale (Pesola AG, Baar, Switzerland), photographed and, then released it.

The Red Squirrel was a juvenile female (mass = 140 g). Coloration of her sides, dorsum, tail, head, legs, and feet was pale or sandy, with rufous tips on the guard hairs (Fig. 1). The ventral surface was white, the typical coloration of Red Squirrels, and the eyes were also typical, not pink, as in truly albinistic individuals. The vibrissae, however, were white, not black, as typically seen (Fig. 1). The white eye rings were faintly discernible. Lateral lines or a dark dorsal median band were



FIGURE 1. Isabelline-colored American Red Squirrel (*Tamiasciurus hudsonicus*) photographed in southwestern Yukon, Canada, August 2011. Photo by PM Kukka.

not evident. Overall, the coat color of the Red Squirrel appeared faded or “washed out” (Fig. 1).

The Red Squirrel we observed was not albinistic, as it was not completely white and the eyes were of typical coloration. There was no evidence of a complete (albinistic) or partial (leucistic) lack of melanin. The propensity to incorrectly categorize all white (or light colored), or partially white, birds as albinistic was pointed out by van Grouw (2006). Jones (1920) noted the same for mammals. Based on our review of color variants, we consider the Red Squirrel we observed to be of Isabelline coloration. This coloration is not a partially albinistic variant, rather it is a type of pigment dilution whereby there is a substantial but not complete reduction in melanin caused by genetic mutation (van Grouw 2006). Isabelline dilution is marked by a uniform reduction in melanin. The result of this genetic mutation is an individual that looks “washed out”.

Everitt and Miskelly (2003) review the off-color origin of the term Isabelline. The term Isabelline is commonly applied to individual birds that have faded plumage (for example, Everitt and Miskelly 2003; van Grouw 2006); to the best of our knowledge, it is rarely applied to mammals that have diluted pelage, where “partial albino” is often incorrectly used (Jones 1920). The term Isabelline is also applied to species of birds that are more sandy or cream colored than their sibling species (for example, Isabelline Waterhen, *Amaurornis isabellina*; Isabelline Wheatear, *Oenanthe isabellina*; and Rufous-tailed Shrike, *Lanius isabellinus*). For mammals, it has been

applied to the pale-colored Meridional Serotine Bat (*Eptesicus isabellinus*) found near the Strait of Gibraltar, and a sandy-colored subspecies of Brown Bear (*Ursus arctos isabellinus*) found in central Asia.

While the Isabelline color variant of Red Squirrels appears to be quite rare, there were 2 Red Squirrels collected together in the late 1980s near Burwash Landing, Yukon (225 km WNW of Whitehorse), that were also of Isabelline coloration (C Buchanan, Caribou Crossing Trading Post, pers. comm.; photographs shown to BGS). A melanistic Red Squirrel was also reported from the same location. The Isabelline-colored Red Squirrels we observed also appear to be similar to a light colored Red Squirrel from northern New York reported by Dapson (1963), with the exception of the coloration of the vibrissae. Isabelline Red Squirrels may also be present in several museum collections, where the specimens may be incorrectly labeled as albinistic (DW Nagorsen, Mammalia Biological Consulting, pers. comm.; LE Olson, University of Alaska Museum, pers. comm.).

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