NOTES

THE SOUTHWESTERN NATURALIST 65(3/4): 266–267

MELANISTIC CALIFORNIA GROUND SQUIRRELS (*OTOSPERMOPHILUS BEECHEYI*)

SALVADOR GONZÁLEZ-GUZMÁN,† ERIC MELLINK,* AND SCOTT TREMOR

Conservacion de Fauna del Noroeste A.C., Calle Granada, 2100B, Ensenada, México (SGG)
Centro de Investigación Científica y de Educación Superior de Ensenada, Carretera Ensenada–Tijuana 3918, 22860 Ensenada, México (EM)
San Diego Natural History Museum, P.O. Box 121390, San Diego, CA 92112 (ST)
†Deceased
**Correspondent: emellink@cicese.mx*

ABSTRACT—Although melanism is common in some species of North American squirrels, its occurrence in the California ground squirrel (*Otospermophilus beecheyi*) was only anecdotal and reported in the early 20th century. Here we report on melanistic individuals in this species in northwestern Baja California in 2013 and 2020.

RESUMEN—Aunque el melanismo es común en algunas especies de ardillas de Norteamérica, su existencia en la ardillón de California (*Otospermophilus beecheyi*) era solamente anecdótica y reportada a principios del siglo XX. Aquí reportamos individuos melánicos de esta especie en el noroeste de Baja California en 2013 y 2020.

Melanism, the condition of black or nearly black pigmentation of skin, feathers, or hair, occurs in many species of mammals. In squirrels, it is common and well known in some species (Nelson, 1899; McRobie et al., 2009, 2019), but its occurrence in the California ground squirrel (*Otospermophilus beecheyi*) is rather anecdotal. Grinnell and Dixon (1918:602) reported that "We have been told of 'black' ground squirrels ..." but did not report seeing any melanistic individuals themselves. Jean M. Linsdale, reported one female that was dark both dorsally and ventrally that could have been melanistic, from central California (Linsdale, 1946:425). In the species' *Mammalian Species* monograph, Smith et al. (2016) mentioned Grinnell and Dixon's (1918) statement but did not add further information. Other authors (e.g., Leopold, 1959; Thomas, 2017) have not mentioned the issue.

In >500 California ground squirrels captured by one of us (S.T.) and countless seen by all of us, none had been melanistic, suggesting that this condition appears to be very rare. Therefore, the finding of a melanistic individual by one of us (S.G.G.), which supports the otherwise unsubstantiated Grinnell and Dixon's (1918) comment, merits reporting.

On 20 June 2013, S.G.G. documented one melanistic California ground squirrel in an open shrubland on nearshore pale sandy soil at the southern end of the Ensenada, Baja California, urban area (31°48′48.76″N, 116°36′24.88″W). Almost 7 years later, on 15 February 2020, S.G.G. spotted another melanistic individual (Fig. 1) at the same spot as in 2013. Two months later, on 12 April, he documented a melanistic individual 190 m from the previous site (at 31°48′49.17″N, 116°36′17.60″W), but not at the previous site, and recorded it again on 20 May and 3 June. On 28 July 2020 the individual had moved another 140 m to the east (31°48′50.84″N, 116°36′12.57″W). At no visit was there more than one individual, and on some of the 2020 sightings, S.G.G. confirmed it as the same one based on a visible scar on its back. On 8 August 2020 there were at least 18 normal-colored individuals in the area, although S.G.G. did not see the melanistic one on this date. On 25 November and 22 December 2020, and 30 March, 11 April, 29 May, 26 June, 24 July, and 14 August 2021, S.G.G. reviewed the same area and recorded only normal-colored California ground squirrels, but not melanistic ones.

Coat color of the California ground squirrel, as in other rodent species, can be very dark, without being

Fig. 1—Melanistic California ground squirrel recorded south of Ensenada, Baja California, Mexico, on 15 February 2020. Photo by Salvador González-Guzmán.

melanistic, as an adaptation to local, dark substrates, like volcanic ones. The melanistic squirrel we report in this note is clearly different, as it was on pale substrate, among several individuals that were lightly colored.

Only one melanistic individual appears to have been in the area recently. Given the species' life span in the wild of up to 6 years, the 2020 individual is in all likelihood a different one than that recorded in 2013. Melanism in this species is evidently very rare and, as we assume it is genetically driven (sensu McRobie et al. 2009, 2019), we suppose that the individual recorded in 2020 is a descendant of the 2013 one. The fact that the melanistic trait was recently present in this population, but has not increased, might suggest that it makes the individual having it neither less nor more fit than normally colored squirrels.

Lastly, genetic analysis of this individual, or a further descendant with the same condition, comparable with those of McRobie et al. (2009, 2019), would increase our understanding of melanism, at least in squirrels, but possibly also at a larger scale.

Literature Cited

Grinnell, J., and J. Dixon. 1918. Natural history of the ground squirrels of California. California State Commission of Horticulture Bulletin 7:597–708.

Leopold, A. S. 1959. Wildlife of Mexico: the game birds and mammals. University of California, Berkeley.

Linsdale, J. M. 1946. The California ground squirrel. University of California Press, Berkeley.

McRobie, H., A. Thomas, and J. Kelly. 2009. The genetic basis of melanism in the gray squirrel (*Sciurus carolinensis*). Journal of Heredity 100:709–714. https://doi.org/10.1093/jhered/esp059

McRobie, H. R., N. D. Moncrief, and N. I. Mundy. 2019. Multiple origins of melanism in two species of North American tree squirrel (*Sciurus*). BMC Evolutionary Biology 19:140. https://doi.org/10.1186/s12862-019-1471-7

Nelson, E. W. 1899. Revision of the squirrels of Mexico and Central America. Proceedings of the Washington Academy of Sciences 1:15–110.

Smith, J. E., D. J. Long, I. D. Russell, K. L. Newcomb, and V. D. Muñoz. 2016. *Otospermophilus beecheyi* (Rodentia: Sciuridae). Mammalian Species 48:91–108.

Thomas, H. 2017. California ground squirrel *Otospermophilus beecheyi*. Pages 32–35 in San Diego County mammal atlas (S. Tremor, D. Stokes, W. Spencer, J. Diffendorfer, H. Thomas, S. Chivers, and P. Unitt, editors). Proceedings of the San Diego Society of Natural History 46.

Submitted 17 August 2020. Accepted 5 August 2021.
Associate Editor was Andrew Martin.