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Preliminary Report: Are Bushtits (*Psaltriparus minimus*) Drinking Nectar for Breakfast?

By Rebecca Hartley, Biology Department, Seattle University, 2022

We observed Bushtits feeding at blooming non-native *Mahonia* shrubs on the Seattle University (SU) campus in Seattle, WA, USA, in December, January, and February in 2019-2022. A flock of 15-20 birds arrived regularly around sunrise during the winter months to forage at adjacent *Mahonia bealei* and *Mahonia* hybrid thickets (Hartley 2021).

Typically, the Bushtit flock arrived about 15 min before sunrise and foraged with frequent vocalizations for 10-15 min. Then the birds settled quietly into nearby shrubs and trees for a few minutes of huddling (Chaplin 1982) and preening before foraging noisily for another 5-10 min. The Bushtits then moved to nearby shrubs or trees to wipe their beaks (McGlashen 2019) before flying away.

The bright yellow flowers of *Mahonia bealei*, which is native to Asia, open in succession from the base to the tip of the long racemes over multiple weeks. Examination of all the buds, flowers, and nascent fruit from 4 racemes under a dissecting microscope in the laboratory revealed no insects but a pool of clear liquid was present within the base of each open flower. Preliminary measurements suggested an approximate nectar volume of 5-6 ul per flower with a sugar content of 40-50% by weight, so further study is planned.

Two video recordings made one week apart in December 2021 showed Bushtits poking their beaks deep into the open flowers. Drinking motion in the throat area was also observed. Please see the accompanying 2-min highlight videos from December 10 and December 17.

Mahonia bealei and its hybrids are often visited by Anna's Hummingbirds (*Calypte anna*) (Dunne 2016). On two consecutive days in December 2021, a Townsend's Warbler (*Setophaga townsendi*) was observed foraging in the flowers, so we are interested to know how common passerine visits are. In Britain, Blackcaps (*Sylvia atricapilla*) have been observed foraging on non-native *Mahonia* and it was suggested that the birds provided pollination services for the plants (Harrup 1998).

There are other patches of *Mahonia bealei* and its hybrids on the SU campus where Bushtits have been observed foraging at other times of day and it seems likely that the birds are transporting pollen between plants. In the southeastern U.S., *Mahonia bealei* is considered an invasive species (Allen et al. 2006). Unfortunately, it is not possible to find out which animals pollinated this species in its native range, since the plant is no longer growing in the wild in China (Ying et al.).

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Keywords

Bushtit, *Psaltriparus minimus*, Aegithalidae, Townsend’s warbler, Anna’s hummingbird, *Mahonia*, flower, nectar, foraging, diet, beak wiping, huddling, preening, flock, winter, passerine, video