

SPECIES

Tricolored Blackbird *Agelaius tricolor*

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Diet and Foraging

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Feeding

Main Foods Taken

Characterized as a grasshopper (Orthoptera) follower, the counterpart of Old World locust-dependent starlings ([3](/bow/species/tribla/cur/references#REF49326) (</bow/species/tribla/cur/references#REF49326>), [7](/bow/species/tribla/cur/references#REF53882) (</bow/species/tribla/cur/references#REF53882>)). When later observations failed to confirm this relationship, it was suggested that the decline in abundance of the Tricolored Blackbird observed between 1968 and 1972 (relative to observations in [1](/bow/species/tribla/cur/references#REF21364) (</bow/species/tribla/cur/references#REF21364>)) might reflect loss of California grasslands and grasshoppers ([69](/bow/species/tribla/cur/references#REF21354) (</bow/species/tribla/cur/references#REF21354>)). Recent studies have shown the Tricolored Blackbird to be an opportunistic forager that will consume any locally abundant insect resource, including grasshoppers ([5](/bow/species/tribla/cur/references#REF35588) (</bow/species/tribla/cur/references#REF35588>), [15](/bow/species/tribla/cur/references#REF61253) (</bow/species/tribla/cur/references#REF61253>)), caterpillars ([72](/bow/species/tribla/cur/references#REF62130) (</bow/species/tribla/cur/references#REF62130>), [74](/bow/species/tribla/cur/references#REF70113) (</bow/species/tribla/cur/references#REF70113>)), grains (maturing and ripe seeds), snails ([77](/bow/species/tribla/cur/references#REF19436) (</bow/species/tribla/cur/references#REF19436>)), beetles, weevils, and small clams ([78](/bow/species/tribla/cur/references#REF49328) (</bow/species/tribla/cur/references#REF49328>)). Often exploits storage bins of livestock foods ([78](/bow/species/tribla/cur/references#REF49328) (</bow/species/tribla/cur/references#REF49328>); RJM and ECB, personal observations).

Microhabitat for Foraging

Tricolored Blackbird exploits a wide range of foraging substrates, including grasslands, irrigated pasture, grain fields, shallow wetlands, and alkali scrub habitats, rice paddies, alfalfa, sunflowers, stored grains, and the air above wetland colonies when aquatic insects are hatching ([41](/bow/species/tribla/cur/references#REF35587) (</bow/species/tribla/cur/references#REF35587>), [42](/bow/species/tribla/cur/references#REF70114) (</bow/species/tribla/cur/references#REF70114>), [15](/bow/species/tribla/cur/references#REF61253) (</bow/species/tribla/cur/references#REF61253>), [62](/bow/species/tribla/cur/references#REF70122) (</bow/species/tribla/cur/references#REF70122>)). Recent documentation of unusual foraging for California Oakworm caterpillars (*Phryganidia californica*) in Coast Live Oak (*Quercus agrifolia*) and Valley Oak (*Quercus lobata*) trees ([74](/bow/species/tribla/cur/references#REF70113) (</bow/species/tribla/cur/references#REF70113>)).

Foraging Distance

Foraging distance is heavily influenced by the presence of concentrated food resources. Breeding individuals typically forage away from their nest sites, often well out of sight of the colony, but where insect foods are locally abundant, much foraging occurs well within sight of the colony. Most foraging occurs within 5 km of colony sites ([4](/bow/species/tribla/cur/references#REF21366) (</bow/species/tribla/cur/references#REF21366>)), but exceptionally to 13 km one way (WJH). Short-distance foraging (i.e., within sight of colony) for nestling provisioning is also common ([63](/bow/species/tribla/cur/references#REF21353) (</bow/species/tribla/cur/references#REF21353>), [15](/bow/species/tribla/cur/references#REF61253) (</bow/species/tribla/cur/references#REF61253>)). At smaller colonies (< 1,000 adults), outward flights are pulsed and episodic; at larger colonies (> 20,000 adults), departures may form continuous and persistent streams of birds flying single-file back and forth between the colony and foraging substrates or outward foraging flights may occur in intermittent streams even in largest colonies.

Food Capture and Consumption

Like other blackbirds, the Tricolored Blackbird is able to gape, opening the bill forcibly against resistance to expose insect prey in the leaves of agricultural plants, aquatic plants and under tilled soil, sticks, and rocks ([79 \(/bow/species/tribla/cur/references#REF60298\)](#)). Individuals pick seeds and insect prey from the ground, glean vegetation, and occasionally fly-catch near and above breeding colonies, sometimes to 50 m high. In the Sacramento Valley, they often forage in rice paddies in the breeding season, wading in shallow water and placing their head under water to insert the bill into mud in search of aquatic insect larvae (RJM). Individuals often forage deep in grass, where not observable. At all seasons, this species is attracted to foraging flocks of other blackbirds.

Diet

Differences in the foraging behavior and diet of Tricolored and Red-winged blackbirds appear to be based primarily on sociality and choice of foraging locations, rather than specific foods.

Breeding Season

In southern California, the diet of Tricolored Blackbirds in the breeding season is no more specialized than that of the Red-winged Blackbird ([5 \(/bow/species/tribla/cur/references#REF35588\)](#)). Foods delivered to Tricolored Blackbird nestlings included grasshoppers, beetles and weevils (Coleoptera), caddis fly larvae (Trichoptera), and moth and butterfly larvae (Lepidoptera) ([80 \(/bow/species/tribla/cur/references#REF49325\)](#), [4 \(/bow/species/tribla/cur/references#REF21366\)](#), [5 \(/bow/species/tribla/cur/references#REF35588\)](#), [7 \(/bow/species/tribla/cur/references#REF53882\)](#), [69 \(/bow/species/tribla/cur/references#REF21354\)](#), [78 \(/bow/species/tribla/cur/references#REF49328\)](#)), and, especially in current (1998) rice-growing areas, dragonfly larvae (Odonata; WJH). In 1997, a large colony (> 50,000) fed almost exclusively on lakeshore midges (Diptera; WJH).

Quantitative analysis of esophagus contents of birds shot returning to a breeding colony showed that animal matter accounts for 91% ($n = 95$) of food volume for nestlings and fledglings, 56% ($n = 107$) for adult females, 28% ($n = 27$) for adult males ([78 \(/bow/species/tribla/cur/references#REF49328\)](#)). Noctuid moth (Noctuidae) larvae and beetles were the most prominent items taken by breeding adults ([5 \(/bow/species/tribla/cur/references#REF35588\)](#)).

Immediately before and during nesting, adults attracted to the vicinity of dairies may take high-energy livestock foods ([5 \(/bow/species/tribla/cur/references#REF35588\)](#)). Adults with access to livestock feed, such as cracked corn, may begin delivering it to chicks when they are about 10 d old (WJH). There is a long history of this species depredating crops ([81 \(/bow/species/tribla/cur/references#REF21370\)](#)), including newly sprouted rice (WJH), ripening oats (*Avena sativa*; [78 \(/bow/species/tribla/cur/references#REF49328\)](#)), milk-stage rice ([73 \(/bow/species/tribla/cur/references#REF64149\)](#), RJM), and milk-stage barley (WJH). On the other hand, the species may offer considerable benefit as an agent of insect control ([80 \(/bow/species/tribla/cur/references#REF49325\)](#), [78 \(/bow/species/tribla/cur/references#REF49328\)](#)), especially to organic and seed crop operations. Although not investigated in detail, consumption of large numbers of grasshoppers and other phytophagous insects by Tricolored Blackbird colonies may reduce forage loss for livestock in rangeland settings ([62 \(/bow/species/tribla/cur/references#REF70122\)](#)).

Nonbreeding Season

On the basis of winter food habits in the Sacramento Valley, over 88% of winter diet is plant material, primarily seeds of rice, other grains, and weeds ($n = 37$) ([70 \(/bow/species/tribla/cur/references#REF55566\)](#)) and foraging locations are often strongly influenced by the presence of grains stored for or provided to livestock. Often joins other blackbird species to forage in recently tilled fields.

Food Selection and Storage

Does not store food. Selects grains as they ripen (milk stage). During the breeding season, males take the most abundant and accessible food source, often grains stored for livestock, while females take primarily insects. Both sexes feed insects to nestlings until the young are about 10 d old, when both insects and plant matter are fed to young.

Nutrition and Energetics

Foraging and dietary differences during the breeding season suggest that females depend on insects to form eggs; when stored grains are available, foraging flocks consisting almost exclusively of males typically take grains stored for livestock at the same time that flocks consisting almost entirely of females forage independently on insects (RJM). Nestlings are fed almost entirely insects for the first 9 d after hatching ([Z8 \(/bow/species/tribla/cur/references#REF49328\)](#), RJM). Non-breeding birds show no sexual differences in diet and typically congregate with other blackbird species to take locally abundant food resources.

Metabolism and Temperature Regulation

Chicks in exposed nests attempt to avoid direct sun by crowding the shaded edge of the nest, pointing the body and bill toward the sun. Females shade nests and are reluctant to flush from eggs and nestlings at ambient temperature > 38°C (WJH, RJM). Loss of mass in nestlings is often due to high ambient temperatures in summer ([1 \(/bow/species/tribla/cur/references#REF21364\)](#)); also typically related to drawdown of water from managed wetlands, and infrequently due to intense summer thundershowers (RJM).

Drinking, Pellet-Casting, and Defecation

Drinks by dipping bill in water, closing bill, raising head, and swallowing. Adults may dunk food items in water prior to feeding them to nestlings (S. Simmons, personal communication; RJM), especially in upland colonies relatively distant from a water source. Most colonies are over or immediately adjacent to water, but some upland colonies may be > 100 m from the nearest water. A wide variety of water sources are used, from agricultural drainage canals and stock ponds to streams and wetland margins.

Older nestlings defecate at one location at the nest edge. Fledgling latrines leave a distinctive whitewash near colony edges, especially visible in Himalayan Blackberry nesting substrate.

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Male Tricolored Blackbirds carrying food (grasshopper instars).

Credit: Stephen Fischer.

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Adult female Tricolored Blackbird with moth prey.

Tricolored Blackbirds are opportunistic foragers that consume any locally abundant insect resource.

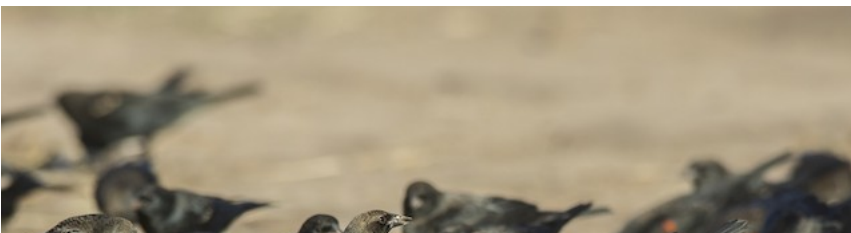
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Tricolored Blackbirds foraging.

Picks seeds and insect prey from the ground, gleans vegetation, and occasionally fly-catches near and above breeding colonies.

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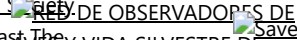
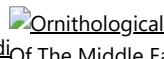
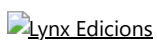
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