

Red-eyed Vireo

Vireo olivaceus

REGULATORY STATUS

USFWS: Migratory Bird
USFS R2: No special status
UWFS R4: No special status
Wyoming BLM: No special status
State of Wyoming: Protected Bird

CONSERVATION RANKS

USFWS: No special status
WGFD: NSS4 (Bc), Tier II
WYNDD: G5, S2
Wyoming contribution: LOW
IUCN: Least Concern
PIF Continental Concern Score: 5

STATUS AND RANK COMMENTS

Red-eyed Vireo (*Vireo olivaceus*) does not have any additional regulatory status or conservation rank considerations beyond those listed above.

NATURAL HISTORY

Taxonomy:

Red-eyed Vireo is composed of 10 or 11 subspecies which are divided into 2 regional groups: the *olivaceus* group (North American breeders, 1–2 subspecies) and the *chivi* group (South American breeders, 9 subspecies)¹⁻³. Two subspecies are recognized in the *olivaceus* group (*V. o. caniviridis* and *V. o. olivaceus*) by Browning (1990) and Phillips (1991)^{4, 5}; however, many authors do not recognize the differences between the two and consider them one (*V. o. olivaceus*)^{1, 3, 6, 7}. Regardless of the disagreement, the subspecies that occurs in Wyoming is *V. o. olivaceus*.

Description:

Red-eyed Vireo is a large vireo (12–13 cm long, 12–26 g) that is identifiable in the field, although it resembles two other *Vireo* spp. in Wyoming (see below). Adults have a gray to blue-gray crown, whitish supercilium, white underparts, and grayish olive-green upperparts³. A distinctive characteristic is the sharp blackish line on the lateral edge of the crown bordering the supercilium. Iris color ranges from bright red to brownish red in adults. Compared to the upperparts, the sides of the neck and ear-coverts are lighter and more grayish (i.e., pale olive-gray). On average, males are larger and heavier than females, but are otherwise similar in appearance. In fall and early winter of their first year, immature Red-eyed Vireos are distinguishable from adults by their brown to grayish-brown irises. In basic plumage, juveniles have bright olive sides and pale yellow under tail-coverts, while the under tail-coverts of most adults are white³. Similar species in Wyoming are Philadelphia Vireo (*V. philadelphicus*) and Warbling Vireo (*V. gilvus*); however, both have dark irises and lack the distinct dark line

between the supercilium and crown⁸. Additionally, Red-eyed Vireo typically exhibits underparts that are less yellow than Philadelphia Vireo, and upperparts less gray (more olive) than Warbling Vireo. The song of Red-eyed and Philadelphia Vireo can be indistinguishable at times, but Philadelphia Vireo is typically higher-pitched and slower³.

Distribution & Range:

During the breeding season, Red-eyed Vireo is widely distributed throughout Canada and the U.S., with the exception of the southwestern states. Far northern Wyoming is on the southwestern edge of the species' core breeding distribution, and most of the state falls within a region where breeding is thought to be scarce. Red-eyed Vireo has been observed in 23 of Wyoming's 28 latitude/longitude degree blocks⁹. Confirmed or circumstantial evidence of breeding has been documented in 6 of those degree blocks, only 1 of which occurs in the southern half of the state⁹. Detections from the Integrated Monitoring in Bird Conservation Regions (IMBCR) program have occurred in the Shoshone National Forest northwest of Cody, in the Black Hills National Forest east of Devils Tower and east of Sundance, in the Medicine Bow National Forest west of Laramie, and in the Laramie Range west of Wheatland and east of Laramie. Red-eyed Vireo winters in South America and rarely on the southern U.S. coastline^{10, 11}.

Habitat:

Across its range, Red-eyed Vireo breeds in deciduous and mixed deciduous-coniferous forests¹²⁻¹⁶ with a dense understory of shrubs^{13, 14, 17, 18}. In Wyoming, it prefers low elevation deciduous forests near water sources or openings in the interior forest canopy¹⁹. Within the Rocky Mountains, it breeds at elevations up to 2,000 m²⁰ and often breeds in Quaking Aspen (*Populus tremuloides*) groves and alder (*Alnus* spp.) thickets in northern portions of its range²¹. Additionally, Red-eyed Vireo can inhabit urbanized areas such city parks, residential areas, and cemeteries^{16, 22}. Compared to the breeding season, Red-eyed Vireo uses a greater diversity of forested habitats during migration, although it still prefers deciduous over coniferous forests³. Red-eyed Vireo winters in South America in rain forests, plantations, xerophytic vegetation, and mangroves ranging from sea level to 3,000 m²³⁻²⁶.

Phenology:

Red-eyed Vireo begins departing its breeding grounds in South America in March, and most individuals have left by late April^{23, 25}. Migrants begin arriving in Wyoming in mid-May¹⁹. Females arrive 3–15 days after the first males, and pair formation occurs shortly thereafter¹³. Nest building occurs mid-April to early June, with each initial nest taking 4–5 days to complete^{13, 14, 16}. After nest completion, eggs are laid within 1–4 days and require 3–4 days to complete the clutch^{13, 14}. Clutch size ranges from 1–5 eggs. Incubation period is 12–14 days, with a 10–12 day nestling period^{13, 14, 16, 27}. Chicks are altricial at hatching and leave the nest in 10–12 days^{13, 14}. For breeding adults, the estimated probability of surviving to the following year is 0.53²⁸. The oldest known Red-eyed Vireo was at least 10 years old²⁹. In the fall, migration occurs from mid- to late August, with most individuals departing by mid-September. Arrival in South America begins in September^{23, 25}. Migratory movements are typically nocturnal^{16, 30, 31}.

Diet:

Red-eyed Vireo consumes primarily insects, particularly caterpillars^{22, 32, 33}. In the late summer and fall, Red-eyed Vireo will also eat various small fruits^{16, 22, 32, 34}. In winter, it becomes nearly completely frugivorous²⁵.

CONSERVATION CONCERNS

Abundance:

Continental: WIDESPREAD

Wyoming: RARE

Using North American Breeding Bird Survey (BBS) data, the Partners in Flight Science Committee estimated the global population of Red-eyed Vireo to be 180 million birds³⁵. Approximately 0.04% of the global population, or around 70,000 birds, is estimated to breed in Wyoming³⁶; however, this state abundance estimate is likely high and should be viewed with caution. The statewide rank of RARE is based on the limited area of the state known to be occupied in any given season, and the relatively small coverage of suitable habitat within that area. Within suitable habitat in the occupied area, Red-eyed Vireo appears to be uncommon, occurring in relatively low densities and requiring intensive survey efforts to detect the species⁹. There are no robust estimates of density for Red-eyed Vireo in Wyoming.

Population Trends:

Historic: UNKNOWN

Recent: DECLINING

Red-eyed Vireo population trend data from the BBS in Wyoming are available from 1968–2013, and suggest a decline of 5.82% annually ($N = 13$ routes, 95% CI: -9.54 to 2.07), although results are not statistically significant and fall within a regional credibility category containing data with deficiencies, so must be interpreted with caution³⁷. Western region BBS data, however, indicate a statistically significant annual population decline of 3.09% ($N = 220$ routes; 95% CI: -3.69 to -2.49)³⁷.

Intrinsic Vulnerability:

LOW VULNERABILITY

Insect larvae (caterpillars) is a major food source for Red-eyed Vireo. Changes in abundance of this prey item such as through larvicide use, which has been shown to cause Red-eyed Vireo to pursue different prey items and expand their foraging area, could have detrimental effects on the species³⁸.

Extrinsic Stressors:

MODERATELY STRESSED

Stressors to Red-eyed Vireo include deforestation, nest parasitism, and collision mortality. In Ontario, there were fewer Red-eyed Vireos in areas with low forest cover, and individuals had more difficulty attracting mates³⁹. It is likely that deforestation and habitat fragmentation could be a threat to this species in the long-term. Red-eyed Vireo is vulnerable to nest parasitism by Brown-headed Cowbird (*Molothrus ater*)⁴⁰, and in Colorado this parasitism is thought to be concentrated and sustained in areas occupied by domestic livestock⁴¹. Additionally, Red-eyed Vireo migrates nocturnally and is susceptible to mortality from collisions with buildings and towers³¹. At one television tower in Florida, Red-eyed Vireo was the bird species most often killed over a 29-year period⁴².

KEY ACTIVITIES IN WYOMING

Red-eyed Vireo is listed as a Species of Greatest Conservation Need (SGCN) in Wyoming by the Wyoming Game and Fish Department. Current statewide efforts for monitoring annual detections and population trends of Red-eyed Vireo in Wyoming include the BBS program conducted on 108 established routes since 1968³⁷, and the multi-partner IMBCR program

initiated in 2009⁴³. Trend data are available on the U.S. Geological Survey BBS website³⁷, and occupancy, density, population estimates, and decision support tools are available through the Rocky Mountain Avian Data Center⁴³. Although BBS data analyses are able to produce robust population trend estimates for Red-eyed Vireo in the western U.S., low sample sizes limit the usefulness of trend estimates for this species in Wyoming³⁷. IMBCR density and population estimates for Red-eyed Vireo are similarly limited by low sample sizes in Wyoming⁴³.

ECOLOGICAL INFORMATION NEEDS

Additional information is needed on Red-eyed Vireo distribution and breeding status in Wyoming, especially in the northwestern portion of the state¹⁹. Limiting factors that may affect this species include habitat loss, degradation, and fragmentation, and incompatible forest management practices. It would be beneficial to ascertain the degree to which these factors affect Red-eyed Vireo in the state.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Andrea C. Orabona. Red-eyed Vireo is classified as a SGCN in Wyoming due to insufficient information on breeding, distribution, and population status and trends; potential problems associated with habitat loss, degradation, and fragmentation; and incompatible forest management practices that could be problematic for this species. Two separate but compatible survey programs are in place to monitor populations of many avian species that breed in Wyoming, the BBS³⁷ and the IMBCR⁴³. While these monitoring programs provide robust estimates of occupancy, density, or population trend for many species in Wyoming, survey efforts do not tend to detect Red-eyed Vireo at adequate levels, suggesting targeted, species-specific monitoring efforts may be needed.

CONTRIBUTORS

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Figure 1: Adult Red-eyed Vireo in Laramie County, Wyoming. (Photo courtesy of Pete Arnold)

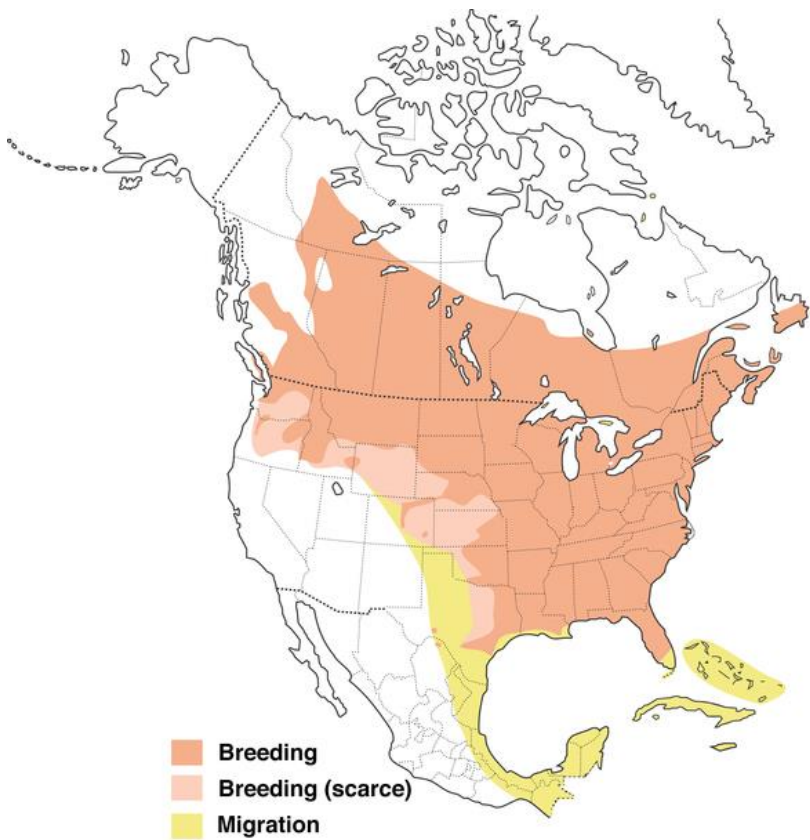


Figure 2: North American range of *Vireo olivaceus*. (Map courtesy of Birds of North America, <http://bna.birds.cornell.edu/bna>, maintained by the Cornell Lab of Ornithology)

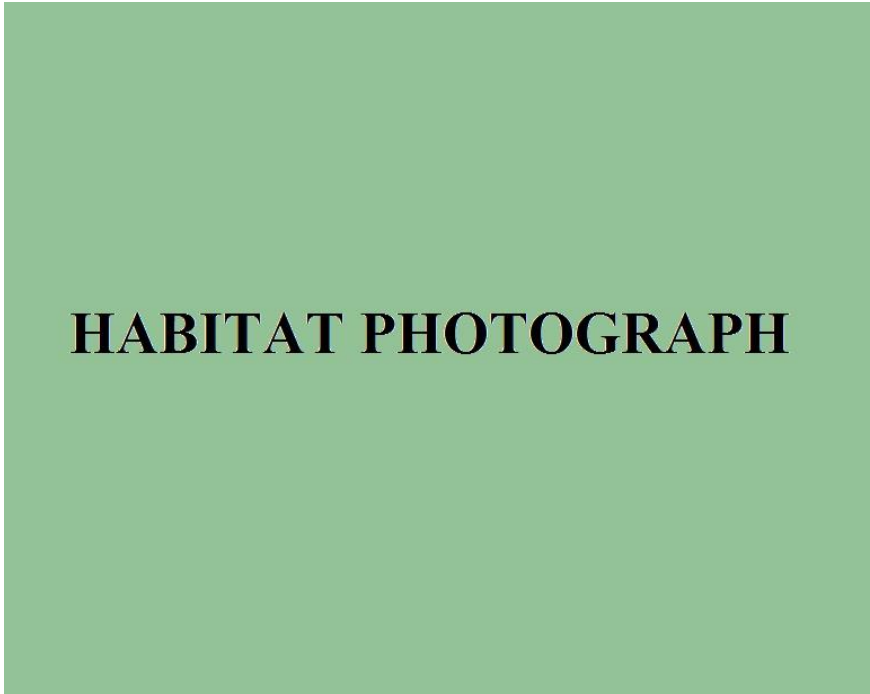


Figure 3: Photo not available.

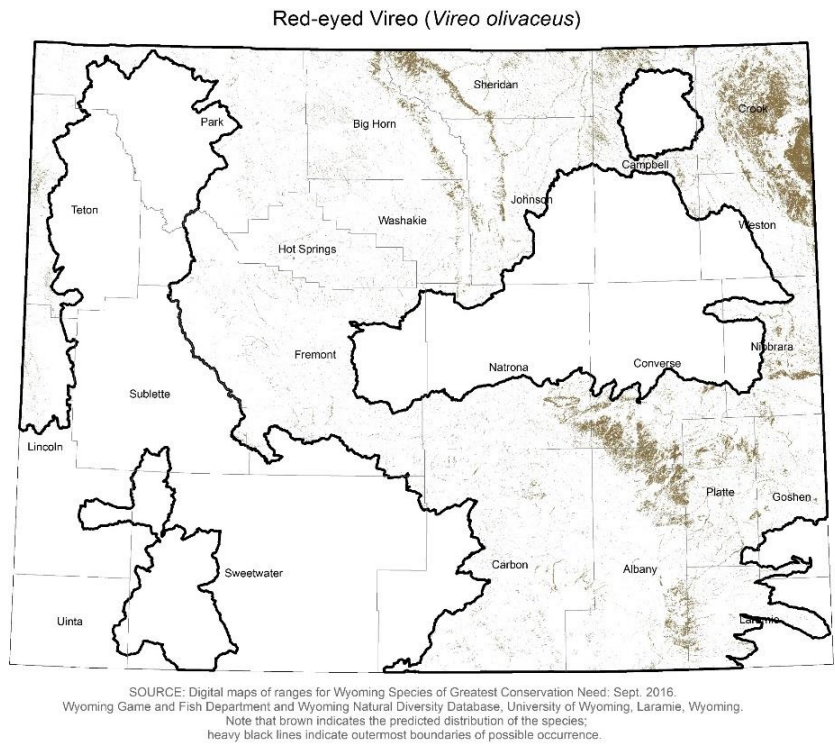


Figure 4: Range and predicted distribution of *Vireo olivaceus* in Wyoming.