Virginia Rail

Rallus limicola

REGULATORY STATUS

USFWS: Migratory Game Bird
USFS R2: No special status
USFS R4: No special status
Wyoming BLM: No special status
State of Wyoming: Game Bird (see regulations); Protected Bird

CONSERVATION RANKS

USFWS: No special status
WGFD: NSSU (U), Tier III
WYNDD: G5, S2S4
Wyoming Contribution: LOW
IUCN: Least Concern
PIF Continental Concern Score: Not ranked

STATUS AND RANK COMMENTS

The Wyoming Natural Diversity Database has assigned Virginia Rail (*Rallus limicola*) a state conservation rank ranging from S2 (Imperiled) to S4 (Apparently Secure) because of uncertainty about the abundance, state range, proportion of range occupied, population trends, and extrinsic stressors for this species in Wyoming.

NATURAL HISTORY

Taxonomy:

There are two recognized subspecies of Virginia Rail, but only *R. l. limicola* is found in the United States [1].

Description:

Identification of Virginia Rail is possible in the field. It is a small waterbird with a laterally compressed body; adults weigh approximately 55–124 g, have a total length of 22–27 cm, and a wingspan of approximately 33 cm [2, 3]. The sexes are similar in appearance, although males average slightly larger than females [2, 4]. Virginia Rail has a brown crown; gray face; reddish-brown throat and breast; back streaked with light and dark brown; chestnut brown wings; black and white banded flanks; and a short, upturned tail [2, 3]. The reddish-orange bill is slightly decurved and darkens to dusky brown towards the tip and along the top of the upper mandible [2]. The eyes are red to reddish-brown, the feet and legs are orange-brown, and the toes are distinctly long and thin, which enables it to walk on floating aquatic vegetation [2]. Sora (*Porzana carolina*) is another small rail species that breeds in Wyoming, but it is easily distinguished from Virginia Rail by its dark face, short yellow bill, and greenish-yellow legs [3].

Distribution & Range:

The breeding distribution of Virginia Rail extends from coast to coast across the northern and western United States and north into southern Canada [2]. Most of Wyoming falls within one of

several large gaps in the western portion of this core breeding distribution; however, Virginia Rail migrates through the state in the spring and fall and is also a summer resident [5, 6]. The species has been observed across much of Wyoming in appropriate environments, but breeds primarily in the southern half of the state [2]. Suspected or confirmed breeding has been documented in 11 of the 28 latitude/longitude degree blocks in Wyoming [6].

Habitat:
Virginia Rail is found in natural, freshwater wetland and marsh habitats, as well as brackish or saltwater marshes, and seasonal or semi-permanent ponds and lakes [2, 7, 8]. In Wyoming and across its distribution, Virginia Rail primarily breeds in early-stage, invertebrate-rich, freshwater marshes with thick stands of emergent vegetation, shallow to intermediate water depths, and muddy substrate [2, 9-11]. The structure of emergent vegetation is likely a more important habitat characteristic than dominant plant species [2, 10]. Virginia Rail nests are loosely woven baskets of vegetation that are typically constructed less than 15 cm above the water surface at the base of dense emergent vegetation [2, 10]. Nests are made from the dominant emergent plant species at the nesting site, and standing adjacent vegetation may be bent over the top of the nest to create a concealing canopy [2, 10]. Adults continue to add plant material to nests throughout the breeding season, especially in response to rising water levels [2, 12].

Phenology:
In Wyoming, migrating and breeding Virginia Rails begin to arrive in late April, with most birds arriving by mid-May [5]; however, little is known about the specific nesting and breeding habits of this species in the state. Range-wide, first clutches range from 4–13 eggs (average 8.5 eggs), and Virginia Rail may have two broods per season in some areas [2, 10]. Both sexes take turns incubating the eggs for approximately 19 days and will brood the young for 4–7 days following hatching. Chicks are covered in solid black down and leave the nest in just 3 or 4 days [2]. Young can feed themselves when they are 1 week old and can fly at the age of 4 weeks [2]. The timing of fall migration from Wyoming is not well-documented, but likely occurs in September and October [5].

Diet:
Virginia Rail primarily feeds on a variety of terrestrial and aquatic invertebrates, including many insects, slugs, snails, spiders, worms, larvae, and crayfish, but may also consume frogs, small fish and snakes, aquatic plants, and seeds from emergent vegetation [2].

CONSERVATION CONCERNS

Abundance:
Continental: WIDESPREAD
Wyoming: VERY RARE
There are no robust estimates of Virginia Rail abundance in Wyoming. The secretive nature and densely-vegetated habitat of Virginia Rail make it very difficult to detect using standard visual survey methods [2, 13, 14]. Virginia Rail has an estimated statewide abundance rank of VERY RARE, and its prevalence within suitable environments in the state is unknown [6]. From 1968–2015, annual Wyoming Breeding Bird Survey (BBS) detections of Virginia Rail ranged from 0 to 1, with none recorded in most years [15]. Only 1 Virginia Rail was detected during surveys for the Integrated Monitoring of Bird Conservation Regions (IMBCR) program between 2009–2015 [16]. While surveys conducted as part of the BBS and IMBCR programs may occasionally detect this species, neither is specifically designed to capture rail observations.

Population Trends:
Historic: UNKNOWN
Recent: UNKNOWN
Robust population trends are not available for Virginia Rail in Wyoming or across its distribution because the species is infrequently detected during monitoring efforts [17]. The species has experienced population declines in some areas due to loss of wetland habitat [2].

Intrinsic Vulnerability:
MODERATE VULNERABILITY
Virginia Rail has moderate intrinsic vulnerability in Wyoming due to a narrow range of breeding habitats which limit its distribution and abundance in the state, and nesting habits that potentially leave the species vulnerable to nest loss. Productive wetland habitats are uncommon in Wyoming, which is one of the most arid states in the country [18, 19]. Virginia Rail nests are constructed near the surface of the water making them vulnerable to damage or loss from surface disturbance and fluctuating water levels [2], which commonly occur on waterbodies in Wyoming.

Extrinsic Stressors:
UNKNOWN
Extrinsic stressors of Virginia Rail in Wyoming are unknown. Natural wetlands in Wyoming are declining in size and number, with less than 2% of the total state area classified as wetland habitat [18, 19]. Existing wetland habitat in the state is potentially vulnerable to invasive plant species, climate change and drought, and development for infrastructure, energy, and agriculture [18, 19]. However, responses of Virginia Rail to similar extrinsic stressors in other parts of its distribution are mixed. While some studies have shown that this species is less abundant in wetland habitats dominated by invasive plants [7, 20], others found that Virginia Rail was positively associated with some invasive plants species [11, 21]. Although Virginia Rail has shown sensitivity to fluctuating water levels [2, 22-24], and typically avoids emergent vegetation that has been left dry by low water conditions [5], in some circumstances variable water levels may increase nest survival by protecting against predation from terrestrial predators [12]. The species may be less likely to use wetland habitats that have been altered or restored [20, 25]. Finally, Virginia Rail is at risk for bioaccumulation of heavy metals and other environmental contaminants from feeding in polluted aquatic habitats [2].

KEY ACTIVITIES IN WYOMING

Virginia Rail is classified as a Species of Greatest Conservation Need by the Wyoming Game and Fish Department (WGFD). Current statewide bird monitoring programs are designed for monitoring breeding songbird populations and are unlikely to provide useful information on Virginia Rail. These monitoring programs include the BBS program conducted on 108 established routes since 1968 [17], and the multi-agency IMBCR program initiated in 2009 [16]. Due to the secretive and solitary nature of Virginia Rail, breeding individuals may not be detected during typical waterbird surveys. In 2015, the WGFD implemented the Standardized North American Marsh Bird Monitoring Protocols [26] at 5 wetland sites across Wyoming, with a total of 10 survey routes that target 4 secretive marsh bird species, including Virginia Rail. Initial survey efforts detected Virginia Rail on 5 of the 10 routes in 3 of the 5 wetland sites [27].

ECOLOGICAL INFORMATION NEEDS

Virginia Rail would benefit from research to determine its detailed distribution, the location and habitat characteristics of current breeding sites, and the annual abundance of breeding adults in

Wyoming. The standard passive methodology used in many bird survey programs is unlikely to be effective in detecting Virginia Rail, so specialized call-response surveys are necessary to accurately predict abundance at known breeding locations [13, 14]. Very little is known about the specific breeding habits of this species in the state, with the exception of approximate arrival dates, and nothing is known about nest success or fledgling survival. Given Virginia Rail's dependence on productive marsh and wetland habitats, which are rare in Wyoming, it would be valuable to identify current and future anthropogenic and natural stressors to these habitat types to ensure the persistence of breeding locations for this species.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Andrea C. Orabona. Virginia Rail is designated as a game species in Wyoming; however, it is functionally a nongame species in the state. WGFD has been working to identify important wetland habitats for Virginia Rail, and implemented a monitoring program for this species in 2015. Best management practices to benefit Virginia Rail include working with land management agencies to protect key wetland habitats on public lands, using conservation easements to protect important wetland sites on private lands, using available funding and mitigation programs to restore and create wetland habitats, and incorporating habitat needs of Virginia Rail into habitat management activities.

CONTRIBUTORS

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Figure 1: An adult Virginia Rail in Boulder County, Colorado. (Photo courtesy of Bill Schmoker)

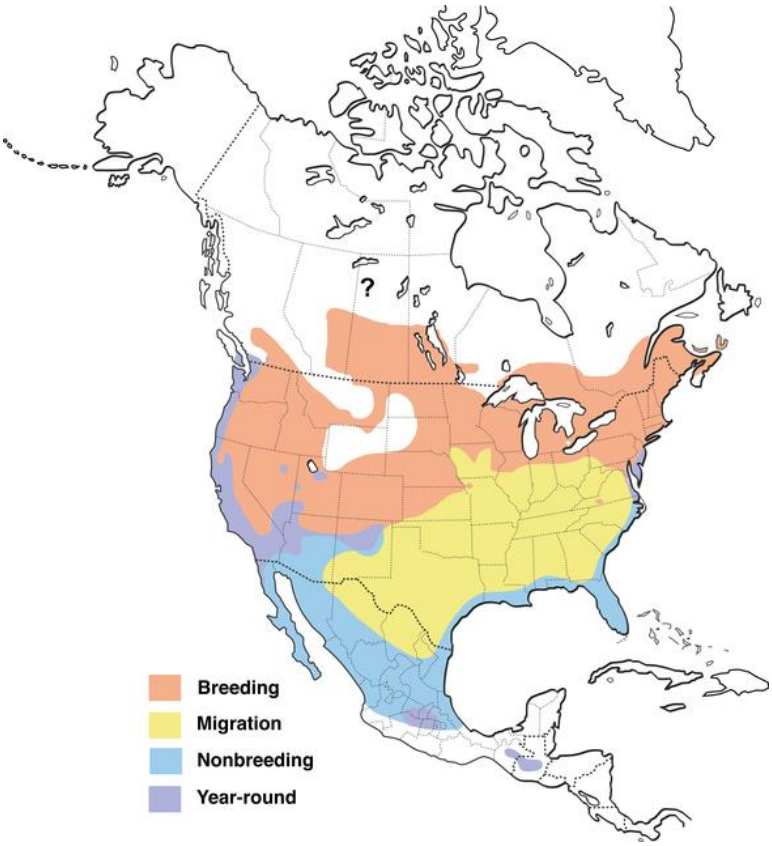

Figure 2: North American range of *Rallus limicola*. (Map courtesy of Birds of North America, http://bna.birds.cornell.edu/bna, maintained by the Cornell Lab of Ornithology)

Figure 3: Virginia Rail marsh habitat with cattails, sedges, and open water in Sublette County, Wyoming. (Photo courtesy of Elizabeth Boehm)

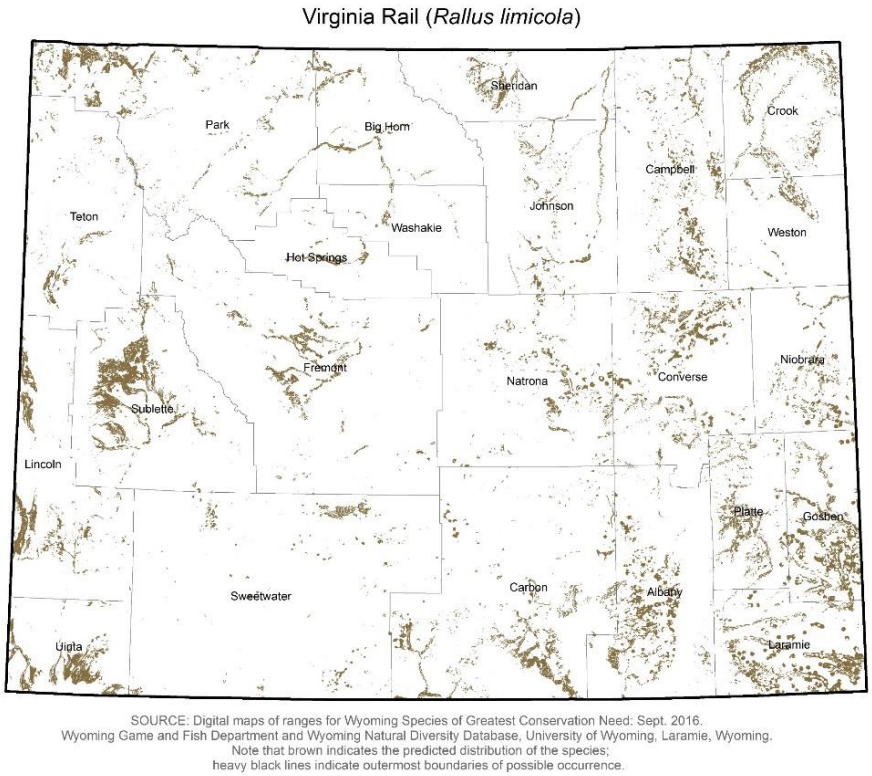

Figure 4: Range and predicted distribution of *Rallus limicola* in Wyoming.