

"Tales of a Shrub Nesting Migratory Songbird; Bell's Vireos Breeding in Overton Bottoms NWR" by Cara Joos

Bell's Vireos are a shrub nesting migratory songbird whose populations are steadily declining, largely due to loss of quality habitat. I will discuss the history of shrublands in Missouri and the processes that maintain this disturbance dependent habitat. While edge and shrub habitat are considered abundant, not all shrubby areas are of equal value to all shrub-associated birds. A group of species within the shrub-nesting guild may benefit from an increase in shrub cover within non-forested landscapes. To illustrate this, I will discuss my dissertation research investigating habitat quality for breeding Bell's Vireos in Missouri, specifically discussing my population at Overton Bottoms NWR.

Natural History Summary

The Bell's Vireo (*Vireo bellii*) is a shrub nesting migratory songbird that breeds throughout the central and south western US. Interestingly, James Audubon himself first described this species on the Missouri River in 1844. They are a shrub nesting species that requires areas of true shrublands and are not associated with forest edges or openings. The Central US sub-species, found here in Missouri, was historically associated with areas of frequent disturbances such as flood plains and prairies, where floods and fires maintained open areas with scattered patches of dense shrubs.

Male Bell's Vireos arrive in Missouri around the last week in April. They are aggressively territorial and defend territory boundaries by singing persistently. Females arrive ~1 week later and pairs begin nest building within a few days. Their nest is a cup suspended from a forked branch, typically 1-m high and less than a meter in from the edge of the nest shrub. Nest predation and parasitism are the principle limiting factors on reproduction. As this sub-species' range has historically overlapped with the brood parasite, the Brown-headed Cowbird, they are not naïve hosts and typically abandon parasitized nests. As they are rarely able to raise both cowbird and vireo chicks, acceptance of cowbird eggs results in no

reproductive success. Their adaptation to high nest parasitism and predation levels is to rapidly and repeatedly re-nest after nest failure. Up to 8 attempts in one summer have been documented! Nesting ends around mid-July and adults and juveniles molt in August and remain on and near summer territories into early September when they begin migration to their wintering grounds.

Their wintering range extends down the west coast of Mexico from the U.S Mexico boarder to Guatemala. Very little information is available on their winter natural history. They have been documented in scrub and second growth habitat along waterways along the coast. Sub-species are suspected to segregate but no systematic study has been done. Recent research found site fidelity within and between winters in central Mexico. Multiple individuals have been recaptured within very small areas, suggesting small home ranges and the potential for territoriality.