

Virginia's Warbler (*Vermivora virginiae*)

NMPIF level: Species Conservation Concern, Level 1 (SC1)

NMPIF assessment score: 18

NM stewardship responsibility: High

National PIF status: Watch List

New Mexico BCRs: 16, 18, 34, 35 (most in 16)

Primary breeding habitat(s): Montane Shrub, Ponderosa Pine Forest

Other habitats used: Pinyon-Juniper Woodland, Madrean Pine-Oak Woodland, Mixed Conifer Forest

Summary of Concern

Virginia's Warbler is a neotropical migrant whose breeding range is restricted to the Intermountain West and southern Rocky Mountains. It is a species of concern due to its relatively small range and population size. In breeding season, New Mexico holds a considerable percentage of the entire species population.

Associated Species

Band-tailed Pigeon (SC2), Whip-poor-will (BC2), Broad-tailed Hummingbird (SC2), Acorn Woodpecker, Dusky Flycatcher, Hepatic Tanager, Spotted Towhee

Distribution

Virginia's Warbler is a species of the Intermountain West and southern Rocky Mountains. It breeds from Nevada and portions of eastern California east to New Mexico and far west Texas, and from southern portions of Idaho and Wyoming south to the Mexican border in Arizona and New Mexico (Olson and Martin 1999). A neotropical migrant, Virginia's Warbler winters along the Pacific slope of southern Mexico, primarily in the states of Jalisco, Guanajuato, Michoacan, Morelos, Guerrero, southern Puebla, and Oaxaca (Howell and Webb 1995). Virginia's Warbler breeds throughout the western two-thirds of New Mexico; it is less common in the east where habitat is patchy. Summer populations of this species occur in the northern mountains, along the Mogollon Rim, throughout the Gila, and in all mountain ranges of central and western New Mexico (Goguen and Mathews 1998, Parmeter et al. 2002).

Ecology and Habitat Requirements

Virginia's Warbler occurs at middle elevations, where coniferous woodland or forest mixes with deciduous shrubs or trees. It never occurs in coniferous forests where there is not a deciduous component (Olson and Martin 1999). Across its range, Virginia's Warbler is primarily associated with pinyon-juniper and oak woodlands, though in Arizona and New Mexico, it extends upward into mixed conifer habitat containing Gambel Oak, New Mexico locust, maple or other shrubby deciduous vegetation (Martin 1998, Olson and Martin 1999). In forest and woodland habitat, a dense understory is critical, and steep draws or scrubby hillsides are especially favored (Sedgwick 1987, Yanishevsky and Petring-Rupp 1998). During spring and fall migration, the species uses lower elevation foothills and cottonwood-dominated riparian corridors (Phillips et al. 1964).

Few detailed breeding studies exist. On the Mogollon Rim in Arizona, most birds arrive in April, with clutch initiation typically in mid to late May. Virginia's Warbler is a ground nester. Nests are generally in fairly open habitat with deciduous shrubs, Gambel oak, New Mexico locust, as well as pines and junipers (Olson and Martin 1999). In Arizona, 50% of 167 nests were placed on slopes in patches dominated by New Mexico locust, with the nest directly under a locust stem; 27% were in patches dominated by maple, 7% in patches dominated by small firs, and 15% in grass clumps or under logs (Martin 1998). In New Mexico, nesting in association with Gambel oak appears frequent. Clutch size is usually 4, and a single brood per year is raised.

Conservation Status

Species Assessment

DISTRIBUTION	5
THREATS	3
GLOBAL POPULATION SIZE	4
LOCAL POPULATION TREND	2
IMPORTANCE OF NEW MEXICO TO BREEDING	4
COMBINED SCORE	18

Virginia's Warbler is a Species Conservation Concern, Level 1 species for New Mexico, with a total assessment score of 18. Virginia's Warbler is a national PIF Watch List Species. It receives high vulnerability scores from PIF for its small distributional range and relatively small population size. Local population trends appear stable.

Population Size

Total population for the state is unknown. PIF estimates a species population of 410,000, and that New Mexico holds about 32% of the species population, or about 130,000 birds. The percentage estimate shows that New Mexico has a very high stewardship responsibility for this species.

Population Trend

Like many endemic western species, Virginia's Warbler is not extensively sampled by BBS. Survey data indicate that population trends are generally stable. BBS data for 1966-2004 are:

	Annual Trend (%)	P-value	Number of Routes
New Mexico	-0.1	0.98	18
FWS Region 2	-0.3	0.86	32
Western States	-0.8	0.37	94

Threats

Primary threats to Virginia's Warbler are the loss or alteration of mid-elevation, mixed woodland or forest habitat. Fire suppression that leads to dense stands of ponderosa pine may prevent the formation of open forest with shrub cover favored by Virginia's Warbler. However, the practice of controlled burning to remove combustible understory may have a strong negative impact on potential nest sites, foraging opportunities, and numbers of birds returning to the same sites the next year. In one Arizona study, Virginia's Warbler was the only member of a ponderosa pine community to show a negative change in abundance on plots treated with controlled burns (Horton 1987). These are short-term impacts, which may be offset by long-term benefits stemming from reinstatement of a natural disturbance regime.

In New Mexico, pinyon-juniper woodlands have been cleared for livestock production, and reduced by both legal and illegal cutting for firewood. Losses of this habitat have increased with persistent drought across much of the southwestern United States, combined with widespread bark beetle infestation. These factors have affected pinyon-juniper woodlands and ponderosa pine forests over large areas, particularly in northern New Mexico. This species may also be threatened by loss or alteration of habitat on its wintering grounds in Mexico; additional studies are needed (Olson and Martin 1999).

Management Issues and Recommendations

Management for Virginia's Warbler should focus on maintenance of healthy montane shrub, ponderosa pine, and pinyon-juniper habitat with a strong component of Gambel (or other) oak and New Mexico locust.

NMPIF Recommendations

- Maintain oak, New Mexico locust, and other shrub understory on woodland and forest slopes.
- Plan controlled burns with consideration of possible short-term negative impacts and long-term benefits for Virginia's Warbler nesting habitat.
- Encourage studies that will provide breeding density estimates in different regions and habitat types.

Species Conservation Objectives

PIF Objectives

The PIF North American Landbird Conservation Plan places Virginia's Warbler in the conservation action category Long-term Planning and Responsibility. It sets a population objective of maintaining or increasing the current population size over the next 30 years.

NMPIF Objectives

- Seek to maintain or increase the current population in New Mexico.
- Maintain density of one pair per 40 ac in suitable habitat in the Colorado Plateau and southern Rocky Mountains.
- In the Mexican highlands and Mogollon Rim, maintain presence in each 3.9-mi square block of suitable habitat.

Sources of Information

Goguen, C. B., and N. E. Mathews. 1998. Songbird community composition and nesting success in grazed and ungrazed pinyon-juniper woodlands. *J. Wildlife Manage.* 62:474-484.

Horton, S. P. 1987. Effects of prescribed burning on breeding birds in a ponderosa pine forest, southeastern Arizona. M. S. Thesis, University of Arizona, Tucson, AZ.

Howell, S. N. G., and S. Webb. 1995. A guide to the birds of Mexico and northern Central America. Oxford Univ. Press, New York.

Martin, T. E. 1998. Are microhabitat preferences of coexisting species under selection and adaptive? *Ecology* 79:656-670.

Olson, C. R., and T. E. Martin. 1999. Virginia's Warbler (*Vermivora virginiae*). In *The Birds of North America*, No. 477, (A Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

Parmeter, J., B. Neville, and D. Emkalns. 2002. New Mexico bird finding guide. New Mexico Ornithological Society, Albuquerque, NM.

Phillips, A. R., J. Marshall, and G. Monson. 1964. The birds of Arizona. Univ. Ariz. Press, Tucson, AZ.

Sedgwick, J. A. 1987. Avian habitat relationships in pinyon-juniper woodland. *Wilson Bull.* 99:413-431.

Yanishevsky, R., and S. Petring-Rupp. 1998. Management of Breeding Habitat for Selected Bird Species in Colorado. Colorado Division of Wildlife. Denver, CO.