

Appendix 2. Recommended Protocol for Surveying for Gray Vireos in New Mexico

Adapted From: DeLong, J. P. and Williams, S. O., III. 2006. Status Report and Biological Review of the Gray Vireo in New Mexico. New Mexico Department of Game and Fish, Santa Fe, New Mexico.

HABITATS TO SURVEY

The Gray Vireo (*Vireo vicinior*) uses three main types of habitats in New Mexico. In the northern part of the State and on the Colorado Plateau, the species uses piñon (*Pinus* spp.)-Utah juniper (*Juniperus osteosperma*) stands 5800–7200 ft in elevation. In the central and western parts of the State, Gray Vireos typically use oneseed juniper (*J. monosperma*) savannas 5500–7000 ft in elevation. In the southern and southeastern parts of the State, the species uses mixed juniper-oak (*Quercus* spp.) woodlands and desert riparian communities 4300–6600 ft in elevation. Any project site that falls into these habitat types and elevations should be surveyed for Gray Vireos prior to conducting project or management activities.

WHEN TO SURVEY

The species arrives on breeding areas in New Mexico in late April in the south and early May in the north. Surveys can begin early May in the south and central parts of the state, and by mid-May in the north. Surveys can be conducted through July, but the most reliable period is May and June. Some pairs can be hard to detect later in the breeding season because they have failed in their nesting attempts and abandoned their territories by July (DeLong and Cox 2005).

TIME OF DAY

Gray Vireos can sing all day, but, during the hottest parts of the breeding season, they can be considerably quieter after noon. Thus, the best time to survey for this species is between dawn and noon.

HOW MANY TIMES TO SURVEY

Ideally, one set of surveys should be conducted during May. If vireos are found, then the surveys can be considered complete. However, if no Gray Vireos are detected, then a second set of surveys

should be conducted in mid- to late June¹. This recommendation derives from our observation that, in dry years, Gray Vireos can delay nesting and be fairly difficult to detect. A second set of surveys increases the chances that a population would be detected if surveys were conducted during a time when vireos were not particularly vocal.

SURVEY METHODS

Tape-playback surveys should be conducted. Purely listening surveys can allow detection of Gray Vireos, but tape-playback surveys can locate as many as twice the number of territories.² In addition, although Gray Vireos are known for being vociferous, they can be quiet for considerable periods of time during the day. The quiet periods can be long enough for a passive listener to conclude the species is not present in a spot and move on. In addition, after the arrival and courtship portion of the breeding season, the birds can be less vocal and, therefore, harder to detect without the use of tape-playback methods. Therefore, when clearance-type surveys are required for pre-project activities, tape-playback methods should be used.

The standard song of the Gray Vireo should be played from points spaced 200–300 m apart, depending on habitat quality, topography, and locations of other Gray Vireos. The closest spacing of Gray Vireo territories (territory center to territory center) in New Mexico is about 200–300 m, suggesting that point-spacing of 200–300 m will allow detection of most territories. In addition, Gray Vireos can respond to the tape-playback calls from distances of 100 m or more, indicating that broadcast stations can effectively locate birds within about 150 m or so of the station.

¹ The current recommendation is that at least two additional surveys be completed May – late June.

² The question of whether the use of tape-playback methods causes undue disturbance is currently unanswered. There are no studies to demonstrate a negative effect of tape-playback surveys on the Gray Vireo, and the currently available data suggest that sites surveyed without the use of tape-playback experience similar levels of nest success as sites surveyed with tape-playback methods.

Each survey stop should begin with a listening period of 1–2 min, followed by 20–30 sec of broadcast, another 1–2 min of listening, 20–30 sec of broadcast, and end with 1–2 min of listening. Longer listening times after broadcasting can be helpful at times. The direction of broadcasting should rotate 360 degrees during the survey.

DATA COLLECTION

The following information should be recorded for each Gray Vireo survey:

- Site name, county, and distance and direction from nearest town;
- Date;
- Start and stop time;
- Observer's full name;
- Weather (e.g., wind-speed, temperature, cloud cover, precipitation);
- Habitat type;
- Location of each point surveyed whether Gray Vireos were detected or not (Universal Transverse Mercator coordinates or latitude/longitude coordinates of each point should be determined with a Global Positioning System [GPS] unit if possible), along with county and approximate distance to the nearest town;
- Number of Gray Vireos heard or seen;
- Age and sex of individuals seen (e.g., 2 adults with 1 fledgling);
- Exact location of birds seen (preferably using a GPS receiver);
- If exact location cannot be obtained, the distance and direction of the bird from the survey point;
- Presence of Brown-headed Cowbirds (*Molothrus ater*) and cattle at each point; and
- Habitat of survey area, including observations of habitat manipulations (cutting, burning, or development) at each point.