

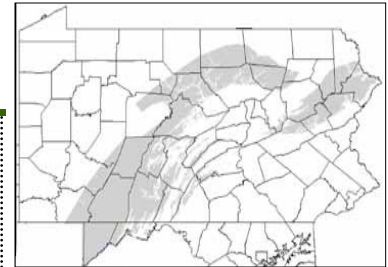


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Why the Golden-winged Warbler (GWWA)?

The Golden-winged Warbler (*Vermivora chrysop-tera*) is a migratory songbird that is experiencing steep population declines (6.8% & 5.5% annually since 1966 for PA and MD, respectively). GWWA population declines are caused by loss of young forests, expansion and hybridization with Blue-winged Warblers (*Vermivora cyanoptera*; BWWA), and habitat loss on the wintering grounds.

Breeding GWWAs require a dense vegetation structure, often found in early successional patches within forested landscapes. Thus, the **goal of this BMP** is to present management guidelines to land managers interested in providing breeding habitat for GWWAs through timber harvesting.



Focal (shaded) areas for GWWA habitat management in Pennsylvania & Maryland.

Where to Start?

Habitat management for GWWAs should be in areas that will most effectively increase GWWA populations. In general, these areas have a high degree of forest cover, are high elevation, and are deficient of BWWAs. See map (top right) for locations throughout Pennsylvania and Maryland.

Rules of thumb:

- >70% of landscape in forest cover (e.g., 560 acres in forest for an 800-acre block)
- Elevation >950 feet
- Devoid of BWWAs
- Within 1 mile of other similar habitats

If possible, harvests should be located near other suitable habitats, like wetlands, old fields, or other timber harvests because those patches may serve as source populations of GWWAs. Also, disturbances like insect damage, tornadoes, past fires, etc. are appropriate locations for placement of new harvests.

When possible, management activities for Golden-winged Warblers should not occur during the breeding season (April to August).

Stand Level Characteristics

Ultimately, harvest unit shape will be influenced by vegetation, soils, slope, aspect, topography and accessibility, but where possible:

- Increase the proportional amount of edge by adjusting the harvest unit shape
- Provide a forested edge within 250 ft
- Create feathered edges that promote gradual transition

Because GWWAs use trees for singing perches and foraging sites, trees play an important role in management guidelines.

- Retain 10-15 residual trees per acre
- Residual trees should be >9 inches dbh

The best arrangement of retained trees is evenly scattered throughout the harvest. However, another method is to create small islands of trees embedded within the harvest.

Vegetation structure is suitable for GWWAs typically 4-5 years post harvest until stem exclusion or pole stage at 10-12 years.



A patchy stand that provides a mix of structural and floristic diversity/
Marja Bakermans

An example of a stand where the understory saplings are too thick for breeding GWWAs/Mack Frantz



Mixed blackberry and forb cover used by nesting GWWAs/Ben Jones

Within Stand Characteristics

In most cases, patchy conditions will occur inherently after a harvest. Underplanting is rarely necessary because seedling and shrub density from natural regeneration is adequate. GWWAs use stands with:

- 2500 saplings per acre (range 1300—3000 saplings/acre)
- 100 - 300 shrubs or stump sprouts per acre

Goldenrod and other forbs are important to GWWAs because they are used for nesting. The essential herbaceous component can be provided through properly retiring skid trails, haul roads, and landings. Follow this minimal maintenance approach:

- Grade roads and landings to minimize erosion
- Seed with plants that establish quickly

- Avoid non-native perennial cool season grasses
- Use a mix of annuals and non-invasive perennials (25lbs wheat or oats, 10 lbs crimson clover, 5lbs white or la-dino clover, 2lbs birdsfoot trefoil)
- Mulch with wheat or oat straw
- Biennial mowing will keep woody invasion in check

Additional Management Tools

There are additional tools that will both enhance and extend the suitability of stands for GWWAs. These may be used to maintain or promote early successional structure:

- Prescribed fire
- Mechanical treatment
- Deer fencing

Habitat manipulations from energy development may enhance GWWA habitat if done properly and within forested landscapes. After construction, road margins, pipelines, and well pads are re-vegetated with herbaceous mixes. By themselves, these linear habitats are not GWWA habitat. However, if reclaimed properly and com-

bined with forest management within adjacent stands, they may supply the herbaceous habitat needed by GWWAs. Follow the guidelines above, or consult a GWWA expert, to ensure proper herbaceous re-vegetation.



Canopy retention is proven to be an effective method to increase breeding densities of GWWAs within a stand/Marja Bakermans

Associated Species

Other species that rely on early successional habitat also would benefit from habitat management for GWWAs, particularly American Woodcock (*Scolopax minor*) and Appalachian cottontail (*Sylvilagus obscurus*). Many of these disturbance-dependent species also are experiencing population declines.

However, GWWAs appear more rigid in their habitat use. For example, in woodcock management areas where all canopy trees were removed, no GWWAs returned after habitat manipulation even though they were breeding in the same stands in the previous years.

Some birds commonly found in stands with GWWAs include:

- Eastern Whip-poor-will
- Gray Catbird
- Prairie Warbler
- Field Sparrow
- Eastern Towhee



American Woodcock/Bill Hubrick