Working Lands for Wildlife
Wildlife Habitat Evaluation Guide for the Golden-winged Warbler - Appalachian Mountain Population

This Wildlife Habitat Evaluation Guide (WHEG) is based on the habitat requirements of golden-winged warbler (*Vermivora chyrsoptera*). It is accepted that managing for this species benefits many other Appalachian Mountain forest habitat-dependent species (e.g., American woodcock, ruffed grouse, Eastern whip-poor-will, and Appalachian cottontail). This model can be applied to all ecological sites with the potential to support Appalachian Mountain forest habitat, even if golden-winged Warblers do not currently occupy the habitat.

The golden-winged warbler is a high elevation species that typically breeds in the Appalachian Mountains at elevations between 950' to 3000'. This species is a habitat specialist and prefers to nest in early successional habitat with a high proportion of forest in the surrounding landscape. Nesting habitat is often found in abandoned farmlands, regenerating timber harvests, shrubby fields, utility corridors, edges of reclaimed surface mines, stream borders, and scrub/shrub wetlands. Moreover, nesting Golden-winged Warblers require areas with a patchy mix of tree, shrub/sapling, and herbaceous habitat components. The conservation practices detailed below are those that will provide opportunities to achieve all or some of these breeding habitat conditions.

If a factor is not applicable or is not feasible to determine do not score that factor. While every factor may not fit every situation the WHEG should be completed by placing the corresponding score in the "Before Score" column which most closely represents that factor. Planners should carefully read each factor prior to assigning a score to a particular situation. The "Before Score" represents the habitat in a benchmark state without improvements implemented. Interpolate between values if necessary. All scores are for current year (previous 12 months) unless otherwise stated. The "After Score" is when the conservation plan or practice is mature, which will vary in time. The after score is an estimate of what impact a conservation practice will make to the site. This is done during the planning phase. If a factor is scored as N/A (identified in red) do not count that factor in the final total. In order to achieve quality criteria on a 0-1 scale an "After Score" must equal 0.75 or greater. It is required that a minimum of ten (10) acres result in early successional habitat and be managed for breeding golden-winged warblers.

NOTE: The use of the term "**project area/site"** in this document refers to that portion of a tract where habitat management activities for GWWA actually occur.

Owner/Operator:	Field Office:	
County:	Ecological Site:	
NRCS Planner:	Acres:	Field(s):
NRCS Soil Con:	Evaluation Period:	Date:
Non-NRCS Biologist/NRCS Biologist:	Location:	
Notes:		

LANDSCAPE LEVEL HABITAT EVALUATION

FACTOR	VALUES	ACTUAL BEFORE SCORE	RECOMMENDED CONSERVATION PRACTICES CODE(S)	PROJECTED AFTER SCORE	POST IMPLEMENTATION MONITORING [1/]
1. What percentage of the landscape within a one-half miles radius of the project area/site is forested?					
a) >70%	1.0		**N/A***		
b) 60-69%	0.5				
c) 50-60%	0.25				
d) <50%	0.0				
** The before and after scores for this factor may not be affected by installation of conservation practices.*					
2. What is the percentage of deciduous forest within a one-half mile radius of the project area/site?					
a) 70-100% deciduous forest and/or shrub lands	1.0		**N/A***		
b) 50-70% deciduous forest and/or shrub lands	0.5				
c) <50% deciduous forest and/or shrub lands	0.0				
** The before and after scores for this factor may not be affected by installation of conservation practices.*					
3. Is the project site located in close proximity to known or existing populations of golden-winged warblers?					
a) within one mi	1.0		**N/A***		
b) 1.1– 3.0 mi	0.75				
c) 3.1 to – 5.0 mi	0.5				
d) 5.1 – 7.0 mi	0.25				
e) > 7.0 mi	0.0				
If unknown, do not score this factor	N/A				
** The before and after scores for this factor may not be affected by installation of conservation practices.*					
4. What is the proximity to existing forested and/or shrub dominated wetlands greater than two acres in size?					
a) on the project site	1.0				
b) within 0.25 – < 0.5 mi	0.75				
c) within 0.5 – < 0.75 mi	0.5				
d) within 0.75 – 1.0 mi	0.25				
e) >1.0 mi	0.0				
5. What is the percentage of young forest (<12 years disturbed) and/or shrubland within one-half mile radius of the project area/site?					
a) 15-20%	1.0				
b) 10-14%	0.75				
c) 5-9%	0.5				
d) >20%	0.25				
e) <5%	0.0				

FACTOR	VALUES	ACTUAL BEFORE SCORE	RECOMMENDED CONSERVATION PRACTICES CODE(S)	PROJECTED AFTER SCORE	POST IMPLEMENTATION MONITORING 1/
6. Distance to infrastructure and/or significant human development from the project area/proposed site (e.g. housing developments, interstates, towns, etc).					
a) >0.5 mi	1.0				
b) 0.5 – 0.25 mi	0.5				
c) < 0.25 mi	0.25				

PROJECT/SITE SCALE HABITAT EVALUATION

7. What is the project area/proposed site size?					
a) >100 acres	1.0				
b) 50-99 acres	0.75				
c) 21-49 acres	0.50				
d) 10-19 acres	0.25				
e) < 10	0				

8. What is the percentage of the project area/proposed site that is shrub lands or forested? *(site level)*					
a) <70%	1.0				
b) 50-69%	0.5				
c) <50%	0.0				

9. What is the northern red oak site index of the dominant soil type in the project area/proposed site? *(See below - red oak is not a preferred species)**					
a) >80	1.0				
b) 60 - 79	0.5		**N/A***		
c) < 60	0.0				

** Northern red oak site index is utilized only as an indicator to determine the suitability for silvicultural practices and regeneration potential for various soil types and should not be construed as a desired species for golden-winged warblers. Application of conservation practices will likely have no effect on this factor.*

10. How much of the forest/shrub lands component of the site contains seedlings or saplings < 4" DBH					
a) <30% or less than 1300 stems per acre	0.25				
b) 30-50% or 1300 – 3300 stems per acre	1.0				
c) >50% or greater than 3300 stems per acre	0.25				

11. How many tree stems per acre > 9" DBH* occur in areas of early successional habitat? *					
a) < 5 stems per acre	0.25				
b) 5 – 10 stems per acre	0.5				
c) 11 – 20 stems per acre	1.0				
d) 21 – 25 stems per acre	0.5				
e) >25 stems per acre	0.25				

** An easy way to calculate stems per acre is to use a 75 foot diameter (one-tenth acre) plot, count stems and multiply by 10.*

FACTOR	VALUES	ACTUAL BEFORE SCORE	RECOMMENDED CONSERVATION PRACTICES CODE(S)	PROJECTED AFTER SCORE	POST IMPLEMENTATION MONITORING [1/]
12. Patchiness – What is the estimated average distance between woody and herbaceous edges, ecotones and/or vegetative structure? (i.e. changes in composition of vertical structure, densities and/or species) – The site must contain more than two distinct age classes and communities.					
a) 20 feet	1.0				
b) 40 feet	0.75				
c) 60 feet	0.5				
d) 80 feet	0.25				
e) 80> **OR** even age stands **OR** one distinct class/communities	0.0				
13. What is the composition of non-native woody species within forest or shrub component in the site/project area?					
a) No non-native invasive woody species	1.0				
b) One non-native invasive woody species **AND/OR** <1% cover of non-native invasive woody species	0.75				
c) Two non-native invasive woody species **AND/OR** <3% cover of non-native woody species	0.5				
d) Three non-native invasive woody species **AND/OR** <10% cover of non-native woody invasive species	0.25				
e) >3 invasive plant species **AND/OR** >10% cover of non-native woody invasive species	0.0				
14. Within the project area/proposed site, shrubs within old field settings occur as: *(NOTE: clumps are defined as single plants or clusters of plants that are at least 3' x 3' - invasive species not included)*					
a) scattered clumps at a rate of 100-300 per acre	1.0				
b) scattered clumps at a rate of 50-100 per acre	0.5				
c) scattered clumps at a rate of <50 or >300 per acre	0.25				
d) No shrub habitat is present	0.0				
15. Vine and shrub species found within the site consist of the following: blackberry or raspberry (*Rubus sp.*) gooseberry (*Ribes sp.*) Viburnums (*Viburnum sp.)*, wild grapes (*Vitis* sp.), and alder (*Alnus* sp.)					
a) four or more species	1.0				
b) three species present	0.75				
c) two species present	0.5				
d) one species present	0.25				
e) no species present or invasive species only	0.0				

FACTOR	VALUES	ACTUAL BEFORE SCORE	RECOMMENDED CONSERVATION PRACTICES CODE(S)	PROJECTED AFTER SCORE	POST IMPLEMENTATION MONITORING [1/]
16. Tree species found as snags, harvest residuals or as living smaller component communities within the forested portions of the site consist of the following: black locust (*Robinia pseudoacaia*), black or pin cherry (*Prunus* sp.), black walnut (*Juglans nigra*), elms (*Ulmus* sp.) aspen (*Populous* sp), white oak (*Quercus alba*), sweet birch (*Betua lenta*) and tulip poplar (*Liriodendron tulipfera*),					
a) three or more species	0.75				
b) two species present	0.5				
c) one species present	0.25				
d) none present	0.0				
17. The herbaceous species found within the site consist of the following: non-invasive ferns, goldenrod (*Solidago* sp.) or bunchgrass species					
a) three species	0.75				
b) two species present	0.5				
c) one species present	0.25				
d) none present **or** monocultures of any of the identified species	0.0				
18. What is the herbaceous cover in silviculturally derived habitats and or forested setting? (i.e. herbaceous ground cover after harvest including skid trails, landings, harvest areas, etc.)					
a) 0-10%	0.25				
b) 10-25%	1.0				
c) 25-30%	0.75				
d) >30%	0.5				
19. What is the herbaceous cover in non-forested habitats?					
a) <10%	0.25				
b) 10-30%	1.0				
c) >30%	0.25				
d) If non-forested habitat is not present do not score this factor	N/A				
20. What is the shrub/sapling vertical structure of the project area/proposed site? *(irrespective of species)*					
a) Diversity of shrub/sapling heights of both greater **AND** less than 6 feet in height	1.0				
b) Shrub/sapling heights are mostly uniform **OR** heights are less than 6 feet in height	0.5				
c) No shrub/sapling cover present	0.0				

FACTOR	VALUES	ACTUAL BEFORE SCORE	RECOMMENDED CONSERVATION PRACTICES CODE(S)	PROJECTED AFTER SCORE	POST IMPLEMENTATION MONITORING [1/]
21. What is the frequency of grazing of old fields or pastures within the project area/proposed site by livestock?					
a) once in four years	1.0				
b) twice in four years	0.75				
c) no grazing by domestic livestock occurs within the habitat area occurs (i.e. livestock exclusion)	0.5				
d) more frequently than twice in four years	0.25				
e) part of a continuously grazed system grazed every year	0.0				
If livestock are not present or grazing is not part of the management scheme do not score this factor	N/A				
22. If grazing occurs, indicate the management that best represents the last four years.					
a) Prescribed grazing designed to maintain and/or enhance early successional habitat characteristics	1.0				
b) Prescribed grazing during dormant season only (with ≥4 inch stubble height)	0.75				
c) Prescribed grazing during summer (with ≥4 inch stubble height)	0.5				
d) Prescribed grazing during spring (with ≥6 inch stubble height)	0.25				
e) Uncontrolled and/or season-long livestock access or grazing	0.00				
If livestock are not present or grazing is not part of the management scheme do not score this factor	N/A				
23. Prescribed Fire - Shrub lands/forested areas are:					
a) burned once every 5 to 7 years	1.0				
b) burned twice in 20 years	0.75				
c) burned once every 3-4 years	0.5				
d) burned more or less frequently than a), b) or c).	0.25				
If prescribed fire is not present or is not part of the management scheme do not score this factor	N/A				

GWWA WHEG SUMMARY TOTAL	BEFORE		AFTER
LANDSCAPE LEVEL HABITAT EVALUATION SUBTOTAL			
PROJECT/SITE SCALE HABITAT EVALUATION SUBTOTAL			
TOTALS			
NUMBER OF FACTORS CONSIDERED			
FINAL SCORE *(the total score divided by number of factors) The projected final score for AFTER must ≥0.75 to meet minimum requirements for GWWA - WLFW*			
PLANNED IMPROVEMENT *(After Total – Before Total)*			

[1/] **Post Implementation Monitoring** – this column may be utilized for post implementation monitoring by partner agencies or other entities and is not required to be completed by NRCS personnel unless otherwise specified.

Factor(s)	Conservation Practices for Resource Concerns [2/] *Projects rating 0.5 or less, consider the following conservation practices*
(8) (10) (11) (14) (21) (22 (23) **The creation or maintenance of shrub lands and/or young forest areas**	**Early Successional Habitat Development (647):** Manage plant succession to develop and maintain early successional habitat to benefit desired wildlife and/or natural communities. **Field Borders (386):** Utilize cut back borders in and around clear-cuts to create a meandering, softer edge effect. **Forest Stand Improvement (666):** Harvest stands in specific manners to facilitate appropriate residual basal areas and structural diversity. *Note: this practice may require facilitating practices such as Forest Harvest Trails and Landings and/or Access Roads.* **Prescribed Burning (338)**: Use prescribed burning to create stand diversity and alter existing stand successional stage. *Note this practice may require facilitating practices such as Fire break.* **Prescribed Grazing (528)**: Develop individual site specifications to manage the harvest of vegetation with grazing and/or browsing animals. *Note: this practice may also require supporting practices such as watering facilities spring developments, etc.* **Restoration & Management of Rare & Declining Habitats (643):** Restore, conserve, and manage unique or diminishing native terrestrial and aquatic ecosystems. **Wetland Wildlife Habitat Management (644)**: Manage wetland area to enable movement or provide shelter, cover, and food in proper amounts, locations and times to sustain breeding populations.
(11) (18) (20) **Quality of woody species and/or herbaceous species**	**Critical Area Planting (342):** Establish permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices such as reclaimed mine sites. **Forest Stand Improvement (666):** Manipulate species composition, stand structure, and stocking by cutting, harvesting or killing selected trees and understory vegetation. **Restoration and Management of Rare or Declining Habitats (643):** Return terrestrial ecosystems to their original or usable and functioning condition and/or improve biodiversity by providing and maintaining habitat for fish and wildlife species associated with the ecosystem. **Tree and Shrub Establishment (612):** Establish desirable trees and shrubs in target areas lacking a shrub or young forest component. *Note this practice may require facilitating practices such as Tree and Shrub Site Preparation, Mulching, etc.* **Upland Wildlife Habitat Management (645):** Provide and manage upland habitats and connectivity within the landscape for wildlife.
(13) **Control or manipulation of noxious or invasive plant species**	**Brush Management (314)**: Plan brush management to control wood species and provide for an early succession habitat designed to meet landowner's goals. **Herbaceous Weed Control (315):** Removal or control of herbaceous weeds including invasive, noxious and prohibited plants that interfere with desired targeted communities. **Prescribed Grazing (528)**: Plan rotational grazing to allow more adequate rest time between grazing events and reevaluate stocking rates. *Note: this practice may also require supporting practices such as fencing.*

[2/] **Note:** Conservation practices not identified above must be approved at the national level prior to use in the Working Lands for Wildlife Program.

Factor(s)	Conservation Practices for Resource Concerns [2/] *Projects rating 0.5 or less, consider the following conservation practices*
(15) (21) **Establishment enhancement or maintenance of vertical structure**	**Conservation Cover (327):** Establish native herbaceous species to diversify habitat and create desirable stand densities and compositions. **Early Successional Habitat Development (647):** Manage plant succession to develop and maintain early successional habitat to benefit desired wildlife and/or natural communities. **Forest Stand Improvement (666):** Manipulate species composition, stand structure, and stocking by cutting or killing selected trees and understory vegetation. **Prescribed Burning (338):** Use prescribed burning to create stand diversity and alter existing stand successional stage. *Note this practice may require facilitating practices such as firebreaks.* **Tree and Shrub Establishment (612):** Establish desirable trees and shrubs in target areas lacking a shrub or young forest component. *Note this practice may require facilitating practices such as Tree and Shrub Site Preparation, Mulching, etc.*
(12) (18) (19) **The creation or maintenance of patchiness and creation of habitat diversity**	**Access Control (472)**: Manage access to habitat by livestock. *Note: this may require the use of other facilitating practices such as fence.* **Conservation Cover (327):** Establish native herbaceous species to diversify habitat and create desirable stand densities and compositions. **Critical Area Planting (342):** Establish permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices. **Deep Tillage (324):** Utilize tillage operations below normal depths to modify adverse physical properties of the soil. *Note: This practice may be beneficial on areas such as reclaimed mine sites.* **Field Borders (386):** Utilize cut back borders in and around clear-cuts to create a meandering, softer edge effect. **Prescribed Burning (338):** Use prescribed burning to create stand diversity and alter existing stand successional stage. *Note this practice may require facilitating practices such as firebreaks.* **Prescribed Grazing (528):** Plan long term rotational grazing by varying the timing and intensity to alter the structure and composition of the plant community. *Note: this practice may also require supporting practices such as watering facilities spring developments, fence etc.*

[2/] **Note:** Conservation practices not identified above must be approved at the national level prior to use in the Working Lands for Wildlife Program.