TECHNICAL NOTES

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WILDLIFE HABITAT APPRAISAL GUIDES FOR NEW MEXICO

Wildlife Habitat Appraisal Guides (WHAG) provide the NRCS planner with a relatively simple and objective procedure for determining the value of wildlife habitat on any conservation treatment unit (CTU), which may consist of one or more fields or even an entire farm. The guides can be used on land where wildlife is a primary resource concern, or on land (such as farmland) where wildlife is a secondary resource concern. They can be used to evaluate habitat on planning units for rangeland, farmland, forest and woodland, or conservation planning units for wildlife. Planning unit boundaries for wildlife may coincide with those delineated for rangeland, farmland, or forest and woodland; or a wildlife planning unit may be delineated that includes two or more land uses or land types. Rate the CTU for the dominant land use.

There is no minimum size for land to be appraised as wildlife habitat. However, tracts of 1 to 20 acres may be limited as habitat by their size alone.

The Guides are based on the following assumptions:

1. All land and waters provide habitat for wildlife.
2. The quality of habitat is variable depending on the quality, quantity, and interspersion of food, cover, water, and space.
3. Habitat elements can be measured and compared to optional conditions. Elements were selected to provide a measure of habitat diversity.
4. Wildlife populations are proportional to the quality and quantity of habitat available. A 400-acre planning unit may have potential to provide more diverse habitat and thus a greater variety of wildlife than does a 40-acre unit. Wildlife use of an area is dependent on the variety of habitats it supports and the area's size.

These Guides can be used to determine if a CTU meets the minimum quality criteria found in Field Office Technical Guide (FOTG) Section III, Wildlife in a Resource Management System (RMS). Conservation practices and management measures can be identified to meet the minimum RMS standard, or to meet higher habitat quality objectives of the landowner. These Guides are not intended to be used to evaluate the potential for introducing wildlife species not presently found on the planning unit.

The WHAG utilizes a numerical rating to compare the value of existing wildlife habitat with the value of wildlife habitat under various alternatives. The Guides have been developed to consider the needs of a variety of species using a particular land-use/cover type, a goal commonly referred to as management for species richness. They were not developed to evaluate the habitat quality for selected or featured species. The Guides may not reflect complete habitat needs or home range requirements for any particular wildlife species. They are intended to evaluate habitat richness or diversity of the planning unit. A planning unit that exhibits high habitat diversity is likely to have equally diverse fauna. The farmland habitat guide, for instance, evaluates habitat components for a variety of wildlife species—game and non-game—commonly inhabiting farmland, not just pheasants. When a landowner is interested in improving or managing habitat for a particular species, a species-specific habitat model may be used. To date, a limited number of species-specific habitat models have been developed. If you have need for a specific model, contact the State Biologist.

Instructions for Using the Wildlife Habitat Appraisal Guides

1. Determine the landowner or land user's objectives regarding his/her overall conservation program, interest in wildlife, and the specific conservation practices desired. Does the landowner wish to increase wildlife populations or maintain at present levels?

2. Based on your or the land user's knowledge of the planning area, identify the wildlife species present on the area and their seasons of use. Are threatened or endangered species present, or other species that require special attention? Be sure to consult with New Mexico Department of Game and Fish and U.S. Fish and Wildlife Service biologists who are familiar with the planning area. The Natural Heritage New Mexico website has a list of species of special concern http://redtail.unm.edu/

3. Delineate the conservation treatment unit to be evaluated on an aerial photo or other suitable planning map. Wildlife planning units should be delineated by the appropriate habitat—farmland, rangeland, forest and woodland—after considering the types of habitat that occur on the farm, ranch, or CTU. Large or complex units may require the use of more than one guide to evaluate wildlife habitat suitability.

4. Refer to soil survey reports or Certified Soil Survey Data (eFOTG) for soil/wildlife interpretations for the soils you are dealing with. Where soil surveys have not been conducted, use best available information for the establishment of plants for wildlife.

5. Rating habitat quality and quantity is best done in the field with the landowner. Visit enough of the planning area to accurately evaluate habitat conditions. Keep in mind that these are guides! When encountering situations not specifically covered, use judgment to rate such elements. These Guides can be completed while collecting other resource information, such as range condition, woodland site index or USLE data. Rate only factors which are applicable on the CTU. For example, when rating farmland, if no wetlands are present, do not rate this factor. Do not assign a value of zero if a factor is not present unless the WHAG specifically assigns a value of zero to that factor. Be sure to adjust the number of factors inventoried when calculating the habitat value if no rating is given to one or more factors.

6. After total habitat values have been determined, look back through individual scores to find those factors that are deficient and could be improved. Any habitat element(s) that scores less than 0.5 is considered as a limiting factor. Habitat improvement efforts should be directed to overcome such limitations. Compare those deficient factors with the soils interpretation. For example, if on a cropland planning unit, a score of 0 or 0.4 for woody vegetation is indicated, refer to the Certified Soil Survey Data to find the potential for growing shrubs, hardwoods, and conifers.

7. Calculating the Habitat Value:

Total the scores for the factors rated and divide this total by the number of factors rated, not the total number of factors.
For example, when rating farmland, if no wetlands are present, do not rate that factor and reduce the number of factors by one.

HABITAT VALUE: _____
Number of Factors Rated

8. With the landowner, develop alternatives for improving deficient factors. A conservation cropping system may improve farmland habitat quality. A small clear cut of merchantable timber may be used to create a forest opening. A planned grazing system will not only improve the score for that factor, but may in time lead to improved range condition. A stock pond will provide drinking water for wildlife as well as livestock. Shelterbelts may off-set the lack of trees and shrubs.

For further planning guidance, refer to the New Mexico Biology Tech Notes and Section IV for the Field Office Technical Guide practice 645 Wildlife Upland Habitat Management, and 644 Wildlife Wetland Habitat Management.

WILDLIFE HABITAT APPRAISAL FORM

Farmland Habitat 1/

Owner/Operator	Acres in Planning Unit	Field Number(s)

1. Landowner's wildlife objective (Wildlife for Sport Hunting, Personal Enjoyment, etc.):

2. Wildlife species commonly found on the conservation planning unit and their season of use:

3. Soil potential for farmland habitat element (Refer to Certified Soil Survey Data [eFOTG]):

Grain and see crops _____ Irrigated _____ Non-Irrigated _____ Wild herbaceous plants

Domestic grasses and Legumes _____ Irrigated _____ Non-Irrigated

Deciduous trees _____ Conifers _____ Shrubs _____

4. Appraisal of Existing Habitat Elements:

A. Cropland Quality 2/	**Possible Score**	**Total Actual Score**			
		Existing	**Alternative 1**		**Alternative 2**
No-till system. Pesticides and fertilizer applied only according to Nutrient/Pest Management plan.	**0.8**				
Minimum till. Nutrient/Pest Management plan in place. At least 30% crop residue cover year-long.	**0.6**				
Reduced till; ≥ 30% residue cover over winter.	**0.5**				
Traditional tillage; ≤10% winter residue cover.	**0.1**				

ADD: (Maximum Score = 1.0)
0.2 POINTS FOR FOOD PLOTS/UNHARVESTED CROPS FOR WILDLIFE
0.1 POINT FOR WINTER WHEAT IN ROTATION
0.1 POINT FOR GRASS/LEGUME ROTATION
SUBTRACT:
0.1 POINTS FOR CROPS OTHER THAN GRAIN OR SEED PRODUCTION, E.G. COTTON, ONIONS, BEANS, PEANUTS, POTATOES, ETC.

1/ Includes small grains, row crops, orchards, hay, pasture, etc.
2/ Cropland includes small grain, corn, oil seed crops, potatoes, etc.

B. Percent of Assessment Area that is Uncultivated (Do not include hay fields)	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
25 – 50%	1.0			
15 – 25%	0.5			
10 – 14%	0.3			
<10%	0.0			

SUBTRACT: 0.2 POINTS FOR GRAZING WITHOUT A PLANNED GRAZING SYSTEM.

C. Percent of Total acres from (B) that is in Winter Cover (Trees, brush, shelterbelts, cattails/bulrushes)	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
10 – 25%	1.0			
25 – 50%	0.5			
50 – 100%	0.3			
<10%	0.0			

D. Percent of Total acres from (B) that is in Nesting Cover (Tall grass, grass/legume mixtures, brush/grass)	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
25 - 50%	1.0			
10 - 25%	0.5			
>50%	0.3			
<10%	0.0			

E. Herbaceous Vegetation Quality [3/]	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
Specifically managed for wildlife nesting/brood/roosting cover, i.e. management activities (haying, grazing, burning, disking) are conducted outside of the primary nesting season [see practice standard 645] and only used as tools to restore plant vigor and are generally excluded.	1.0			
Herbaceous cover is in a long-term set-aside program.	0.9			
Hayed (or grazed/burned) occasionally (1 of 3 years max) and usually after July 15	0.8			
Hay cut only once per year after July 15 and before August 10 or grazed after June 1. Minimum of 10 inches of standing herbaceous cover over winter.	0.7			
Hay cut only once per year after July 1, but before July 15, or grazed after June 1. Minimum of seven inches of standing herbaceous cover over winter.	0.5			
Hay cut only once per year before July 1 or grazed before June 1. Minimum of four inches of standing herbaceous cover over winter.	0.3			
Two or more annual hay cuttings (first cutting in June) or grazed before May 1	0.1			

SUBTRACT:
0.2 POINTS FOR SEASON-LONG, CONTINUOUS GRAZING
0.2 POINTS FOR ANNUAL BURNING OF DITCHBANKS/ROADSIDES
0.2 POINTS FOR PRESENCE OF NOXIOUS WEEDS
0.1 POINT FOR GRASS MONOCULTURES, I.E. NO LEGUMES OR FORBS
0.1 POINT FOR HARVESTING WHICH HERDS WILDLIFE TO CENTER OF FIELD
ADD: (MAXIMUM SCORE = 1.0)
0.2 POINTS FOR NEST COVER IN BLOCKS OF > 40 ACRES

[3/] Includes hay, pasture, grass waterways, weedy fence rows, odd areas, etc. Herbaceous vegetation serves as nesting and/or

concealment cover.

F. Interspersion of Habitat Components Distance from center of open fields to permanent cover (3 or more acres) such as trees/brush, undisturbed herbaceous vegetation, marshland, etc.	**Possible Score**	**Total Actual Score**		
			Alternative	
		Existing	**1**	**2**
<400 feet	1.0			
400 – 1320 feet	0.7			
1321 – 1800 feet	0.4			
>1800 feet	0.1			

G. Condition of Wetland Habitat (N/A if no wetlands present naturally)

Mean Wetland Score (Average of Items 1-3)

1. Hydrological Integrity	**Possible Score**	**Total Actual Score**		
			Alternative	
		Existing	**1**	**2**
No hydrological modification	0.8			
Minor hydrological modification. Primary hydrologic functions still present.	0.5			
Significant hydrological modification	0.1			
Total (1)				

ADD: (MAXIMUM SCORE = 1.0)
0.2 POINTS IF WETLANDS ARE PROTECTED FROM SEDIMENTATION BY VEGETATIVE BUFFERS.

2. Native Hydrophtic Vegetation Integrity	**Possible Score**	**Total Actual Score**		
			Alternative	
		Existing	**1**	**2**
Native hydrophytic vegetation (all canopy layers) predominates.	1.0			
Native hydrophytic vegetation predominates; Some reduction in structural diversity.	0.5			
Non-native plant species predominate.	0.3			
Total (2)				

SUBTRACT:
0.2 POINTS FOR PRESENCE OF NOXIOUS WEEDS.

3. Wetland Management	**Possible Score**	**Total Actual Score**		
			Alternative	
		Existing	**1**	**2**
Wetland habitat is managed for wildlife	1.0			
Light grazing or occasional haying, but not cultivated	0.7			
Moderate grazing or frequent cultivation or haying.	0.4			
Heavy grazing or cultivation throughout the growing season	0.2			
Total (3)				

Score of 1 _____
Score of 2 _____
Score of 3 _____
Total _____ **Divided by 3** = _____
Wetland habitat score

Plant Community Components

- Grass/forb
- Low shrub (<8' tall)
- Tall shrub (>8' tall)
- Tree

H. Riparian Habitat[4/] (N/A if no riparian habitat present) Plant communities with structural characteristics providing vertical and horizontal habitat diversity for wildlife.	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
Plant community with all 4 of the above components	0.8			
Plant community with 3 of the above components.	0.6			
Plant community with 2 of the above components.	0.4			
Plant community with 1 of the above components.	0.1			

ADD: (MAXIMUM SCORE = 1.0)
0.2 POINTS FOR RIPARIAN STANDS WITH THE FOLLOWING: TALL (MATURE) TREE; MID-CANOPY TREE; TALL SHRUB; LOW SHRUB/HERBACEOUS LAYERS PRESENT; WOODY PLANTS ARE REGENERATING.

SUBTRACT:
0.2 POINTS FOR GRAZING WITHOUT A PLANNED GRAZING SYSTEM THAT INCLUDES SPECIFIC RIPARIAN MANAGEMENT OBJECTIVES.
0.1 POINTS FOR PRESENCE OF RUSSIAN OLIVE 0R SALT CEDAR
0.1 POINTS FOR PRESENCE OF NOXIOUS WEEDS.

[4/] Rate riparian lands only when they occur within the planning unit.

I. Condition of Stream Habitat (N/A if no streams present)	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
No channel/stream bank alteration, well vegetated with deep-rooted, native species; no active down cutting, channel widening, or excessive sediment deposition.	1.0			
No channel/stream bank alteration banks with minimal human-induced erosion or sediment deposition, native vegetation predominates.	0.7			
No channel/streambank alteration: shallow rooted, introduced plants common; human-induced bank erosion, downcutting, or sediment deposition moderate.	0.4			
Excessive human-induced bank erosion, sediment deposition, or down cutting; or channel/bank alteration, e.g. channelization, riprap, etc., on >20% of the stream reach.	0.1			

ADD: (MAXIMUM SCORE = 1.0)
0.2 POINTS FOR USE OF SCREENS TO PREVENT ENTRAINMENT OF FISH INTO IRRIGATION DITCHES AND PASSAGE STRUCTURE TO ALLOW FREE MOVEMENT OF FISH.

SUBTRACT:
0.1 POINT FOR LANDOWNER'S SEASONAL WATER WITHDRAWALS AND/OR DROP STRUCTURES, DAMS/DIVERSIONS THAT INHIBIT FISH MOVEMENT OR ACCESS TO IMPORTANT HABITATS ON LANDOWNER'S PROPERTY.

J. Condition of Artificial Stock Ponds/Reservoirs (N/A if no stock ponds present)	**Possible Score**	**Total Actual Score**		
		Existing	**Alternative 1**	**Alternative 2**
Reservoir managed for wildlife, i.e. stock water piped away and shoreline protected	1.0			
Shoreline only occasionally used by livestock or pond is managed under a rotational grazing system that does not allow deterioration of shoreline vegetation. (Shoreline vegetation may be significantly grazed during a part of the rotation, not more often than 1 in 3 years.)	0.8			
Vegetative buffer present on ½ of shoreline; remainder of shoreline vegetation adversely affected by grazing, cultivation, etc.	0.7			
Shoreline trampled and vegetation removed.	0.1			

5. Summation of Habitat Element	**Existing Score**	**Total Actual Score**	
		Alternative 1	**Alternative 2**
A. Cropland Quality			
B. Percent of Assessment Area that is Uncultivated			
C. Percent of Uncultivated Area in Winter Cover			
D. Percent of Uncultivated Area in Nesting Cover			
E. Herbaceous Vegetation Quality			
E. Herbaceous Vegetation Quality			
G. Condition of Wetland Habitat			
H. Riparian Habita			
I. Condition of Stream Habitat			
J. Condition of Stock Ponds/Reservoirs			
TOTAL			

6. Habitat Value [5/] **= Total Score / No. of Inventory Factors Rated**

7. Habitat elements in need of improvement: [6/]

8. Planning alternatives for improving habitat element deficiencies:

[5/] In order to meet the FOTG Quality Criteria for a Resource Management System, the planned system must provide a Habitat Value of 50% of higher (0.5 out of 1.0) for the CTU.

[6/] Any habitat element(s) (A through K) with a score of less than 0.5 may be considered as a limiting factor(s). Where possible and practical, direct habitat improvements to compensate for such limitations.

WILDLIFE HABITAT APPRAISAL FORM

Rangeland Habitat

Owner/Operator	Acres in Planning Unit	Field Number(s)

1. Landowner's wildlife objective (Wildlife for Sport Hunting, Personal Enjoyment, etc.):

2. Wildlife species commonly found on the conservation planning unit and their season of use:

3. Soil potential for farmland habitat element (Refer to Certified Soil Survey Data [eFOTG]):

Domestic grasses and Legumes: _____

Native grasses and forbs _____

Deciduous trees _____ Conifers _____ Shrubs _____

4. Appraisal of Existing Habitat Elements:

A. Ecological Similarity Index Note: For seeded or introduced plants, evaluate habitat elements B through F only.	**Possible Score**	**Total Actual Score**		
		Existing	**Alternative 1**	**Alternative 2**
Similarity Index 51-100%	**1.0-0.8**			
Similarity Index 26-50%	**0.5**			
Similarity Index < 25%	**0.2**			

ADD: (MAXIMUM SCORE = 1.0)
0.2 POINTS IF UP TO 10% OF OTHERWISE HIGH SIMILARITY INDEX RANGE (51-100%) IS COMPOSED OF LOW SUCCESSIONAL SHORT GRASS HABITATS SUCH AS PRAIRIE DOG TOWNS AND CLOSELY GRAZED AREAS. THIS ADDS BIODIVERSITY WITHOUT SIGNIFICANTLY REDUCING FORAGE PRODUCTION OR ECOLOGICAL CONDITION.

SUBTRACT:
0.2 POINTS FOR NOXIOUS WEEDS.

B. Grazing Management	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
Grazing specifically planned to enhance wildlife habitat by providing residual herbaceous cover Fall through Spring (meets NRCS 645 – Upland Wildlife Habitat Management and/or 644 – Wetland Wildlife Habitat Management practice standards and specifications). Example: Grazing period (up to 70% utilization) followed by two growing seasons rest.	**1.0**			
No livestock use or grazing system meets NRCS 528A Prescribed Grazing practice standard and specification.	**0.8**			
Moderate, season-long grazing which doesn't exceed NRCS-recommended stocking rate. No planned system.	**0.5**			
Heavy to excessive grazing with or without a planned system.	**0.1**			

Plant Community Components

- Grass/forb
- Low shrub (<8' tall)
- Tall shrub (>8' tall)
- Tree

C. Riparian Habitat [1/] N/A if no riparian habitat present) Plant communities with structural characteristics providing vertical and horizontal habitat diversity for wildlife.	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
Plant community with all 4 of the above components.	**0.8**			
Plant community with 3 of the above components.	**0.6**			
Plant community with 2 of the above component	**0.4**			
Plant community with 1 of the above components.	**0.1**			

ADD: (MAXIMUM SCORE = 1.0)
0.2 POINTS FOR RIPARIAN STANDS WITH THE FOLLOWING: TALL (MATURE) TREE; MID-CANOPY TREE; TALL SHRUB; LOW SHRUB/HERBACEOUS LAYERS PRESENT; WOODY PLANTS ARE REGENERATING.

SUBTRACT:
0.2 POINTS FOR GRAZING WITHOUT A PLANNED GRAZING SYSTEM THAT INCLUDES SPECIFIC RIPARIAN MANAGEMENT OBJECTIVES.
0.1 POINTS FOR PRESENCE OF RUSSIAN OLIVE AND SALT CEDAR.
0.1 POINTS FOR PRESENCE OF NOXIOUS WEEDS.

[1/] Rate riparian lands only when they occur within or immediately adjacent to the planning unit.

D. Condition of Stream Habitat (N/A if no streams present)	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
No channel/stream bank alteration, i.e. channelization, riprap; banks well vegetated with deep-rooted, native species; no active down cutting, channel widening, or excessive sediment deposition.	**1.0**			
No channel/stream bank alteration: banks with minimal human-induced erosion or sediment deposition, (may be evidence of past down cutting, now stabilized); native vegetation predominates.	**0.7**			
No channel/stream bank alteration: shallow rooted, introduced plants common; human-induced bank erosion, down cutting, or sediment deposition moderate	**0.4**			
Excessive human-induced bank erosion, sediment deposition, or down cutting; or channel/bank alteration, e.g. channelization, riprap, etc., on >20% of the stream reach.	**0.1**			

ADD: (MAXIMUM SCORE = 1.0)
0.2 POINTS FOR USE OF SCREENS TO PREVENT ENTRAINMENT OF FISH INTO IRRIGATION DITCHES AND PASSAGE STRUCTURE TO ALLOW FREE MOVEMENT OF FISH.

SUBTRACT:
0.1 POINT FOR SEASONAL WATER WITHDRAWALS AND/OR DROP STRUCTURES, DAMS/DIVERSION THAT INHIBIT FISH MOVEMENT OR ACCESS TO IMPORTANT HABITATS ON LANDOWNER'S PROPERTY.

E. Condition of Wetland Habitat

N/A if no wetlands present naturally) Mean Wetland Score (Average of Items 1-3)

1. Hydrological Integrity	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
No hydrological modification	0.8			
Minor hydrological modification. Primary hydrologic functions still present.	0.5			
Significant hydrological modification	0.1			
Total (1)				

ADD: (MAXIMUM SCORE = 1.0)
0.2 POINTS IF WETLANDS ARE PROTECTED FROM SEDIMENTATION BY VEGETATIVE BUFFERS.

2. Native Hydrophtic Vegetation Integrity	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
Native hydrophytic vegetation (all canopy layers) predominates.	1.0			
Native hydrophytic vegetation predominates; some reduction in structural diversity.	0.5			
Non-native plant species predominate.	0.3			
Total (2)				

SUBTRACT:
0.2 POINTS FOR PRESENCE OF NOXIOUS WEEDS.

3. Wetland Management	Possible Score	Total Actual Score		
		Existing	Alternative 1	Alternative 2
Wetland habitat is managed for wildlife.	1.0			
Light grazing or occasional haying, but not cultivated.	0.7			
Moderate grazing or frequent cultivation or haying.	0.4			
Heavy grazing or cultivation throughout the growing season	0.2			
Total (3)				

Score of 1 _____
Score of 2 _____
Score of 3 _____
Total _____ **Divided by 3** = _____
Wetland habitat score

F. Condition of Artificial Stock Ponds/Reservoirs (N/A if no stock ponds present)	**Possible Score**	**Total Actual Score**		
		Existing	**Alternative**	
			1	**2**
Reservoir managed for wildlife, i.e. stock water piped away and shoreline protected	**1.0**			
Shoreline only occasionally used by livestock or pond is managed under a rotational grazing that prevents degradation of shoreline vegetation.	**0.8**			
Vegetative buffer present on ½ of shoreline; remainder of shoreline vegetation adversely affected by grazing, cultivation, etc.	**0.5**			
Vegetative buffer present on <1/2 of shoreline because of livestock, cultivation, etc.	**0.3**			
Shoreline trampled and vegetation removed, e.g. bare ground, from intense livestock use or other disturbances.	**0.1**			

5. Summation of Habitat Element	**Existing Score**	**Total Actual Score**	
		Alternative	
		1	**2**
A. Ecological Range Condition			
B. Grazing Management			
C. Riparian Habitat			
D. Condition of Stream Habitat			
E. Condition of Wetland Habitat			
F. Condition of Stock Ponds/Reservoirs			
TOTAL			

6. Habitat Value [5/] **= Total Score / No. of Inventory Factors Rated**

7. Habitat elements in need of improvement: [6/]

8. Planning alternatives for improving habitat element deficiencies: