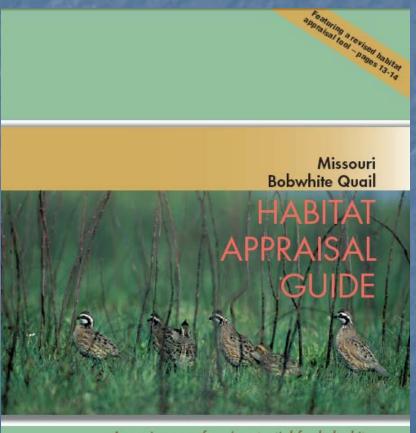
Bobwhite Quail Habitat Appraisal Guide

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Missouri Department of Conservation
Conservation Planning
Module 6B - 2013



Assessing your farm's potential for bobwhites

Why Use It?

- Quail planning tool private/public
- Can be used by inexperienced personnel and landowners
- Good reference or checklist
- Breaks down each quail habitat component
- Identifies the most limiting factor

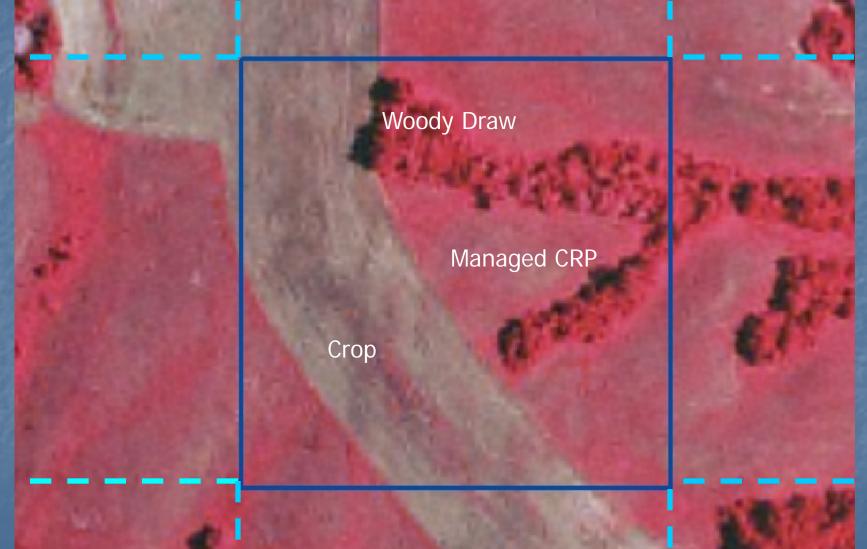
BWQ Habitat Tool

- Divided into 5 parts -
 - Nesting
 - Brood Habitat
 - CHQ's
 - Food
 - Arrangement
 - Conduct appraisal during growing season

BWQ Habitat Tool

- Identify the home range
 - 15 acre min, 80 acre max
 - the smaller the home range, the more intensive the management
- Your goal is to provide all habitat components for 1 covey per home range

Quail home ranges do not have to conform to field boundaries



Bobwhite Quail Habitat Appraisal Tool

Name	Date	Planner		
Land management goal: 1 covey per 20	acres (optimum home range	e is 15 acres) Size of evaluation ar	rea:acres	
Habitat components, listed below, ary (B) Brood Habitat, (C) Covey Headqua	vlements needed for surviva s, (D) Food, and (E) Arrange	al and propagation of the species. Fement of Habitats.	For BWQ, these component	s include (A) Nesting Cover,
Scoring Instructions - Descriptions f habitat being appraised on your farm. columns are provided for existing and to four habitats to be appraised on this	n locate the corresponding s	listed below. Under each descriptio score (the bold number in front of the es will be used to determine limiting	ne explanation) and write it	on the chart to the right. Two
(Additional forms can be printed online	extension.missouri.edu/explo	ore/miscpubs/mp0902.htm.)	il.	6. Barrell
A. Nesting Cover - Herbaceous collast year's grass growth available b			1. 2.	Nesting cover quantity
Nesting cover quantity - Per 10 30% or more 8 20% to 30%		inated by preferred cover.	3.	
6 10% to 20%		form home	1.	Average

Part A. - Nesting Cover

Nesting Cover – bunch grasses with forbs and low-growing shrubby cover with last year's growth available for nest building

Little blue, side oats, broomsedge, timothy







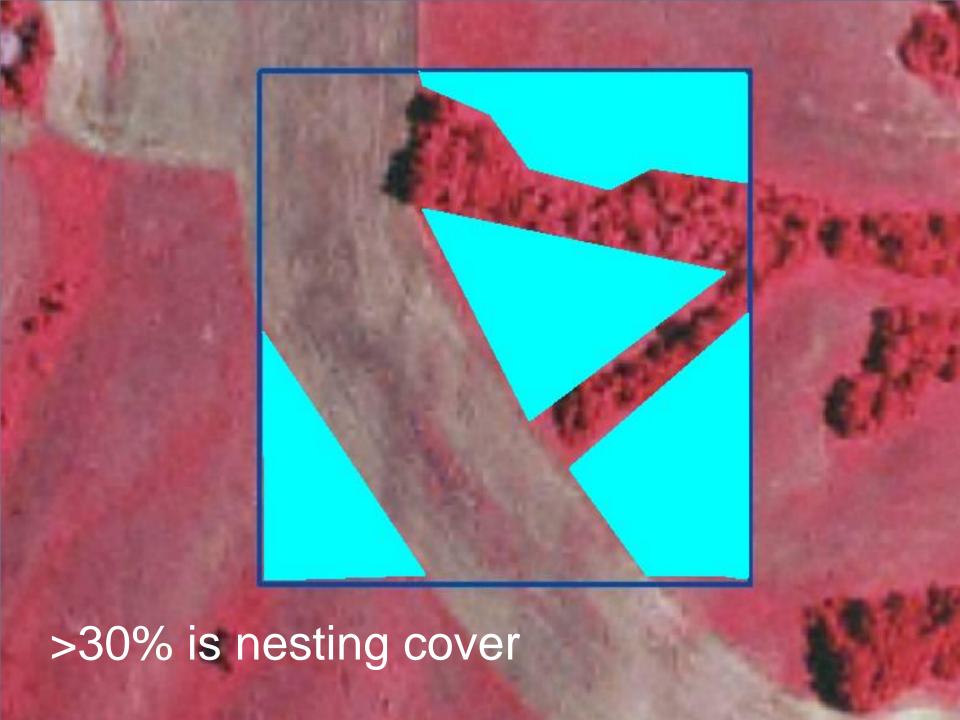
Part A. - Nesting Cover

1. Nesting cover quantity

Measure the % of home range dominated by preferred cover

>30% is ideal





Bobwhite Quail Habitat Appraisal Tool

Name	Date	Planner		
Land management goal: 1 cove	y per acres (optimum home	range is 15 acres) Size of evaluati	on area:acres	
	w, are the elements needed for so eadquarters, (D) Food, and (E) Ar	urvival and propagation of the spec trangement of Habitats.	ies. For BWQ, these ccmpone	nts include (A) Nesting Cover,
habitat being appraised on your columns are provided for existir to four habitats to be appraised	farm. Then locate the correspond g and planned conditions. These on this form.	s are listed below. Under each describing score (the bold number in front scores will be used to determine linesouri.edu/explore/miscpubs/mp0902	t of the explanation) and write in miting factors at the end of this	it on the chart to the right. Two s form. The charts allow for up
	warm-season grasses or wildlife- during nesting season (May 1 to	friendly cool-season burch grasses Sept. 15).	4 17	
10 30%	ntity - Percentage of home range or more	dominated by preferred cover.	3.	
6 109 4 1%	to 20% to 10% or open stands at ground e present (if 0, skip to Brood Hab		1. 2.	Average nesting cover height
nesting season, with	cover height - The condition of a residue available for use May 1. ater than 8 inches	f vegetation (previous year's grow	vth) during the 3. 4.	
	8 inches		1.	Legumes/ forhs in

Part A. – Nesting Cover

2. Nesting cover height

the condition of the vegetation (previous year's growth) available during May – Sept



Nesting Cover

o four habitats to be appraised on this form.

Additional forms can be printed online at extension.missouri.edu/explore/miscpubs/mp0902.htm.)

A. Nesting Cover - Herbaceous cover consisting of bunch grasses with forbs and low-growing shrubby cover with last year's grass growth available before or during nesting season (May 1 to Sept. 15).

Nesting cover quantity - Percentage of home range dominated by preferred cover.

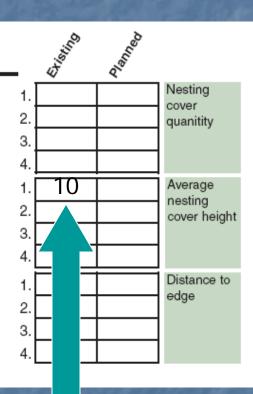
- 10 30% or more
- 8 20% to 30%
- 6 10% to 20%
- 4 1% to 10% or open stands at ground level fescue/brome
- 0 None present (if 0, skip to Brood Habitat)

Average nesting cover height - The condition of nesting cover vegetation (previous year's growth) during the nesting season, with residue available for use May 1.

- 10 Greater than 8 inches
- 8 6 to 8 inches
- 4 4 to 6 inches
- 2 Less than 4 inches

Distance to edge - Distance from center of nesting cover to an edge.

- 10 50 to 75 feet
- 6 25 to 50 feet or 75 to 150 feet
- 2 less than 25 feet or more than 150 feet

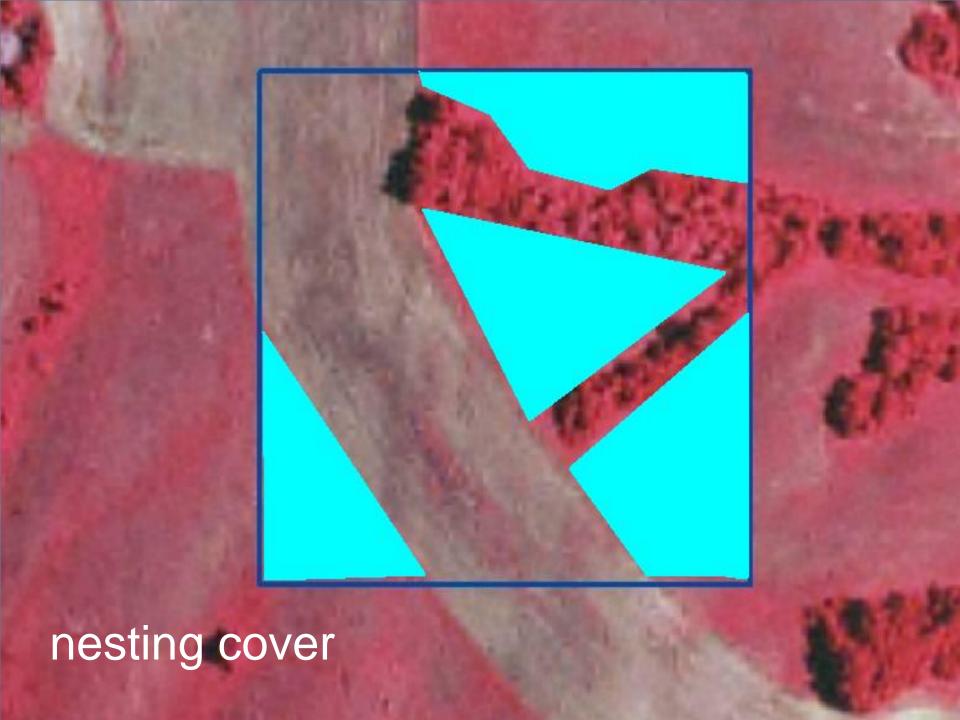


Part A. – Nesting Cover

3. Distance to edge – from center of nesting cover to an edge – fencerow, fireline, disk strips, crop, woody draw

Quail prefer to nest within 50-75 feet of edge





Nesting Cover

to four habitats to be appraised on this form.

(Additional forms can be printed online at extension.missouri.edu/explore/miscpubs/mp0902.htm.)

A. Nesting Cover - Herbaceous cover consisting of bunch grasses with forbs and low-growing shrubby cover with last year's grass growth available before or during nesting season (May 1 to Sept. 15).

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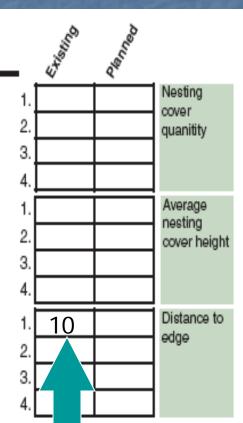
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- 2 less than 25 feet or more than 150 feet



Review - Nesting Cover

- Amount in home range
- Height of previous year's growth
- Distance to edge



Part B. – Brood Habitat

Brood Habitat – Plant community made up of annual forbs, legumes, weeds, no-till crops available May 15-Sept. 15.

Brood habitat will contain insects which are the most important food item for nesting hens and chicks.

Part B. – Brood Habitat

Brood habitat
 quantity – percent
 of home range
 dominated by
 forbs/legumes/annu
 als, or minimum/no till crops.



>40% ideal



Crop field is no-till, and burned CRP totals 40%-50% of the home range

Brood Habitat

Z Less than 10% or more than 40%

B. Brood Habitat - Herbaceous plants and bare ground that consists of new growth of forbs/weeds, annuals, minimum or no-till crops in each home range, needed from May 15 to Sept. 15.

Brood habitat quantity - Percent of the home range dominated by preferred cover.

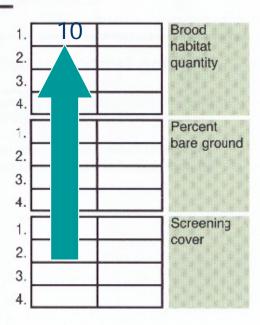
- 10 40% or more forbs/legumes, annuals or minimum/no-till crops
- 8 30% to 40% forbs/legumes, annuals or minimum/no-till crops
- 6 20% to 30% forbs/legumes, annuals or minimum/no-till crops
- 4 10% to 20% forbs/legumes, annuals or minimum/no-till crops
- 2 1% to 10% forbs/legumes, annuals or minimum/no-till crops
- No preferred cover, or conventional tilled crops (if 0, skip to Covey Headquarters)

Percent bare ground - Openness throughout brood area (below 6")

- 10 25% to 50%
- 5 5% to 25%, or 50% to 75%
- 0 Less than 5% or more than 75%: 0 (if 0 skip to Covey Headquarters)

Screening Cover - Canopy cover above foraging broods (6 inches)

- 10 50% or more
- 8 30% to 50%
- 6 10% to 30%
- 2 1% to 10%
- 0 No herbaceous cover above height 6 inches



C. Caucu Handauartara, Woody shruba law growing stampsy trans down transitives fasthared

Part B. – Brood Habitat

2. Bare ground – open conditions (below 6 inches) at the soil surface are critical for optimal brood rearing habitat



Bare Ground





Brood Habitat

B. Brood Habitat - Herbaceous plants and bare ground that consists of new growth of forbs/weeds, annuals, minimum or no-till crops in each home range, needed from May 15 to Sept. 15.

Brood habitat quantity - Percent of the home range dominated by preferred cover.

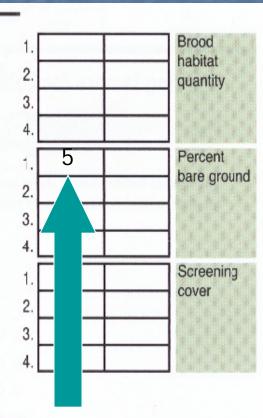
- 10 40% or more forbs/legumes, annuals or minimum/no-till crops
- 8 30% to 40% forbs/legumes, annuals or minimum/no-till crops
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- 4 10% to 20% forbs/legumes, annuals or minimum/no-till crops
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- 10 50% or more
 - 8 30% to 50%
 - 6 10% to 30%
 - 2 1% to 10%
 - 0 No herbaceous cover above height 6 inches



Part B. – Brood Habitat

3. Screening cover – the canopy of herbaceous plants above foraging broods (greater than 6 inches).





Brood Habitat

B. Brood Habitat - Herbaceous plants and bare ground that consists of new growth of forbs/weeds, annuals, minimum or no-till crops in each home range, needed from May 15 to Sept. 15.

Brood habitat quantity - Percent of the home range dominated by preferred cover.

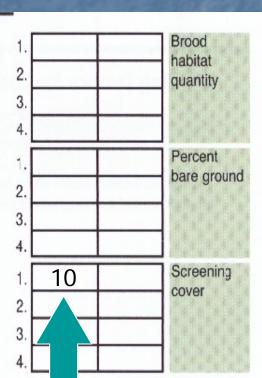
- 10 40% or more forbs/legumes, annuals or minimum/no-till crops
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- 6 20% to 30% forbs/legumes, annuals or minimum/no-till crops
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Percent bare ground - Openness throughout brood area (below 6")

- 10 25% to 50%
- 5 5% to 25%, or 50% to 75%
- 0 Less than 5% or more than 75%: 0 (if 0 skip to Covey Headquarters)

Screening Cover - Canopy cover above for a broods (6 inches)

- 10 50% or more
 - 8 30% to 50%
 - 6 10% to 30%
 - 2 1% to 10%
- No herbaceous cover above height 6 inches



Review – Brood Habitat

- Amount in home range
- Bare ground
- Overhead canopy cover



Part C. – Covey Headquarters

Consists of woody shrubs, low-growing trees, down tree structures, feathered edge. Ground cover within headquarters must be sparse.

■ 50 ft. X 30 ft. at a minimum – 1,500 sq. ft.

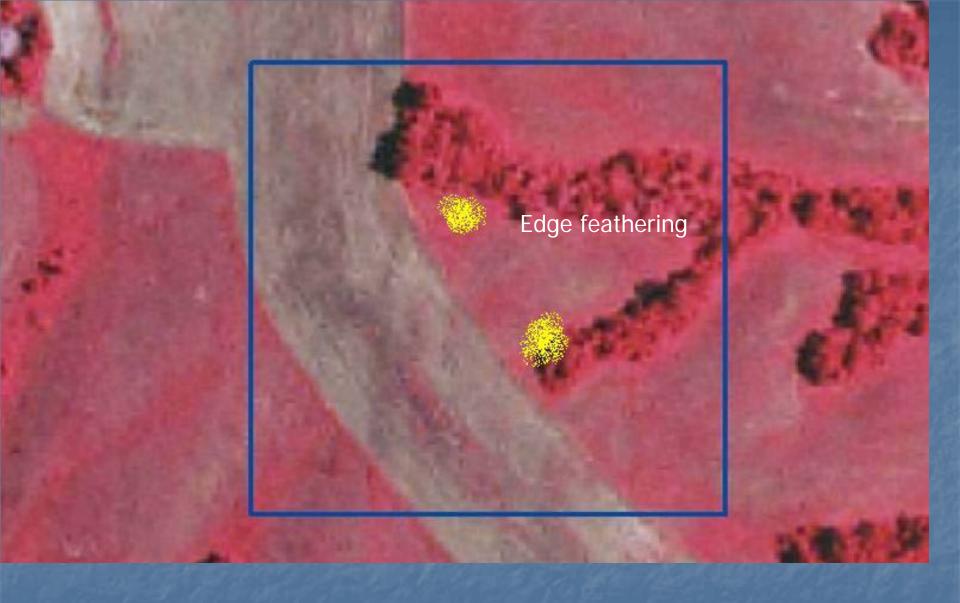
Part C. – Covey Headquarters

 Covey headquarters quantity –

% of covey headquarters in home range.

10-25% is ideal





Covey Headquarters in this example are less than 1% of the home range

Covey Headquarters

0 No herbaceous cover above height 6 inches

C. Covey Headquarters - Woody shrubs, low-growing stemmy trees, down tree structures, feathered edge. Headquarters at a minimum should be 30 feet wide by 50 feet long, or 1,500 square feet.

Covey headquarters quantity - Amount of covey headquarters in each home range.

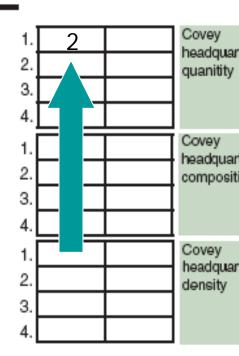
- 10 10% to 25% of home range
- 8 5% to 10% of home range
- 6 1% to 5% of home range
- 2 Less than 1% or more than 25% of home range
- No covey headquarters within the home range: 0 (If 0, then skip to next page)

Covey headquarters composition - Quality of the plant community.

- 10 Woody shrubs and low-growing stemmy trees, upright growth habitat and little ground litter
- 6 Down tree structures, tangled vines, blackberry thickets, feathered edge, little ground litter
- 2 Larger trees without extensive low growing stems, or non-upright shrubs
- 0 Headquarters with closed/rank ground vegetation or overhead tree canopy

Covey headquarters density - Canopy closure or canopy cover provided by plant structure.

- 10 60% to 80% canopy at 3 to 12 feet high
- 8 40% to 60% canopy at 3 to12 feet high
- 6 20% to 40% canopy at 3 to 12 feet high
- 2 Less than 20% canopy at 3 to 12 feet high
- 0 Canopy less than 3 feet high or more than 12 feet high or canopy more than 80%



Part C. – Covey Headquarters

2. Covey headquarters composition – measure the quality of the covey headquarters. (shrubs, edge, etc...)

Must be open at ground level



Covey Headquarters

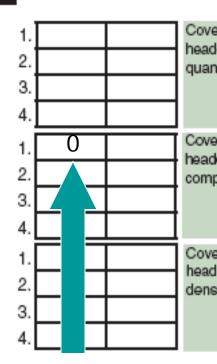
- 0 No herbaceous cover above height 6 inches
- C. Covey Headquarters Woody shrubs, low-growing stemmy trees, down tree structures, feathered edge. Headquarters at a minimum should be 30 feet wide by 50 feet long, or 1,500 square feet.
 - Covey headquarters quantity Amount of covey headquarters in each home range.
 - 10 10% to 25% of home range
 - 8 5% to 10% of home range
 - 6 1% to 5% of home range
 - 2 Less than 1% or more than 25% of home range
 - 0 No covey headquarters within the home range: 0 (If 0, then skip to next page)

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- 2 Less than 20% canopy at 3 to 12 feet high
- 0 Canopy less than 3 feet high or more than 12 feet high or canopy more than 80%



Part C. – Covey Headquarters

3. Headquarter density- canopy coverage(3-12 feet) providedby the coveyheadquarters.



Covey Headquarters

0 No herbaceous cover above height 6 inches

C. Covey Headquarters - Woody shrubs, low-growing stemmy trees, down tree structures, feathered edge. Headquarters at a minimum should be 30 feet wide by 50 feet long, or 1,500 square feet.

Covey headquarters quantity - Amount of covey headquarters in each home range.

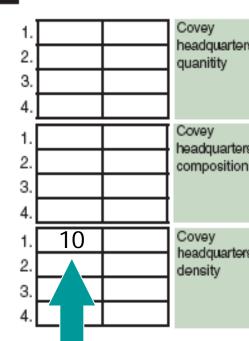
- 10 10% to 25% of home range
- 8 5% to 10% of home range
- 6 1% to 5% of home range
- 2 Less than 1% or more than 25% of home range
- 0 No covey headquarters within the home range: 0 (If 0, then skip to next page)

Covey headquarters composition - Quality of the plant community.

- 10 Woody shrubs and low-growing stemmy trees, upright growth habitat and little ground litter
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- 0 Canopy less than 3 feet high or more than 12 feet high or canopy more than 80%



Review – CHQ's

Amount in home range

- Type
- Density



Part D. - Food

- Diet consists of insects, seeds, fruits, legumes, grasses, shrubs, trees, crops.
- More than 300 food plants found in diet of MO quail.



Part D. – Food

1. Food quantity - % of the home range that provides food for quail

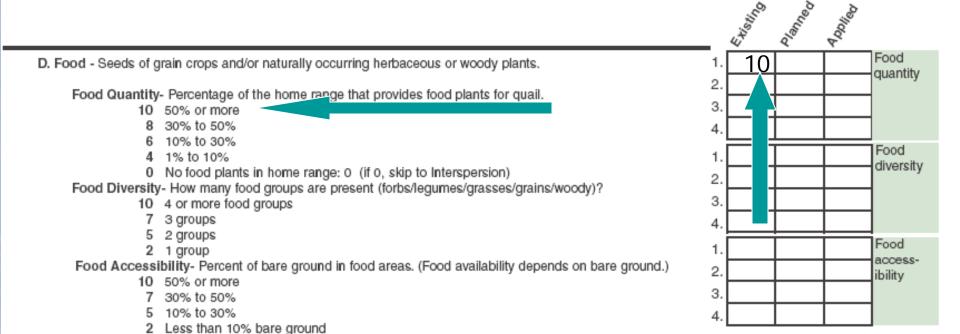
"How many food plants would you touch in 100 paces"



>50% is ideal

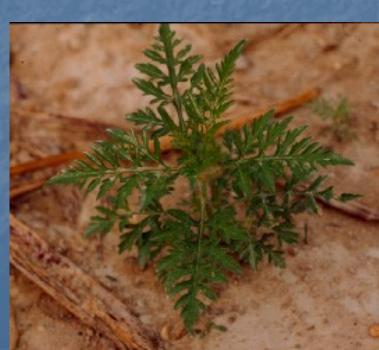


Food

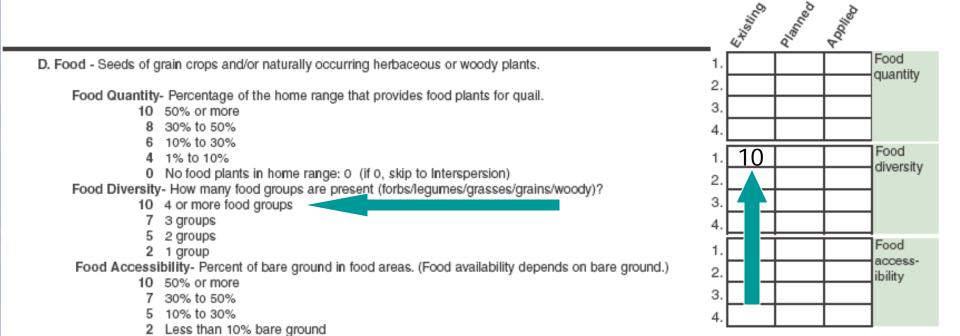


Part D. – Food

 Food diversity – Number of food groups present in home range (forbs/legumes/grasses/grains/woody)



Food



Part D. – Food

3. Food Accessibility – Bobwhites secure most of their food on the ground. Thus food must be available for use on bare ground (evaluating ground litter).



Food

			Fristing	Plane	Applied	
D. Food - Seeds of g	rain crops and/or naturally occurring herbaceous or woody plants.	1.				Food quantity
Food Quantity	Percentage of the home range that provides food plants for quail.	2.				quaritity
	50% or more	3.			l	
8	30% to 50%	4.				1
6	10% to 30%				_	Tood
4	1% to 10%	1.				Food
	No food plants in home range: 0 (if 0, skip to Interspersion)	2.				diversity
	How many food groups are present (forbs/legumes/grasses/grains/woody)?	ŀ			_	1
	4 or more food groups	3.				-
	3 groups	4.				
	2 groups	i	10			Food
	1 group	1.	<u> </u>			access-
	bility- Percent of bare ground in food areas. (Food availability depends on bare ground.)	2.				ibility
	50% or more	3.				1
_	30% to 50% 10% to 30%	ĭ.ŀ	-4			1
	Less than 10% bare ground	4.				
2	Less than 10 % vale ground				4	7.75

Review - Food

Amount in home range

Diversity

Bare ground

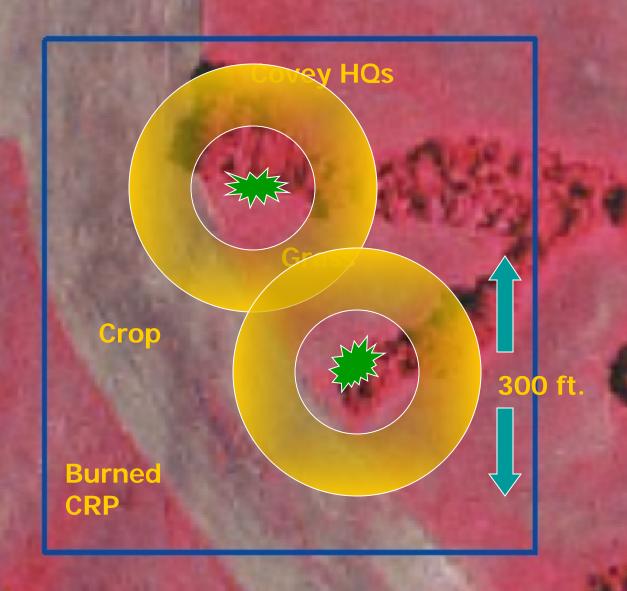


Part E. – Arrangements of Habitats

- Quail require a mix of habitats located close together.
- Use aerial photo to determine interspersion between habitat types.

Part E. – Arrangements of Habitats

1. Do nesting cover, brood cover, covey HQs and food occur within 150 feet of each other in one or more places?



Arrangement

E. Arrangement of Habitats: the spatial arrangement and mix of herbaceous and shrubby cover is an important consideration in determining the quality of the habitat components, including nesting and brood-rearing cover, protective escape cover and food.

Rating criteria for arrangement of habitats

Do nesting cover, brood cover, covey headquarters and food occur within 150 feet of each

other? 10...ves

5...within 660 feet

0....no

Distance to covey headquarters. What proportion of the area is within 150 feet of a covey headquarters?

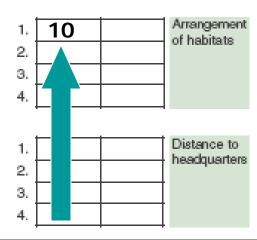
10..... > 80%

8.....>60 to 79%

6.....>40 to 59%

4.....>20 to 39%

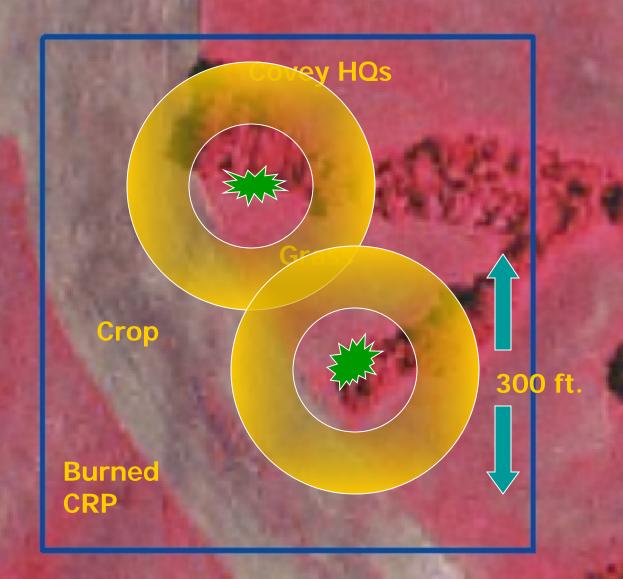
0..... <20%



Part E. – Arrangements of Habitats

2. Percent of the field within 150' of covey HQ?

About 30%



Arrangement

E. Arrangement of Habitats: the spatial arrangement and mix of herbaceous and shrubby cover is an important consideration in determining the quality of the habitat components, including nesting and brood-rearing cover, protective escape cover and food.

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Do nesting cover, brood cover, covey headquarters and food occur within 150 feet of each

other?

10...yes

5...within 660 feet

0....no

Distance to covey headquarters. What proportion of the area is within 150 feet of a covey headquarters?

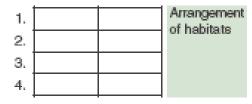
10..... >80%

8.....>60 to 79%

6.....>40 to 59%

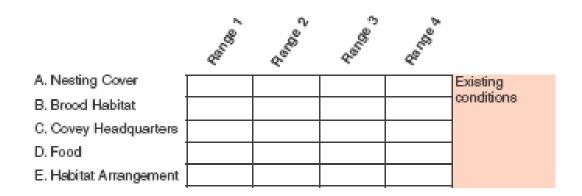
4.....>20 to 39%

0..... <20%



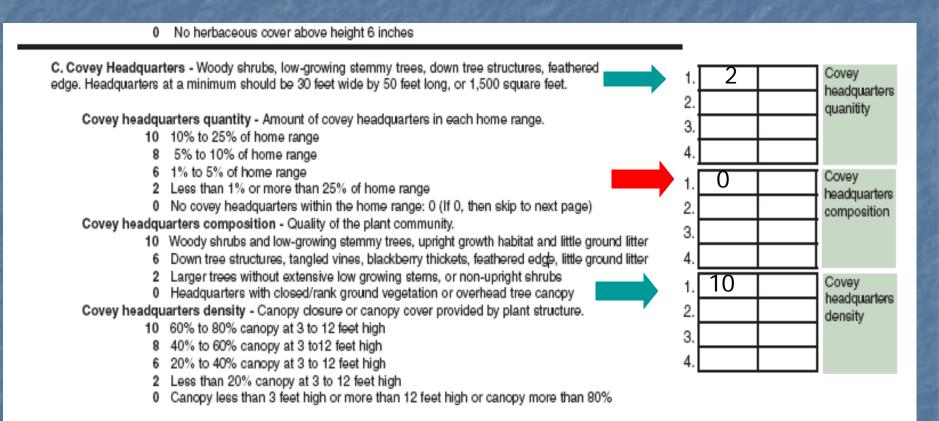


Limiting Factors



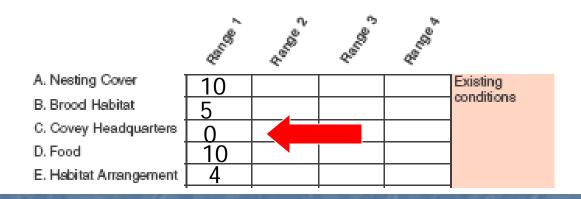
Enter the lowest value under each habitat component (A-E).

In this example, the lowest value for Covey Headquarters is 0....



Enter the lowest figure for each category, A-E

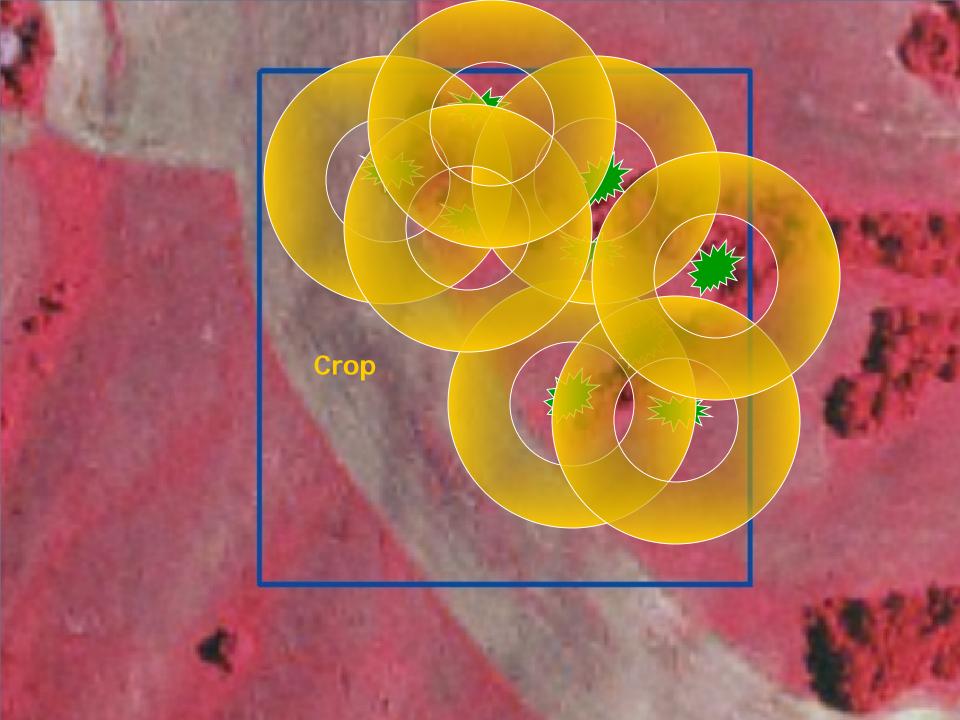
The lowest limiting factor value equals the habitat component that requires the greatest attention. A wildlife biologist can help you interpret habitat scores, and a management plan can be created to correct deficiencies.



This home range may not hold quail due to unsuitable covey headquarters and poor dispersion, brood habitat could be improved too.

WHAT NOW?

- This home range has good nesting and food sources
- Covey Headquarters and Habitat Arrangement both scored low and should be addressed, brood habitat too.
 - Treat fescue in existing CHQ's and increase number and dispersion, manage CRP to favor brood habitat

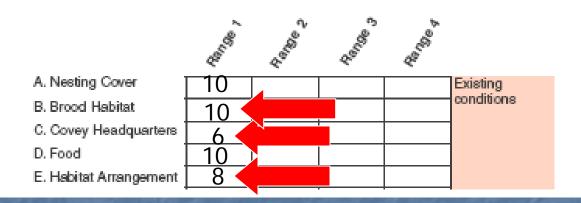


Improve brood habitat to 25-50% bare ground

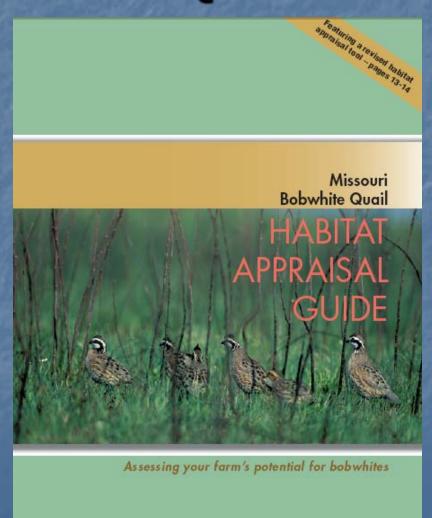
CHQ increased from <1% to 1-5%

Usable space increased to >60-79%

The lowest limiting factor value equals the habitat component that requires the greatest attention. A wildlife biologist can help you interpret habitat scores, and a management plan can be created to correct deficiencies.



Bobwhite Quail Habitat Appraisal Guide – Questions?



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MP902