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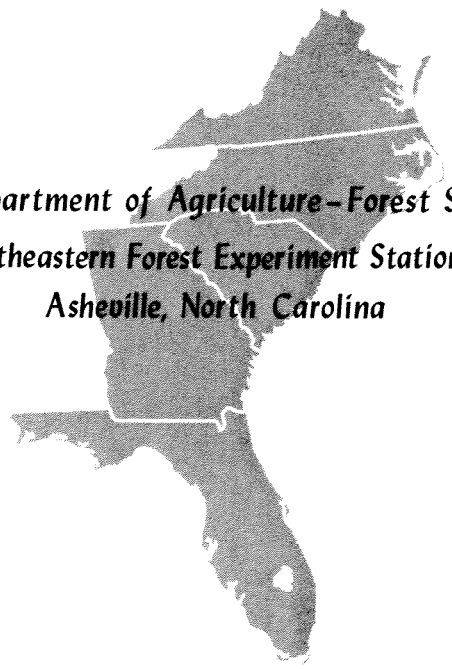

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A knowledge of the relative capacity of major forest types to support various wildlife species is of great value in deciding where and when to conduct intensive habitat and game management programs. Browse production and utilization data are useful in determining carrying capacity values and relative distribution of deer. In an effort to obtain this information on the Uwharrie National Forest, a survey was conducted using a procedure developed earlier in Georgia.[1] This procedure makes use of the continuous forest inventory as a sampling vehicle.

The National Forest in North Carolina made such an inventory of timber resources on the Uwharrie from October 1962 through May 1963. Although this survey was designed primarily to yield information on timber resources, it also provided an excellent opportunity to economically sample wildlife habitat resources. The survey determined age, volume, growth, etc. of timber species in the overstory through a plotless cruise. Ten circular plots, spaced systematically in a 1-acre area, served as sampling points for measuring regeneration, competing vegetation, etc. These same points were used to sample wildlife habitat resources. Habitat measurements involved frequency sampling for occurrence and utilization of woody understory plants, and estimates of weight of annual growth.

The 43,391-acre Uwharrie National Forest is located in Randolph, Montgomery, and Stanley Counties, and is typical of the North Carolina Piedmont. The Uwharrie Cooperative Wildlife Management Area, comprising approximately 11,000 acres of the forest, has been intensively managed since 1944. Here, wildlife resources are cooperatively managed by the Uwharrie National Forest and the North Carolina Wildlife Resources Commission.

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[1] Moore, William H., Ripley, Thomas H., and Clutter, Jerome L. Trials to determine relative deer range carrying capacity values in connection with the Georgia Forest Survey. Fourteenth Ann. Conf. Southeast. Assoc. Game and Fish Commrs. Proc. 1960: 98-104.

Methods

Eleven major forest types were chosen as sampling strata:

I. Pines: Southern yellow pines compose 50 percent or more of the stand

A. Longleaf pine--Longleaf pine predominates

B. Loblolly pine--Loblolly pine predominates

C. Shortleaf pine--Shortleaf pine predominates

II. Pine-hardwoods: Southern yellow pines compose 25 to 49 percent of the stand, and the remainder is hardwoods

A. Longleaf pine-hardwood--Longleaf is the predominant southern yellow pine

B. Loblolly pine-hardwood--Loblolly is the predominant southern yellow pine

C. Shortleaf pine-hardwood--Shortleaf is the predominant southern yellow pine

D. Virginia pine-hardwood--Virginia is the predominant southern yellow pine

III. Upland hardwoods: Upland hardwoods, with oaks, hickories, and sweetgum usually predominating, compose 75 percent or more of the stand

A. Oak-hickory-gum--Major species are northern red oak, scarlet oak, chestnut oak, mockernut hickory, and sweetgum

B. Other upland hardwoods--

1. White oak-other hardwoods--Major species of white oak, northern red oak, and hickory
2. Scrub oaks--Primarily scrub red oaks
3. Post oak--Post oak and black oak

Over 43,000 acres were sampled using 176 locations (table 1). These types were further stratified by age class (even or mixed), stand size (poletimber or sawtimber), and management class (inside or outside the game management area).

Timber Management Survey crews were trained to recognize understory plant species. After a plotless cruise was completed, browse resource measurements were taken. For this purpose, 10 systematically arranged cylindrical plots, 1/500 acre in area and $4\frac{1}{2}$ feet high, were used at each location. Presence of woody plants was observed and recorded by species (up to 6). Each species was assigned one of the four browse preference rankings:

Desirables

1. Preferred--Delicacies or "candy" species. These are the first species consumed by deer. They are usually highly nutritive.

2. Staple--Foundation or "bread and butter" species. These constitute the bulk of deer diet on good range. They are high in nutritive value and provide for normal animal weight gain and reproduction.

Undesirables

3. Emergency--Life-sustaining species. These provide a large part of the diet on overstocked ranges. They are generally low in nutritive value and produce little or no animal weight gain, and animal reproduction is usually low.

4. Stuffing--Starvation species. These plants have little or no food value. Animals continually lose weight and animal reproduction is very low, if they are a major part of the diet. Some may even be toxic.

Table 1.--Forest types sampled, showing codes, number of locations sampled, and total area for each

Forest type	Identification code	Locations sampled		Total area	
		Number		- - Acres - -	
I. Pines			36		16,492
A. Longleaf pine	01	4		1,659	
B. Loblolly pine	13	7		4,635	
C. Shortleaf pine	14	25		10,198	
II. Pine-hardwoods			53		8,813
A. Longleaf pine-hardwood	41	1		193	
B. Loblolly pine-hardwood	43	4		88	
C. Shortleaf pine-hardwood	44	44		8,334	
D. Virginia pine-hardwood	45	4		198	
III. Upland hardwoods			87		18,086
A. Oak-hickory-gum	51	46		11,615	
B. Other upland hardwoods					
1. White oak-other hardwoods	52	35		4,665	
2. Scrub oaks	53	3		900	
3. Post oaks	54	3		906	
Total National Forest area			176		43,391

Weight of the annual growth (browse) available to deer was estimated and the presence or absence of deer use was noted. Estimates of browse weight were expressed as pounds-per-acre dry weight. These

estimates were made with the aid of photograph standards described by Ripley and McClure.[2] Estimates were made to the nearest 10 pounds per acre.

Plot data were summarized by preference class, averaged for the location, and viewed as a single observation (cluster sample). Percent occurrence, percent utilization, and browse weight were examined for differences between major forest types, age classes (even vs. mixed), stand size (poletimber vs. sawtimber), and management classes (in management area vs. other) using analyses of variance computations.

Results and Discussion

Sample means of the three understory variables (occurrence, utilization, and weight) are presented in the appendix. A summary of these means is shown in tables 2 through 5 together with the number of locations taken and the average number of woody species encountered. Significant differences existed only when management class was considered (tables 4 and 5). Generally speaking, plots taken inside the wildlife management area were browsed heavier, contained fewer species, and had less desirable browse than plots taken outside the management area. The only significant difference between the various forest types occurred inside the management area. Pine stands had heavier use, more desirable browse, and a greater number of species than did other types within the management area. By chance, location of one of the five samples fell within a large Japanese honeysuckle patch which was heavily browsed by deer. This undoubtedly accounts for the high weight of desirable browse and heavy use. It is suspected that this small sample was not representative of pine stands. Past experience indicates that samples with less than 20 observations (locations) are weak. Nevertheless, the data reflect heavy use and higher deer populations within the wildlife management area than in the other forest areas. Browsing pressure is approximately seven times higher in the management area (20 percent vs. 3 percent), whereas desirable browse supplies are less than one-third as plentiful (7 pounds/acre vs. 24 pounds/acre). Furthermore, the species abundance of woody understory plants on the management area is about one-half that of surrounding areas (2.7 vs. 4.5 species per plot).

Table 2.--Occurrence, utilization, and weight of desirable deer browse for overstory age classes sampled

Age class (all stands)	Locations sampled	Occurrence (plots occupied)	Utilization	Browse weight	Species per plot[1]
	Number	Percent	Percent	Pounds/acre	Average number
Even	26	93	6	13	4.1
Mixed	150	95	5	21	4.1

[1] Includes all woody plants.

[2] Ripley, Thomas H., and McClure, Joe P. Deer browse resources of north Georgia. Southeast. Forest Exp. Sta., U. S. Forest Serv. Resource Bull. SE-2, 20 pp. 1963.

Table 3.--Occurrence, utilization, and weight of desirable deer browse for stand size by forest type

Forest type	Stand size	Locations sampled	Occurrence (plots occupied)	Utilization	Browse weight	Species per plot[1]
		Number	Percent	Percent	Pounds/acre	Average number
Pine stands:	Sawtimber	28	98	8	32	4.4
	Poletimber	4	100	7	20	3.9
Pine-hardwood:	Sawtimber	37	94	6	22	4.3
	Poletimber	15	89	7	29	4.1
Oak-hickory-gum:	Sawtimber	27	91	4	16	3.7
	Poletimber	17	95	3	11	4.1
All upland hardwoods:[2]	Sawtimber	51	92	4	14	3.7
	Poletimber	33	95	5	12	4.0
Total	Sawtimber	116	94	6	21	4.1
	Poletimber	52	94	5	18	4.0

[1] Includes all woody plants.
[2] Includes the oak-hickory-gum type.

Table 4.--Occurrence, utilization, and weight of desirable deer browse for game management class by forest type

Forest type	Game management class	Locations sampled	Occurrence (plots occupied)	Utilization	Browse weight	Species per plot[1]
		Number	Percent	Percent	Pounds/acre	Average number
Pine stands:	In mgt. area	5	98	55*	19	4.2
	Out of mgt. area	31	98	3	30	4.4
Pine-hardwood:	In mgt. area	10	66	19*	5	2.6
	Out of mgt. area	43	97*	4	29*	4.8*
Oak-hickory-gum:	In mgt. area	13	74	17*	4	2.3
	Out of mgt. area	33	98*	1	18	4.5*
All upland hardwoods:[2]	In mgt. area	24	80	14*	5	2.4
	Out of mgt. area	63	97*	2	16*	4.4*
Total	In mgt. area	39	80	20*	7	2.7
	Out of mgt. area	137	97*	3	24*	4.5*

[1] Includes all woody plants.
[2] Includes the oak-hickory-gum type.

Note: Means indicated by asterisk (*) are significantly higher than the other mean within the comparison at or above the 10-percent level.

Ripley and McClure (op. cit.) estimated that a total of 625 pounds of browse is required per deer to avoid exceeding the "safe" utilization rate of 40 percent of the current annual growth. If each animal consumes 2.5 pounds per day through the 100-day "pinch" period (250 pounds total), he should leave 375 pounds (60 percent) to prevent damage to the plant.

Table 5.--Occurrence, utilization, and weight of desirable deer browse for forest type by game management class

Game management class	Forest type	Locations sampled	Occurrence (plots occupied)	Utilization	Browse weight	Species per plot[1]
		Number	Percent	Percent	Pounds/acre	Average number
In mgt. area:	Pine	5	98	55*	19*	4.2*
	Pine-hardwood	10	66	19	5	2.6
	Oak-hickory-gum	13	74	17	4	2.3
	Other upland hardwoods	11	85	11	6	2.6
Out of mgt. area:	Pine	31	98	3	30	4.4
	Pine-hardwood	43	97	4	29	4.8
	Oak-hickory-gum	33	98	1	18	4.5
	Other upland hardwoods	30	96	3	15	4.3
Total	Pine	36	98	7	--	--
	Pine-hardwood	53	93	6	--	--
	Oak-hickory-gum	46	93	4	--	--
	Other upland hardwoods	41	94	5	--	--

[1] Includes all woody plants.

Note: Means indicated by asterisk (*) are significantly higher than the other mean within the comparison at or above the 10-percent level.

An average of 7 pounds of desirable browse per acre was found in the wildlife management area and 24 pounds per acre outside the management area. Therefore, it takes approximately 89 acres in the management area and 26 acres outside the management area to carry each deer (table 6); a total of approximately 125 animals for the 11,000-acre management area and 1,270 for the 33,000 acres of surrounding forest area. The availability of fruit and mast and the intensive grass and clover pasture program carried out by the North Carolina Wildlife Resources Commission undoubtedly lowers the acreage requirement within the management area to some extent. Nevertheless, the overwinter population was apparently much larger than desirable, probably exceeding the optimum by as many as 600 animals. Browse use obviously far exceeds the 40 percent optimum, and range deterioration is apparent. Differences in percent occurrence and average number of species per plot (tables 4 and 5) indicate a number of species may be completely missing in the management area, and one might surmise that this also is the result of heavy use by deer.

Table 6.--Computed carrying capacity values of the forest types sampled for National Forest lands in and out of the Wildlife Management Area

Forest type	In management area	Outside management area
	- - - - - - Acres per deer - - - - - -	
Pine stands	34	21
Pine-hardwood	125	22
Oak-hickory-gum	156	35
Other upland hardwoods	104	42
All stands	89	26

APPENDIX

Table 7.--Occurrence, utilization, and weight of deer browse resources by preference class for all ages

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	Even ages (n = 26)*	Mixed ages (n = 150)	Probability of a difference	Even ages (n = 26)	Mixed ages (n = 150)	Probability of a difference	Even ages (n = 26)	Mixed ages (n = 150)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	16	12	n.s.	17	15	n.s.			
2	93	92	n.s.	3	3	n.s.			
Desirable	93	95	n.s.	6	5	n.s.	13	21	n.s.
3	85	86	n.s.	Tr.	Tr.	--			
4	44	49	n.s.	Tr.	Tr.	--			
Undesirable	94	95	n.s.	Tr.	Tr.	--	13	26	--
Total	100	100	n.s.	3	3	n.s.	26	47	n.s.

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 8.--Frequency distribution, utilization, and weight of deer browse resources by preference class for stand size

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	Saw-timber (n = 116)*	Pole-timber (n = 52)	Probability of a difference	Saw-timber (n = 116)	Pole-timber (n = 52)	Probability of a difference	Saw-timber (n = 116)	Pole-timber (n = 52)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	13	12	n.s.	16	17	n.s.			
2	93	91	n.s.	3	2	n.s.			
Desirable	94	94	n.s.	6	5	n.s.	21	18	n.s.
3	84	87	n.s.	Tr.	Tr.	--			
4	48	45	n.s.	Tr.	Tr.	--			
Undesirable	94	95	n.s.	Tr.	Tr.	n.s.	25	20	--
Total	100	100	n.s.	3	3	n.s.	46	38	n.s.

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 9.--Frequency distribution, utilization, and weight of deer browse resources by preference class for stand size on pine sites

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	Saw-timber (n = 28)*	Pole-timber (n = 4)	Probability of a difference	Saw-timber (n = 28)	Pole-timber (n = 4)	Probability of a difference	Saw-timber (n = 28)	Pole-timber (n = 4)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	22	49	n.s.	28	47	n.s.			
2	96	97	n.s.	4	Tr.	n.s.			
Desirable	98	100	n.s.	8	7	n.s.	32	20	n.s.
3	83	73	n.s.	Tr.	0	--			
4	56	36	n.s.	Tr.	0	--			
Undesirable	94	83	n.s.	Tr.	0	--	30	10	--
Total	100	100	n.s.	5	5	n.s.	62	30	n.s.

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 10.--Frequency distribution, utilization, and weight of deer browse resources by preference class for stand size on pine-hardwood sites

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	Saw-timber (n = 37)*	Pole-timber (n = 15)	Probability of a difference	Saw-timber (n = 37)	Pole-timber (n = 15)	Probability of a difference	Saw-timber (n = 37)	Pole-timber (n = 15)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	13	13	n.s.	15	14	n.s.			
2	93	85	n.s.	4	2	n.s.			
Desirable	94	89	n.s.	6	7	n.s.	22	29	n.s.
3	88	93	n.s.	1	Tr.	n.s.			
4	48	46	n.s.	Tr.	Tr.	--			
Undesirable	97	98	n.s.	Tr.	Tr.	--	20	39	--
Total	100	100	n.s.	4	3	n.s.	42	68	n.s.

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 11.--Frequency distribution, utilization, and weight of deer browse resources by preference class for stand size on oak-hickory-gum sites

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	Saw-timber (n = 27)*	Pole-timber (n = 17)	Probability of a difference	Saw-timber (n = 27)	Pole-timber (n = 17)	Probability of a difference	Saw-timber (n = 27)	Pole-timber (n = 17)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	8	8	n.s.	7	13	n.s.			
2	89	93	n.s.	2	2	n.s.			
Desirable	91	95	n.s.	4	3	n.s.	16	11	n.s.
3	85	83	n.s.	Tr.	Tr.	--			
4	43	52	n.s.	0	0	--			
Undesirable	93	92	n.s.	Tr.	Tr.	--	37	10	--
Total	99	99	n.s.	2	2	n.s.	53	21	n.s.

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 12.--Frequency distribution, utilization, and weight of deer browse resources by preference class for stand size on all hardwood sites

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	Saw-timber (n = 51)*	Pole-timber (n = 33)	Probability of a difference	Saw-timber (n = 51)	Pole-timber (n = 33)	Probability of a difference	Saw-timber (n = 51)	Pole-timber (n = 33)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	9	8	n.s.	10	16	n.s.			
2	90	93	n.s.	2	2	n.s.			
Desirable	92	95	n.s.	4	5	n.s.	14	12	n.s.
3	82	86	n.s.	Tr.	Tr.	--			
4	43	46	n.s.	Tr.	Tr.	--			
Undesirable	91	94	n.s.	Tr.	Tr.	--	27	14	--
Total	99	100	n.s.	2	3	n.s.	41	26	n.s.

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 13.--Frequency distribution, utilization, and weight of deer browse resources by preference class for management class

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	In mgt. area (n = 39)*	Out of mgt. area (n = 137)	Probability of a difference	In mgt. area (n = 39)	Out of mgt. area (n = 137)	Probability of a difference	In mgt. area (n = 39)	Out of mgt. area (n = 137)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	12	12	n.s.	34	11	97.5			
2	75	96	99.5	13	1	99.5			
Desirable	80	97	99.5	20	3	99.5	7	24	99.5
3	71	89	99.5	2	Tr.	99.5			
4	30	53	99.5	Tr.	Tr.	--			
Undesirable	86	96	99.5	1	Tr.	99.5	13	27	--
Total	99	100	99.5	11	2	99.5	20	51	97.5

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 14.--Frequency distribution, utilization, and weight of deer browse resources by preference class for management class on pine sites

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	In mgt. area (n = 5)*	Out of mgt. area (n = 31)	Probability of a difference	In mgt. area (n = 5)	Out of mgt. area (n = 31)	Probability of a difference	In mgt. area (n = 5)	Out of mgt. area (n = 31)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	59	19	97.5	94	14	99.5			
2	92	97	n.s.	41	1	99.5			
Desirable	98	98	n.s.	55	3	99.5	19	30	n.s.
3	77	84	n.s.	3	Tr.	99.0			
4	56	55	n.s.	0	Tr.	--			
Undesirable	95	94	n.s.	2	Tr.	95.0	33	26	--
Total	100	100	n.s.	35	2	99.5	52	56	n.s.

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 15.--Frequency distribution, utilization, and weight of deer browse resources by preference class for management class on pine-hardwood sites

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	In mgt. area (n = 10)*	Out of mgt. area (n = 43)	Probability of a difference	In mgt. area (n = 10)	Out of mgt. area (n = 43)	Probability of a difference	In mgt. area (n = 10)	Out of mgt. area (n = 43)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	15	12	n.s.	38	10	n.s.			
2	61	95	99.5	13	2	99.5			
Desirable	66	97	99.5	19	4	99.5	5	29	90.0
3	77	92	97.5	2	Tr.	99.0			
4	30	53	95.0	0	Tr.	--			
Undesirable	91	98	99.0	1	Tr.	90.0	17	29	--
Total	99	100	99.5	11	2	99.5	22	58	90.0

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 16.--Frequency distribution, utilization, and weight of deer browse resources by preference class for management class on oak-hickory-gum sites

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	In mgt. area (n = 13)*	Out of mgt. area (n = 33)	Probability of a difference	In mgt. area (n = 13)	Out of mgt. area (n = 33)	Probability of a difference	In mgt. area (n = 13)	Out of mgt. area (n = 33)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	4	9	n.s.	31	5	90.0			
2	70	97	99.5	10	Tr.	99.5			
Desirable	74	98	99.5	17	1	99.5	4	18	n.s.
3	69	91	99.5	1	0	--			
4	21	58	99.5	0	0	--			
Undesirable	79	97	99.5	1	0	--	8	33	--
Total	98	100	n.s.	8	1	99.5	12	51	n.s.

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 17.--Frequency distribution, utilization, and weight of deer browse resources by preference class for management class on all hardwood sites

Browse preference classes	Distribution of plots occupied			Distribution of browse classes utilized			Browse weight		
	In mgt. area (n = 24)*	Out of mgt. area (n = 63)	Probability of a difference	In mgt. area (n = 24)	Out of mgt. area (n = 63)	Probability of a difference	In mgt. area (n = 24)	Out of mgt. area (n = 63)	Probability of a difference
	- - - - Percent - - - -			- - - - Percent - - - -			Pounds per acre		Percent
1	5	9	n.s.	20	10	n.s.			
2	76	96	99.5	8	1	99.5			
Desirable	80	97	99.5	14	2	99.5	5	16	97.5
3	67	89	99.5	1	Tr.	99.5			
4	26	52	99.5	Tr.	Tr.	--			
Undesirable	81	96	99.5	1	Tr.	99.5	7	27	--
Total	99	100	n.s.	7	1	99.5	12	43	n.s.

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 18.--Frequency distribution and utilization of deer browse resources by preference class for forest type

Browse preference classes	Distribution of plots occupied					Distribution of browse classes utilized				
	Pine (n = 36)*	Pine-hardwood (n = 53)	Oak-hickory-gum (n = 46)	Other hard-woods (n = 41)	Probability of a difference	Pine (n = 36)	Pine-hardwood (n = 53)	Oak-hickory-gum (n = 46)	Other hard-woods (n = 41)	Probability of a difference
	- - - - - - - - - Percent - - - - - - - - -					- - - - - - - - - Percent - - - - - - - - -				
1	24	13	8	9	97.5	24	14	10	16	n.s.
2	96	91	91	92	n.s.	3	3	2	2	n.s.
Desirable	98	93	93	94	n.s.	7	6	4	5	n.s.
3	83	90	86	82	n.s.	Tr.	Tr.	Tr.	Tr.	n.s.
4	55	49	47	42	n.s.	Tr.	Tr.	0	Tr.	n.s.
Undesirable	94	97	93	92	n.s.	Tr.	Tr.	Tr.	Tr.	--
Total	100	100	99	100	n.s.	4	3	2	3	n.s.

* Number of locations.
Tr. = Trace (less than .05 percent).
See text for browse class explanation.

Table 19.--Frequency distribution, utilization, and weight of deer browse resources by preference class for forest type in the management area

Browse preference classes	Distribution of plots occupied					Distribution of browse classes utilized					Browse weight				
	Pine (n = 5)*	Pine-hardwood (n = 10)	Oak-hickory-gum (n = 13)	Other hard-woods (n = 11)	Probability of a difference	Pine (n = 5)	Pine-hardwood (n = 10)	Oak-hickory-gum (n = 13)	Other hard-woods (n = 11)	Probability of a difference	Pine (n = 5)	Pine-hardwood (n = 10)	Oak-hickory-gum (n = 13)	Other hard-woods (n = 11)	Probability of a difference
	Percent					Percent					Pounds per acre				Percent
1	59	15	4	7	99.5	94	38	31	10	90.0					
2	92	61	70	82	n.s.	41	13	10	6	n.s.					
Desirable	98	66	74	85	n.s.	55	19	17	11	90.0	19	5	4	6	99.0
3	77	77	69	65	n.s.	3	2	1	2	n.s.					
4	56	30	21	32	n.s.	0	0	0	Tr.	--					
Undesirable	95	91	79	83	n.s.	2	1	1	2	n.s.	35	17	8	7	--
Total	100	99	98	100	n.s.	35	11	8	6	97.5	54	22	12	13	97.5

* Number of locations.

Tr. = Trace (less than .05 percent).

See text for browse class explanation.

Table 20.--Frequency distribution, utilization, and weight of deer browse resources by preference class for forest type out of the management area

Browse preference classes	Distribution of plots occupied					Distribution of browse classes utilized					Browse weight				
	Pine (n = 31)*	Pine-hardwood (n = 43)	Oak-hickory-gum (n = 33)	Other hard-woods (n = 30)	Probability of a difference	Pine (n = 31)	Pine-hardwood (n = 43)	Oak-hickory-gum (n = 33)	Other hard-woods (n = 30)	Probability of a difference	Pine (n = 31)	Pine-hardwood (n = 43)	Oak-hickory-gum (n = 33)	Other hard-woods (n = 30)	Probability of a difference
	Percent					Percent					Pounds per acre				Percent
1	19	12	9	10	n.s.	14	10	5	18	n.s.					
2	97	95	97	95	n.s.	1	2	Tr.	1	n.s.					
Desirable	98	97	98	96	n.s.	3	4	1	3	n.s.	30	29	18	15	n.s.
3	84	92	91	87	n.s.	Tr.	Tr.	0	Tr.	--					
4	55	53	58	46	n.s.	Tr.	Tr.	0	Tr.	--					
Undesirable	94	98	97	95	90.0	Tr.	Tr.	0	Tr.	--	26	29	33	19	--
Total	100	100	100	100	n.s.	2	2	1	2	n.s.	56	58	51	34	n.s.

* Number of locations.

Tr. = Trace (less than .05 percent).

See text for browse class explanation.

Table 21.--Species dominant on one or more plots, by forest type and management class

PINE STANDS

Browse species		Game management class					
		In management area (n = 5)		Out of management area (n = 31)		Total area (n = 36)	
		Plots occupied	Occupied plots used	Plots occupied	Occupied plots used	Plots occupied	Occupied plots used
		Percent					
Desirable: Preferred							
Japanese honeysuckle	Lonicera japonica Thunb.	18.0	88.9	5.5	35.3	7.2	53.8
Greenbrier	Smilax spp.	4.0	50.0	1.0	33.3	1.4	40.0
Desirable: Staple							
Azalea	Rhododendron spp.	0.0	--	0.6	50.0	0.6	50.0
Blackgum	Nyssa sylvatica Marsh.	0.0	--	13.6	2.4	11.7	2.4
Flowering dogwood	Cornus florida L.	14.0	42.9	10.0	9.7	10.6	15.8
Fringetree	Chionanthus virginicus L.	0.0	--	0.3	0.0	0.3	0.0
Grape	Vitis spp.	2.0	0.0	1.0	0.0	1.1	0.0
Hard maple	Acer saccharum Marsh.	0.0	--	0.0	--	0.0	--
Soft maple	A. rubrum L., A. negundo L.	4.0	100.0	10.6	0.0	9.7	5.7
Serviceberry	Amelanchier spp.	0.0	--	0.0	--	0.0	--
Sourwood	Oxydendrum arboreum (L.) DC.	4.0	100.0	7.7	8.3	7.2	15.4
Sweet-shrub	Calycanthus floridus L.	0.0	--	0.0	--	0.0	--
Viburnum	Viburnum spp.	0.0	--	0.3	0.0	0.3	0.0
White ash	Fraxinus americana L.	0.0	--	0.0	--	0.0	--
Other ash	Fraxinus spp.	0.0	--	0.0	--	0.0	--
Witch-hazel	Hamamelis virginiana L.	0.0	--	0.0	--	0.0	--
Yellow jessamine	Gelsemium sempervirens (L.) Ait. f.	0.0	--	0.0	--	0.0	--
Yellow-poplar	Liriodendron tulipifera L.	2.0	0.0	0.0	--	0.3	0.0
Undesirable: Emergency							
Black oak	Quercus velutina Lam.	0.0	--	0.6	0.0	0.6	0.0
Chestnut oak	Q. prinus L.	0.0	--	1.0	0.0	0.8	0.0
Post oak	Q. stellata Wangenh.	0.0	--	0.6	0.0	0.6	0.0
Scarlet oak	Q. coccinea Muenchh.	0.0	--	1.0	0.0	0.8	0.0
Scrub red oaks	Quercus spp.	0.0	--	1.3	0.0	1.1	0.0
Southern red oak	Q. falcata Michx.	0.0	--	0.3	0.0	0.3	0.0
Water & willow oak	Q. nigra L. & Q. phellos L.	0.0	--	0.0	--	0.0	--
White oak	Q. alba L.	0.0	--	1.0	0.0	0.8	0.0
Black cherry	Prunus serotina Ehrh.	0.0	--	0.0	--	0.0	--
Other cherries	Prunus spp.	0.0	--	0.0	--	0.0	--
Blueberries	Vaccinium spp.	0.0	--	4.8	0.0	4.2	0.0
Common sweetleaf	Symplocos tinctoria (L.) L'Her.	0.0	--	0.0	--	0.0	--
Common persimmon	Diospyros virginiana L.	0.0	--	0.3	0.0	0.3	0.0
Cucumbertree	Magnolia acuminata L.	0.0	--	0.0	--	0.0	--
Other magnolias	Magnolia spp.	0.0	--	0.0	--	0.0	--
Eastern redcedar	Juniperus virginiana L.	0.0	--	4.5	0.0	3.9	0.0
Eastern redbud	Cercis canadensis L.	0.0	--	0.0	--	0.0	--
Mountain-laurel	Kalmia latifolia L.	0.0	--	1.3	0.0	1.1	0.0
Sweetgum	Liquidambar styraciflua L.	10.0	0.0	4.8	0.0	5.6	0.0
Undesirable: Stuffing							
Alder	Alnus spp.	0.0	--	0.0	--	0.0	--
American beech	Fagus grandifolia Ehrh.	2.0	0.0	0.0	--	0.3	0.0
American holly	Ilex opaca Ait.	38.0	0.0	8.4	0.0	12.5	0.0
American hornbeam (Bluebeech)	Carpinus caroliniana Walt.	0.0	--	1.0	0.0	0.8	0.0
Buckeye	Aesculus spp.	0.0	--	0.0	--	0.0	--
Eastern hophornbeam	Ostrya virginiana (Mill.) K. Koch	0.0	--	0.0	--	0.0	--
Elm	Ulmus spp.	0.0	--	0.0	--	0.0	--
Hackberry	Celtis spp.	0.0	--	0.0	--	0.0	--
Hawthorn	Crataegus spp.	0.0	--	0.3	0.0	0.3	0.0
Hickory	Carya spp.	0.0	--	1.3	25.0	1.1	25.0
Loblolly pine	Pinus taeda L.	0.0	--	5.2	0.0	4.4	0.0
Longleaf pine	P. palustris Mill.	0.0	--	1.0	6.2	0.8	5.9
Shortleaf pine	P. echinata Mill.	2.0	0.0	5.2	0.0	4.7	0.0
Virginia pine	P. virginiana Mill.	0.0	--	0.3	0.0	0.3	0.0
Virginia creeper	Parthenocissus quinquefolia (L.) Planch.	0.0	--	0.0	--	0.0	--

Table 21.--Species dominant on one or more plots, by forest type and management class (continued)

PINE-HARDWOOD

Browse species		Game management class					
		In management area (n = 10)		Out of management area (n = 43)		Total area (n = 53)	
		Plots occupied	Occupied plots used	Plots occupied	Occupied plots used	Plots occupied	Occupied plots used
		Percent					
Desirable: Preferred							
Japanese honeysuckle	*Lonicera japonica* Thunb.	0.0	--	4.2	55.6	3.4	55.6
Greenbrier	*Smilax* spp.	3.0	66.7	2.6	36.4	2.6	42.9
Desirable: Staple							
Azalea	*Rhododendron* spp.	1.0	0.0	1.6	0.0	1.5	0.0
Blackgum	*Nyssa sylvatica* Marsh.	1.0	0.0	13.7	8.8	11.3	8.3
Flowering dogwood	*Cornus florida* L.	7.0	0.0	9.5	0.0	9.1	0.0
Fringetree	*Chionanthus virginicus* L.	0.0	--	0.0	--	0.0	--
Grape	*Vitis* spp.	2.0	0.0	0.2	0.0	0.6	0.0
Hard maple	*Acer saccharum* Marsh.	8.0	0.0	0.0	--	1.5	0.0
Soft maple	*A. rubrum* L., *A. negundo* L.	5.0	20.0	9.1	0.0	8.3	2.3
Serviceberry	*Amelanchier* spp.	0.0	--	0.0	--	0.0	--
Sourwood	*Oxydendrum arboreum* (L.) DC.	3.0	33.3	14.0	0.0	11.9	1.6
Sweet-shrub	*Calycanthus floridus* L.	0.0	--	0.0	--	0.0	--
Viburnum	*Viburnum* spp.	1.0	0.0	1.4	16.7	1.3	14.3
White ash	*Fraxinus americana* L.	0.0	--	0.2	0.0	0.2	0.0
Other ash	*Fraxinus* spp.	0.0	--	0.0	--	0.0	--
Witch-hazel	*Hamamelis virginiana* L.	0.0	--	0.2	0.0	0.2	0.0
Yellow jessamine	*Gelsemium sempervirens* (L.) Ait. f.	0.0	--	0.2	0.0	0.2	0.0
Yellow-poplar	*Liriodendron tulipifera* L.	0.0	--	0.5	50.0	0.4	50.0
Undesirable: Emergency							
Black oak	*Quercus velutina* Lam.	0.0	--	0.0	--	0.0	--
Chestnut oak	*Q. prinus* L.	3.0	0.0	3.7	0.0	3.6	0.0
Post oak	*Q. stellata* Wangenh.	0.0	--	1.6	0.0	1.3	0.0
Scarlet oak	*Q. coccinea* Muenchh.	0.0	--	1.2	0.0	0.9	0.0
Scrub red oaks	*Quercus* spp.	2.0	0.0	2.1	0.0	1.7	0.0
Southern red oak	*Q. falcata* Michx.	0.0	--	0.7	0.0	0.6	0.0
Water & willow oak	*Q. nigra* L. & *Q. phellos* L.	0.0	--	0.2	0.0	0.2	0.0
White oak	*Q. alba* L.	3.0	0.0	1.8	0.0	1.5	0.0
Black cherry	*Prunus serotina* Ehrh.	0.0	--	0.2	0.0	0.2	0.0
Other cherries	*Prunus* spp.	0.0	--	0.7	66.7	0.6	66.7
Blueberries	*Vaccinium* spp.	16.0	12.5	5.3	0.0	4.3	8.7
Common sweetleaf	*Symplocos tinctoria* (L.) L'Her.	3.0	0.0	0.7	0.0	0.6	0.0
Common persimmon	*Diospyros virginiana* L.	5.0	20.0	1.6	0.0	1.3	14.3
Cucumbertree	*Magnolia acuminata* L.	0.0	--	0.0	--	0.0	--
Other magnolias	*Magnolia* spp.	0.0	--	0.0	--	0.0	--
Eastern redcedar	*Juniperus virginiana* L.	2.0	0.0	2.1	0.0	1.7	0.0
Eastern redbud	*Cercis canadensis* L.	0.0	--	0.0	--	0.0	--
Mountain-laurel	*Kalmia latifolia* L.	9.0	0.0	8.1	0.0	6.6	0.0
Sweetgum	*Liquidambar styraciflua* L.	0.0	--	2.8	0.0	2.3	0.0
Undesirable: Stuffing							
Alder	*Alnus* spp.	2.0	0.0	0.2	0.0	0.6	0.0
American beech	*Fagus grandifolia* Ehrh.	0.0	--	0.2	0.0	0.2	0.0
American holly	*Ilex opaca* Ait.	4.0	0.0	5.1	0.0	4.9	0.0
American hornbeam (Bluebeech)	*Carpinus caroliniana* Walt.	0.0	--	0.5	50.0	0.4	50.0
Buckeye	*Aesculus* spp.	0.0	--	0.0	--	0.0	--
Eastern hophornbeam	*Ostrya virginiana* (Mill.) K. Koch	0.0	--	0.2	0.0	0.2	0.0
Elm	*Ulmus* spp.	0.0	--	0.0	--	0.0	--
Hackberry	*Celtis* spp.	0.0	--	0.0	--	0.0	--
Hawthorn	*Crataegus* spp.	0.0	--	0.0	--	0.0	--
Hickory	*Carya* spp.	2.0	0.0	1.9	0.0	1.9	0.0
Loblolly pine	*Pinus taeda* L.	0.0	--	4.7	0.0	3.8	0.0
Longleaf pine	*P. palustris* Mill.	0.0	--	0.0	--	0.0	--
Shortleaf pine	*P. echinata* Mill.	5.0	0.0	5.6	0.0	5.5	0.0
Virginia pine	*P. virginiana* Mill.	2.0	0.0	0.5	0.0	0.8	0.0
Virginia creeper	*Parthenocissus quinquefolia* (L.) Planch.	0.0	--	0.2	0.0	0.1	0.0

Table 21.--Species dominant on one or more plots, by forest type and management class (continued)

OAK-HICKORY-GUM

Browse species		Game management class: In management area (n = 13)		Out of management area (n = 33)		Total area (n = 46)	
		Plots occupied	Occupied plots used	Plots occupied	Occupied plots used	Plots occupied	Occupied plots used
		Percent					
Desirable: Preferred							
Japanese honeysuckle	Lonicera japonica Thunb.	0.0	--	0.3	0.0	0.2	0.0
Greenbrier	Smilax spp.	1.5	100.0	2.4	50.0	2.1	60.0
Desirable: Staple							
Azalea	Rhododendron spp.	3.8	40.0	0.6	0.0	1.5	28.6
Blackgum	Nyssa sylvatica Marsh.	2.3	33.3	16.1	5.7	12.2	7.1
Flowering dogwood	Cornus florida L.	20.0	15.4	11.8	0.0	14.1	6.2
Fringetree	Chionanthus virginicus L.	0.0	--	0.0	--	0.0	--
Grape	Vitis spp.	6.2	0.0	1.5	0.0	2.8	0.0
Hard maple	Acer saccharum Marsh.	0.0	--	0.0	--	0.0	--
Soft maple	A. rubrum L., A. negundo L.	9.2	0.0	10.3	0.0	10.0	0.0
Serviceberry	Amelanchier spp.	0.0	--	0.3	0.0	0.2	0.0
Sourwood	Oxydendrum arboreum (L.) DC.	10.8	35.7	8.2	0.0	8.9	12.2
Sweet-shrub	Calycanthus floridus L.	0.0	--	0.3	0.0	0.2	0.0
Viburnum	Viburnum spp.	1.5	0.0	0.3	0.0	0.7	0.0
White ash	Fraxinus americana L.	0.0	--	0.0	--	0.0	--
Other ash	Fraxinus spp.	0.0	--	0.0	--	0.0	--
Witch-hazel	Hamamelis virginiana L.	0.0	--	0.0	--	0.0	--
Yellow jessamine	Gelsemium sempervirens (L.) Ait. f.	0.0	--	0.6	0.0	0.4	0.0
Yellow-poplar	Liriodendron tulipifera L.	0.0	--	0.0	--	0.0	--
Undesirable: Emergency							
Black oak	Quercus velutina Lam.	0.0	--	0.3	0.0	0.2	0.0
Chestnut oak	Q. prinus L.	11.5	0.0	3.3	0.0	5.7	0.0
Post oak	Q. stellata Wangenh.	0.8	0.0	0.3	0.0	0.4	0.0
Scarlet oak	Q. coccinea Muenchh.	0.0	--	1.8	0.0	1.3	0.0
Scrub red oaks	Quercus spp.	0.8	0.0	1.8	0.0	1.5	0.0
Southern red oak	Q. falcata Michx.	0.0	--	0.0	--	0.0	--
Water & willow oak	Q. nigra L. & Q. phellos L.	0.0	--	0.0	--	0.0	--
White oak	Q. alba L.	1.5	0.0	2.4	0.0	2.2	0.0
Black cherry	Prunus serotina Ehrh.	0.0	--	0.0	--	0.0	--
Other cherries	Prunus spp.	0.0	--	0.0	--	0.0	--
Blueberries	Vaccinium spp.	8.5	9.1	5.5	0.0	6.3	3.4
Common sweetleaf	Symplocos tinctoria (L.) L'Her.	1.5	0.0	0.0	--	0.4	0.0
Common persimmon	Diospyros virginiana L.	1.5	0.0	0.3	0.0	0.7	0.0
Cucumbertree	Magnolia acuminata L.	0.0	--	0.0	--	0.0	--
Other magnolias	Magnolia spp.	0.0	--	0.3	0.0	0.2	0.0
Eastern redcedar	Juniperus virginiana L.	0.8	0.0	0.6	0.0	0.7	0.0
Eastern redbud	Cercis canadensis L.	0.0	--	0.6	0.0	0.4	0.0
Mountain-laurel	Kalmia latifolia L.	0.8	0.0	3.9	0.0	3.0	0.0
Sweetgum	Liquidambar styraciflua L.	0.0	--	3.9	0.0	2.8	0.0
Undesirable: Stuffing							
Alder	Alnus spp.	0.0	--	1.2	0.0	0.9	0.0
American beech	Fagus grandifolia Ehrh.	0.0	--	0.3	0.0	0.2	0.0
American holly	Ilex opaca Ait.	6.2	0.0	7.9	0.0	7.4	0.0
American hornbeam (Bluebeech)	Carpinus caroliniana Walt.	0.0	--	0.0	--	0.0	--
Buckeye	Aesculus spp.	0.0	--	0.0	--	0.0	--
Eastern hophornbeam	Ostrya virginiana (Mill.) K. Koch	0.0	--	0.0	--	0.0	--
Elm	Ulmus spp.	0.0	--	0.0	--	0.0	--
Hackberry	Celtis spp.	0.0	--	0.0	--	0.0	--
Hawthorn	Crataegus spp.	0.0	--	0.6	0.0	0.4	0.0
Hickory	Carya spp.	1.5	0.0	3.6	0.0	3.0	0.0
Loblolly pine	Pinus taeda L.	0.0	--	3.9	0.0	2.8	0.0
Longleaf pine	P. palustris Mill.	0.0	--	0.6	0.0	0.4	0.0
Shortleaf pine	P. echinata Mill.	1.5	0.0	0.9	0.0	1.1	0.0
Virginia pine	P. virginiana Mill.	0.8	0.0	1.2	0.0	1.1	0.0
Virginia creeper	Parthenocissus quinquefolia (L.) Planch.	0.0	--	0.0	--	0.0	--

Table 21.--Species dominant on one or more plots, by forest type and management class (continued)

OTHER UPLAND HARDWOODS

Browse species		Game management class: In management area (n = 11)		Out of management area (n = 30)		Total area (n = 41)	
		Plots occupied	Occupied plots used	Plots occupied	Occupied plots used	Plots occupied	Occupied plots used
		Percent					
Desirable: Preferred							
Japanese honeysuckle	Lonicera japonica Thunb.	0.0	--	0.0	--	0.0	--
Greenbrier	Smilax spp.	2.7	0.0	2.0	0.0	2.2	0.0
Desirable: Staple							
Azalea	Rhododendron spp.	0.9	0.0	0.3	0.0	0.5	0.0
Blackgum	Nyssa sylvatica Marsh.	0.9	0.0	13.0	0.0	9.8	0.0
Flowering dogwood	Cornus florida L.	20.9	0.0	17.0	0.0	18.0	0.0
Fringetree	Chionanthus virginicus L.	0.0	--	0.0	--	0.0	--
Grape	Vitis spp.	3.6	0.0	1.7	0.0	2.2	0.0
Hard maple	Acer saccharum Marsh.	5.5	0.0	0.0	--	1.5	0.0
Soft maple	A. rubrum L., A. negundo L.	7.3	0.0	10.0	0.0	9.3	0.0
Serviceberry	Amelanchier spp.	0.9	0.0	0.3	0.0	0.5	0.0
Sourwood	Oxydendrum arboreum (L.) DC.	10.9	0.0	12.0	0.0	11.7	0.0
Sweet-shrub	Calycanthus floridus L.	0.0	--	0.0	--	0.0	--
Viburnum	Viburnum spp.	3.6	0.0	0.7	0.0	1.5	0.0
White ash	Fraxinus americana L.	0.0	--	0.3	0.0	0.2	0.0
Other ash	Fraxinus spp.	0.9	0.0	0.3	0.0	0.5	0.0
Witch-hazel	Hamamelis virginiana L.	0.0	--	0.3	0.0	0.2	0.0
Yellow jessamine	Gelsemium sempervirens (L.) Ait. f.	0.0	--	0.3	0.0	0.2	0.0
Yellow-poplar	Liriodendron tulipifera L.	0.0	--	0.3	0.0	0.2	0.0
Undesirable: Emergency							
Black oak	Quercus velutina Lam.	0.0	--	0.0	--	0.0	--
Chestnut oak	Q. prinus L.	0.9	0.0	3.0	0.0	2.4	0.0
Post oak	Q. stellata Wangenh.	0.9	0.0	0.7	0.0	0.7	0.0
Scarlet oak	Q. coccinea Muenchh.	0.9	0.0	0.7	0.0	0.7	0.0
Scrub red oaks	Quercus spp.	3.6	0.0	1.7	0.0	2.2	0.0
Southern red oak	Q. falcata Michx.	0.0	--	0.3	0.0	0.2	0.0
Water & willow oak	Q. nigra L. & Q. phellos L.	0.0	--	0.0	--	0.0	--
White oak	Q. alba L.	0.9	0.0	2.7	0.0	2.2	0.0
Black cherry	Prunus serotina Ehrh.	1.8	0.0	0.3	0.0	0.7	0.0
Other cherries	Prunus spp.	0.9	0.0	0.0	--	0.2	0.0
Blueberries	Vaccinium spp.	12.7	0.0	3.3	0.0	5.9	0.0
Common sweetleaf	Symplocos tinctoria (L.) L'Her.	0.0	--	0.0	--	0.0	--
Common persimmon	Diospyros virginiana L.	0.9	0.0	1.0	0.0	1.0	0.0
Cucumbertree	Magnolia acuminata L.	0.0	--	0.3	0.0	0.2	0.0
Other magnolias	Magnolia spp.	0.0	--	0.0	--	0.0	--
Eastern redcedar	Juniperus virginiana L.	0.0	--	0.0	--	0.0	--
Eastern redbud	Cercis canadensis L.	0.0	--	0.0	--	0.0	--
Mountain-laurel	Kalmia latifolia L.	3.6	0.0	6.7	0.0	5.9	0.0
Sweetgum	Liquidambar styraciflua L.	0.9	0.0	0.7	0.0	0.7	0.0
Undesirable: Stuffing							
Alder	Alnus spp.	1.8	0.0	2.3	0.0	2.2	0.0
American beech	Fagus grandifolia Ehrh.	0.0	--	0.0	--	0.0	--
American holly	Ilex opaca Ait.	0.9	0.0	5.0	0.0	3.9	0.0
American hornbeam (Bluebeech)	Carpinus caroliniana Walt.	0.0	--	0.0	--	0.0	--
Buckeye	Aesculus spp.	0.9	0.0	0.0	--	0.2	0.0
Eastern hophornbeam	Ostrya virginiana (Mill.) K. Koch	0.0	--	0.0	--	0.0	--
Elm	Ulmus spp.	0.0	--	0.3	0.0	0.2	0.0
Hackberry	Celtis spp.	0.9	0.0	0.0	--	0.2	0.0
Hawthorn	Crataegus spp.	0.9	0.0	0.3	0.0	0.5	0.0
Hickory	Carya spp.	4.5	0.0	4.0	0.0	4.1	0.0
Loblolly pine	Pinus taeda L.	0.0	--	2.0	0.0	1.5	0.0
Longleaf pine	P. palustris Mill.	0.0	--	0.0	--	0.0	--
Shortleaf pine	P. echinata Mill.	0.0	--	2.7	0.0	2.4	0.0
Virginia pine	P. virginiana Mill.	1.8	0.0	0.7	0.0	0.5	0.0
Virginia creeper	Parthenocissus quinquefolia (L.) Planch.	0.0	--	0.0	--	0.0	--

Table 22.--Species dominant on one or more plots, ranked by total percent of points occupied for all timber types on the Uwharrie National Forest

Browse species		Browse rank	Game management class: In management area (n = 39)		Out of management area (n = 137)		Total area (n = 176)	
			Plots occupied	Occupied plots used	Plots occupied	Occupied plots used	Plots occupied	Occupied plots used
			Percent					
Flowering dogwood	Cornus florida L.	2	16.15	11.11	11.82	1.85	12.78	4.44
Blackgum	Nyssa sylvatica Marsh.	2	1.28	20.00	14.09	4.66	11.25	5.05
Sourwood	Oxydendrum arboreum (L.) DC.	2	7.95	25.81	10.73	1.36	10.11	5.62
Soft maple	Acer rubrum L., A. negundo L.	2	6.92	11.11	9.93	0.00	9.26	1.84
American holly	Ilex opaca Ait.	4	8.20	0.00	6.50	0.00	6.88	0.00
Blueberries	Vaccinium spp.	3	10.51	7.32	4.82	0.00	6.08	2.80
Mountain-laurel	Kalmia latifolia L.	3	3.59	0.00	5.26	0.00	4.89	0.00
Shortleaf pine	Pinus echinata Mill.	4	2.05	0.00	3.72	0.00	4.35	0.00
Chestnut oak	Quercus prinus L.	3	4.87	0.00	2.85	0.00	3.30	0.00
Loblolly pine	Pinus taeda L.	4	0.00	--	4.01	0.00	3.12	0.00
Japanese honeysuckle	Lonicera japonica Thunb.	1	2.31	88.9	2.63	44.44	2.56	53.33
Hickory	Carya spp.	4	2.31	0.00	2.63	2.78	2.56	2.22
Sweetgum	Liquidambar styraciflua L.	3	0.26	0.00	3.07	0.00	2.44	0.00
Greenbrier	Smilax spp.	1	2.56	50.00	2.04	32.14	2.16	36.84
White oak	Quercus alba L.	3	1.54	0.00	1.97	0.00	1.88	0.00
Scrub oak	Quercus spp.	3	1.79	0.00	1.75	0.00	1.76	0.00
Grape	Vitis spp.	2	3.85	0.00	1.02	0.00	1.65	0.00
Eastern redcedar	Juniperus virginiana L.	3	0.77	0.00	1.82	0.00	1.59	0.00
Common persimmon	Diospyros virginiana L.	3	2.05	12.50	0.88	0.00	1.14	5.00
Azalea	Rhododendron spp.	2	1.79	28.57	0.88	8.33	1.08	15.79
Viburnum	Viburnum spp.	2	1.79	0.00	0.74	10.00	0.96	5.88
Scarlet oak	Quercus coccinea Muenchh.	3	0.26	0.00	1.17	0.00	0.96	0.00
Alder	Alnus spp.	4	1.02	0.00	0.88	0.00	0.91	0.00
Hard maple	Acer saccharum Marsh.	2	3.59	0.00	0.00	--	0.80	0.00
Post oak	Quercus stellata Wangenh.	3	0.51	0.00	0.88	0.00	0.80	0.00
Virginia pine	Pinus virginiana Mill.	4	1.28	0.00	0.66	0.00	0.80	0.00
Common sweetleaf	Symplocos tinctoria (L.) L'Her.	3	1.28	0.00	0.22	0.00	0.45	0.00
Southern red oak	Quercus falcata Michx.	3	0.00	--	0.36	0.00	0.28	0.00
American hornbeam (Bluebeech)	Carpinus caroliniana Walt.	4	0.00	--	0.36	0.00	0.28	0.00
Hawthorn	Crataegus spp.	4	0.26	0.00	0.29	0.00	0.28	0.00
Longleaf pine	Pinus palustris Mill.	4	0.00	--	0.36	40.00	0.28	40.00
Yellow jessamine	Gelsemium sempervirens (L.) Ait. f.	2	0.00	--	0.29	0.00	0.23	0.00
Yellow-poplar	Liriodendron tulipifera L.	2	0.26	0.00	0.22	33.33	0.23	25.00
Black cherry	Prunus serotina Ehrh.	3	0.51	0.00	0.14	0.00	0.23	0.00
Other cherries	Prunus spp.	3	0.26	0.00	0.22	33.33	0.23	25.00
Serviceberry	Amelanchier spp.	2	0.26	0.00	0.14	0.00	0.17	0.00
Black oak	Quercus velutina Lam.	3	0.00	--	0.22	0.00	0.17	0.00
American beech	Fagus grandifolia Ehrh.	4	0.26	0.00	0.14	0.00	0.17	0.00
White ash	Fraxinus americana L.	2	0.00	--	0.14	0.00	0.11	0.00
Other ash	Fraxinus spp.	2	0.26	0.00	0.07	0.00	0.11	0.00
Witch-hazel	Hamamelis virginiana L.	2	0.00	--	0.14	0.00	0.11	0.00
Eastern redbud	Cercis canadensis L.	3	0.00	--	0.14	0.00	0.11	0.00
Fringetree	Chionanthus virginicus L.	2	0.00	--	0.07	0.00	0.06	0.00
Sweet-shrub	Calycanthus floridus L.	2	0.00	--	0.07	0.00	0.06	0.00
Water & willow oak	Quercus nigra L. & Q. phellos L.	3	0.00	--	0.07	0.00	0.06	0.00
Cucumbertree	Magnolia acuminata L.	3	0.00	--	0.07	0.00	0.06	0.00
Other magnolias	Magnolia spp.	3	0.00	--	0.07	0.00	0.06	0.00
Buckeye	Aesculus spp.	4	0.26	0.00	0.00	--	0.06	0.00
Eastern hophornbeam	Ostrya virginiana (Mill.) K. Koch	4	0.00	--	0.07	0.00	0.06	0.00
Elm	Ulmus spp.	4	0.00	--	0.07	0.00	0.06	0.00
Hackberry	Celtis spp.	4	0.26	0.00	0.00	--	0.06	0.00
Virginia creeper	Parthenocissus quinquefolia (L.) Planch.	4	0.00	--	0.07	0.00	0.06	0.00

Table 23.--Species dominant on one or more plots, ranked by total percent of occupied points browsed for all timber types on the Uwharrie National Forest

Browse species		Browse rank	Game management class					
			In management area (n = 39)		Out of management area (n = 137)		Total area (n = 176)	
			Plots occupied	Occupied plots used	Plots occupied	Occupied plots used	Plots occupied	Occupied plots used
			Percent					
Japanese honeysuckle	Lonicera japonica Thunb.	1	2.31	88.9	2.63	44.44	2.56	53.33
Longleaf pine	Pinus palustris Mill.	4	0.00	--	0.36	40.00	0.28	40.00
Greenbrier	Smilax spp.	1	2.56	50.00	2.04	32.14	2.16	36.84
Yellow-poplar	Liriodendron tulipifera L.	2	0.26	0.00	0.22	33.33	0.23	25.00
Other cherries	Prunus spp.	3	0.26	0.00	0.22	33.33	0.23	25.00
Azalea	Rhododendron spp.	2	1.79	28.57	0.88	8.33	1.08	15.79
Viburnum	Viburnum spp.	2	1.79	0.00	0.74	10.00	0.96	5.88
Sourwood	Oxydendrum arboreum (L.) DC.	2	7.95	25.81	10.73	1.36	10.11	5.62
Blackgum	Nyssa sylvatica Marsh.	2	1.28	20.00	14.09	4.66	11.25	5.05
Common persimmon	Diospyros virginiana L.	3	2.05	12.50	0.88	0.00	1.14	5.00
Flowering dogwood	Cornus florida L.	2	16.15	11.11	11.82	1.85	12.78	4.44
Blueberries	Vaccinium spp.	3	10.51	7.32	4.82	0.00	6.08	2.80
Hickory	Carya spp.	4	2.31	0.00	2.63	2.78	2.56	2.22
Soft maple	Acer rubrum L., A. negundo L.	2	6.92	11.11	9.93	0.00	9.26	1.84