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Environmental Consultants

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1 August 2012

Ms. Kimberly Sykes, Deputy Refuge Manager
Dr. Steve Reagan, Refuge Manager
Sam D. Hamilton Noxubee National Wildlife Refuge
2970 Blufflake Road
Brooksville, MS 39739

Dear Ms. Sykes and Dr. Reagan:

All red-cockaded woodpecker (RCW) breeding season field work for 2012 at the Sam D. Hamilton Noxubee (NOX) National Wildlife Refuge in Noxubee, Oktibbeha, and Winston counties, Mississippi (MS) has been completed. Data are presented in the attached Tables 1-3 and shapefiles are included with this letter report.

Task 1 (cavity inspection and provisioning in clusters NOX 88, 90, 91, 92, 93, 105 and 118) was completed by 18 April (Table 1).

Task 2 (determine cluster activity status of 58 clusters and provide 4 clean cavities in active clusters) was completed by 30 April 2012 (Table 1 and 3). The status of all cavity trees within 58 RCW clusters were updated in mid-late April 2012 (Table 3). Three relic clusters (NOX 111, 121, and 124) were in overgrown habitat, had insufficient gps data associated with them and were not included in cluster totals.

Task 3 (breeding season monitoring and group composition, remove flying squirrels (*Glaucomys volans*) where needed) was completed by 30 June 2012 (Table 2).

During the 2012 breeding season there were 30 active RCW clusters and 28 inactive clusters on the Refuge (Table 2). Twenty-seven clusters contained potential breeding groups (PBGs) (NOX 6, 7, 8, 13, 14, 15, 17, 19, 27, 37, 82, 94, 95, 100, 103, 104, 106, 107, 110, 112,

113, 114, 116, 117, 122, 123 and 126), one cluster was captured by an adjacent group (NOX 28 by 82) and two clusters contained solitary males (NOX 23 and 129) (Table 2). Twenty-seven groups nested or attempted to nest and 52 nestlings were banded (Table 2). Forty fledglings were seen, 18 males and 22 females (Table 2). Sixty-six adult RCWs were seen during the 2012 breeding season (Table 2), 58 of which were unbanded. The average group size for the population was 2.2 adults per cluster (Table 2).

Cavity kleptoparasitism by flying squirrels remained a problem throughout the breeding season. Between April 18 and June 29 a total of 57 squirrels were removed; 10 escaped during the removal process and the rest were euthanized. Cavity competition appeared to have a direct negative effect on a PBG's ability to produce nestlings, as evidenced at clusters NOX 6, 110 and 114. These clusters contained nests at the beginning of breeding season that flying squirrels subsequently parasitized. The PBGs were unable to recover and no re-nests were detected.

Task 4 (cavity tree monumentation and numbering for active clusters and provisioned clusters NOX 88, 90, 91, 92, 93, 105 and 118) was completed by 30 June 2012.

Task 5 (report) is the enclosed.

Appropriate habitat management is an important factor in maintaining and growing the Refuge's RCW population. A 1-3 year rotation of prescribed fire in early to mid-growing season (February or April) to control the midstory in both active and inactive clusters would promote better herbaceous groundcover conditions. Mechanical or chemical treatments of the midstory would also benefit the RCW population on the Refuge. Inactive clusters would also become more attractive to potential PBGs if excessive midstories were controlled, especially in NOX Clusters 91, 92 and 93. Appendix 1 contains a list of habitat recommendations.

The high number of unbanded adults contributes to difficulty in determining group composition and an increase in attempts at acquiring group composition, which can disturb the birds. Although banding nestlings each breeding season will result in an increasingly banded population, banding all adults outside of the breeding season should be a priority to expedite this process.

Please feel free to call if you have any questions.

Sincerely,

Caroline Causey
Wildlife Biologist

cc: JCA file

Table 1. The results of a cavity tree inventory and maintenance/installation performed by Dr. J.H. Carter III and Associates, Inc. within 7 inactive Red-cockaded woodpecker (*Picoides borealis*) clusters on Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi. Work was conducted in April 2012.

						Suitable Cavity Information and Work Performed																
Cluster	# of Living Cavity Trees	# of Active Cavities	# of Possibly Active Cavities	# of Inactive Cavities	# of Relic Cavities	# of Suitable Natural Cavities	# of Suitable Artificial Cavities	# of Suitable Cavities in Cluster	# of Suitable Cavities Cleaned	# of Suitable Cavities Needed to Reach 4 per Cluster	# of New Inserts Installed	# of Replacement Inserts Installed	# of Active Advanced Starts (entrance >3 inches in depth)	# of Possibly Active Advanced Starts (entrance >3 inches in depth)	# of Inactive Advanced Starts (entrance >3 inches in depth)	# of Relic Advanced Starts (entrance >3 inches in depth)	# of Active Starts (entrance ≤ 3 inches in depth)	# of Possibly Active Starts (entrance ≤ 3 inches in depth)	# of Inactive Starts (entrance ≤ 3 inches in depth)	# of Relic Starts (entrance ≤ 3 inches in depth)	# of Possibly Active Substarts (entrance < 1 inch in depth)	# of Restrictors Needed
88	6	0	0	0	6	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0
90	6	0	0	3	2	0	2	2	2	2	2	0	0	0	0	0	0	0	1	0	0	0
91	1	0	0	0	1	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0
92	2	0	0	2	0	0	1	1	1	3	3	0	0	0	0	0	0	0	0	0	0	0
93	5	0	0	5	0	0	3	3	2	1	1	0	0	0	0	0	0	0	0	0	0	0
105	4	0	0	3	1	0	1	1	1	3	3	0	0	0	0	0	0	0	0	0	0	0
118	11	0	0	5	6	0	1	1	1	3	3	0	0	0	0	0	0	0	0	0	0	0
	Living Cavity Trees	# of Active Cavities	# of Possibly Active Cavities	# of Inactive Cavities	# of Relic Cavities	# of Suitable Natural Cavities	# of Suitable Artificial Cavities	# of Suitable Cavities	Total # of Suitable Cavities Cleaned	# of Suitable Cavities Needed to Reach 4 per Cluster	Total # of New Inserts Installed	Total # of Replacement Inserts Installed	# of Active Advanced Starts	# of Possibly Active Advanced Starts	# of Inactive Advanced Starts	# of Relic Advanced Starts	# of Active Starts	# of Possibly Active Starts	# of Inactive Starts	# of Relic Starts	# of Possibly Active Substart	# of Restrictors Needed
Totals	35	0	0	18	16	0	8	8	7	20	20	3	0	0	0	0	0	0	1	0	0	0

Clusters requiring either cavity cleaning, artificial cavity installation or both.

Table 2. Group composition and reproductive parameters for the 2012 red-cockaded woodpecker breeding season, Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, MS.

Cluster	Activity Status	Breeding Status	Nest Tree		# of Eggs Nest 1	# of Eggs Nest 2	# Nestlings Found	USFWS Band Number (Nestlings)	Nestling Color Band Combination** (sex identified during fledgling check)	Adult Identification	Group Size (# adults)	# Squirrels Removed	Notes
			Old Tree Tag #	New Tree Tag #									
6	Active	PBG	18	170	Unknown					UB UB UB/LGAL	3	4	nest in #18; unable to climb but incubation observed, failed; removed glvos from other cavs
7	Active	PBG	1	304	3		2	2331-08969 2331-08970	ORAL/YEREYE (M) DBAL/YEREYE (M)	UB UB	2	2	seen fledged on 6/18
8	Active	PBG	No Tag (NT) 7	113	4		2	2331-08950 2331-08951	ORAL/DGREDG (M) WHAL/DGREDG (F)	UB UB	2		seen fledged on 5/29
13	Active	PBG	31	393	4		3	2331-08947 2331-08948 2331-08949	ORAL/LGDBLG (F) REAL/LGDBLG (M) PUAL/LGDBLG (F)	UB UB	2		seen fledged on 5/23
14	Active	PBG	New Tree 9	449 436	3	3	1st failed 2nd = 1 Day 3 chick	2331-08928 2331-08929 2331-08930 2331-08973	PUAL/DBREDB (F)	UB UB	2		1st nest failed, 2nd nest banded on 6/4, seen fledged on 6/26
15	Active	PBG	5	183	5		1	2331-08955		UB UB	2		fledge check on 5/29 revealed no fledglings
17	Active	PBG	9	256	4		3	2331-08952 2331-08953 2331-08954	REAL/DBDGDB (M) PUAL/DBDGDB (M) YEAL/DBDGDB (M)	UB, UB LGDBLG/DBAL	2		seen fledged on 5/24
19	Active	PBG	NT2	149	4		2	2331-08956 2331-08957	REAL/PUREPU (M) WHAL/PUREPU (F)	UB UB	2	3, 5 escaped	seen fledged on 5/25
23	Active	Solitary								UB	1		
27	Active	PBG	4	319	3		3			UB UB	2		chicks too old to band when found; nest failed-no fledglings seen
28	Active	Captured by 82								Unknown	Unknown		no bird roosting; 1 active tree
37	Active	PBG	2	426	4		2	2331-08941 2331-08942	REAL/DGYEDG (F) ORAL/DGYEDG (F)	UB UB	2		seen fledged on 5/21
82	Active	PBG	NT1	3	1		2	2331-08931 2331-08932	ORAL/DGPUDG (F)	UB UB	2	7	removed glvos; seen fledged 5/29
94	Active	PBG	2	55	3		2	2331-08966 2331-08967	YEAL/YELGYE (F) REAL/YELGYE (M)	UB UB	2		seen fledged on 6/8

Table 2. Group composition and reproductive parameters for the 2012 red-cockaded woodpecker breeding season, Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, MS.

Cluster	Activity Status	Breeding Status	Nest Tree		# of Eggs Nest 1	# of Eggs Nest 2	# Nestlings Found	USFWS Band Number (Nestlings)	Nestling Color Band Combination** (sex identified during fledgling check)	Adult Identification	Group Size (# adults)	# Squirrels Removed	Notes
			Old Tree Tag #	New Tree Tag #									
95	Active	PBG	6	462	0		2	2331-08926 2331-08927	DBAL/PUDBPU (F) REAL/PUDBPU (M)	UB UB	2		seen fledged 5/9; no second nest found
100	Active	PBG	5	291	3 (not hatching)		0			UB UB	2		no renest
103	Active	PBG	New Insert	197	3		1	2331-08968		UB UB	2		2 dud eggs; fledgling check revealed no fledglings
104	Active	PBG	12	379	2 (failed)	4	3	2331-08961 2331-08962 2331-08963		UB UB YEWYEW/ALLB REREYE/ALRE	4	4, 1 escaped	glvo seen off and on in NT2; 4 adults, fledge check revealed no fledges
106	Active	PBG	NT3	391	4		4	2331-08943 2331-08944 2331-08945 2331-08946	REAL/DGWHDG (F) ORAL/DGWHDG (F) DBAL/DGWHDG (F) WHAL/DGWHDG (M)	UB UB UB UB UB	5		seen fledged on 5/25 & 5/29; 5 adults, most likely all unbanded
107	Active	PBG	New Insert	226	3		3	2331-08958 2331-08959 2331-08960	REAL/YEPUYE (F) WHAL/YEPUYE (F) ORAL/YEPUYE (F)	UB UB	2	1	Seen fledged on 6/12
110	Active	PBG	7	244	4 (failed)		chicks ejected from nest, check for renest			UB, UB	2	4 escaped	tried to remove glvos; 4 escaped; no renest
112	Active	PBG	16	38			4	2331-08922 2331-08923 2331-08924 2331-08925	LGAL/LGDGLG (M) LBAL/LGDGLG (M)	UB UB REREOR/ALWH	3		seen fledged on 5/7, no second nest found
113	Active	PBG	New tree		4			2331-08939 2331-08940	REAL/PUYEP (F) WHAL/PUYEP (M)	UB UB	2		seen fledged on 5/23
114	Active	PBG	11	218	4 (failed)		0			UB UB	2	11	removed glvos from all trees; no new nest found, one adult roosting in cluster in June; possible fledglings seen once
116	Active	PBG	NT1	274	4		1	2331-08964	ORAL/LGWHLG (F)	UB, UB	2		seen fledged on 6/1
117	Active	PBG	9	34	3		2	2331-08937 2331-08938	REAL/DGDBDG (F) WHAL/DGDBDG (F)	UB, UB UB	3		seen fledged on 5/23

Table 2. Group composition and reproductive parameters for the 2012 red-cockaded woodpecker breeding season, Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, MS.

Cluster	Activity Status	Breeding Status	Nest Tree		# of Eggs Nest 1	# of Eggs Nest 2	# Nestlings Found	USFWS Band Number (Nestlings)	Nestling Color Band Combination** (sex identified during fledgling check)	Adult Identification	Group Size (# adults)	# Squirrels Removed	Notes
			Old Tree Tag #	New Tree Tag #									
122	Active	PBG	NT1	59	0		1	2331-08965	REAL/DBLGDB (M)	UB ORWH/ALWH	2		seen fledged on 6/7
123	Active	PBG	12	409	3 (failed)	3	2 Day 0 chicks	2331-08971 2331-08972	WHAL/LGPULG (M) YEAL/LGPULG (F)	UB YEEYOR/ALYE	2	15	seen fledged on 6/26
126	Active	PBG	8	239	1		4	2331-08933 2331-08934 2331-08935 2331-08936	WHAL/DBLBDB (M) ORAL/DBLBDB (M) - DBAL/DBLBDB (F)	UB UB YEEYEE/WHAL	3		seen fledged on 5/22
129	Active	Solitary								UB	1		
Total Number of Clusters = 58 Total Number of Active Clusters = 30 Total Number of Inactive Clusters = 28 Total Number of PBGs = 27 Total Solitary RCW Clusters = 2 Total Number of Nests to Date = 31 Total Nestlings Banded to Date = 52 Fledges seen as of 6/30/12 = 40 (18 Males, 22 Females)													

PBG = Potential Breeding Group

DG= Dark Green

LP= Light Pink

PU= Purple

XX= Banded, but not identified

AL= USGS Aluminum Band

LB= Light Blue

OR= Orange

WH= White

YE= Yellow

DB= Dark Blue

LG= Light Green

RE= Red

UB = Unbanded

F = Female

* RCW cluster that attempted nesting, but had a failure (8 total)

M = Male

**Colorbands are written from right leg to left leg

Avg Group Size = 2.2

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
1	0	1	insert cavity	relic	3683653.82	333251.80	all cavity trees are loblolly pine
	0	2	cavity	relic	3683622.78	333221.42	
	0	6	advanced start	relic	3683618.81	333288.32	
	0	7	cavity	relic	3683611.76	333323.86	
	0	8	cavity	relic	3683628.99	333231.26	
	0	9	cavity	relic	3683632.92	333225.33	
	0	10	cavity	relic	3683675.03	333279.51	
	0	41	cavity	relic	3683609.22	333298.77	
	0	45	cavity	relic	3683740.20	333261.19	
	0	46	cavity	relic	3683716.30	333302.29	
	0	47	cavity	relic	3683746.37	333269.25	
	0	664	cavity	relic	3683637.30	333285.58	
	0	665	cavity	relic	3683641.74	333324.63	
	0	666	cavity	relic	3683729.61	333239.46	
3	0	1	insert cavity	relic	3683140.35	332675.87	all cavity trees are loblolly pine
	0	2	insert cavity	relic	3683126.00	332639.14	
	0	4	cavity	relic	3683137.43	332591.97	
	0	88	cavity	relic	3683307.25	332830.93	
	0	91	start	relic	3683292.58	332765.86	
	0	414	cavity	relic	3683096.08	332648.57	
	0	674	start	relic	3683330.98	332824.54	
	0	675	start	relic	3683286.28	332815.25	
	0	731	insert cavity	relic	3683119.28	332657.34	
4	0	2	insert cavity	relic	3683945.70	331637.06	all cavity trees are loblolly pine
	0	11	cavity	relic	3683983.84	331642.10	
	0	678	cavity	relic	3683903.95	331640.55	
	0	679	cavity	relic	3683863.89	331610.93	
6	164	1	insert cavity	active	3680302.92	327504.09	all cavity trees are loblolly pine 2012 nest tree
	165	715	insert cavity	active	3680297.46	327520.65	
	166	17	insert cavity	active	3680318.96	327505.96	
	167	12	cavity	relic	3680323.59	327521.45	
	168	13	cavity	relic	3680334.77	327528.37	
	169	no tag (nt) 3	advanced start	active	3680339.96	327527.87	
	170	18	cavity	active	3680349.91	327540.72	
	171	nt4	start	active	3680357.62	327536.11	
	172	25	cavity	active	3680339.61	327562.31	
	173	2	insert cavity	inactive	3680316.03	327471.98	
	174	nt2	insert cavity	active	3680306.63	327477.39	
	175	5	cavity	relic	3680321.83	327441.42	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
6 Cont.	176	4	cavity	relic	3680351.95	327449.17	
	177	16	no visible cavity	relic	3680377.84	327356.53	
	178	716	cavity	relic	3680342.15	327331.50	
	179	7	cavity	relic	3680307.33	327324.37	
	180	nt1	advanced start	active	3680313.64	327335.76	
	181	8	start	possibly active	3680302.18	327314.51	
	182	n/a	start	active	3680314.12	327239.91	
7	295	627	cavity	relic	3679043.48	328503.20	all cavity trees are loblolly pine 2012 nest tree
	296	nt1	cavity	relic	3679032.72	328481.68	
	297	4	insert cavity	relic	3679042.51	328494.33	
	298	727	insert cavity	relic	3679059.14	328474.97	
	299	3	cavity	active	3679061.52	328459.01	
	300	nt2	cavity	active	3679079.37	328462.49	
	301	6	start	inactive	3679122.24	328442.15	
	302	7	insert cavity	active	3679124.15	328401.12	
	303	nt4/620	cavity	relic	3679074.92	328402.49	
	304	1	insert cavity	active	3679062.05	328411.48	
	305	2	cavity	inactive	3679030.94	328411.41	
	306	8	insert cavity	missing from tree	3679029.51	328390.30	
	307	nt3/621	start	relic	3679073.84	328338.80	
8	112	new tree	start	possibly active	3678519.87	327708.17	all cavity trees are loblolly pine 2012 nest tree dying
	113	nt7	advanced start	active	3678403.89	327740.77	
	114	617	insert cavity	relic	3678388.04	327618.79	
	115	nt5	recently complete cavity	active	3678376.50	327606.66	
	116	5	insert cavity	relic	3678391.41	327576.85	
	117	684	cavity	relic	3678412.17	327603.08	
	118	nt6	cavity	active	3678422.88	327614.66	
	119	81	insert cavity	missing from tree	3678415.87	327577.09	
	120	4	insert cavity	relic	3678429.77	327545.64	
	121	nt4	start	inactive	3678445.90	327526.33	
	122	3	insert cavity	inactive	3678446.21	327522.78	
	123	6	start	active	3678493.76	327474.60	
	124	nt3	cavity	active	3678501.77	327453.67	
	125	nt2	insert cavity	inactive	3678482.32	327441.38	
	126	nt1	insert cavity	active	3678483.35	327431.47	
	127	9	insert cavity	inactive	3678493.70	327429.16	
	128	8	cavity	relic	3678514.33	327422.86	
	129	7	cavity	relic	3678521.18	327419.95	
13	393	31	cavity	active	3682611.82	332640.52	2012 nest tree

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
13 Cont.	394	30	cavity	active	3682594.91	332633.61	all cavity trees are loblolly pine
	395	nt1	cavity	relic	3682614.91	332735.28	
	396	14	start	inactive	3682583.39	332735.44	
	397	25	insert cavity	inactive	3682690.65	332695.06	
	398	24	insert cavity	inactive	3682701.26	332687.79	
	399	22	cavity	inactive	3682694.78	332742.57	
	400	21	insert cavity	inactive	3682702.84	332742.01	
	401	23	insert cavity	inactive	3682739.46	332772.11	
	402	16	cavity	relic	3682736.90	332806.21	
	403	693	cavity	relic	3682708.86	332773.09	
	404	12	cavity - snapped at cavity	relic	3682900.86	332700.31	
	405	212	cavity	relic	3682955.06	332842.70	
	406	15	no visible cavity	relic	3682972.90	332867.71	
	407	66	start	relic	3682938.79	332871.34	
14	434	7	insert cavity	inactive	3683221.93	333051.48	all cavity trees are loblolly pine
	435	8	insert cavity	possibly active	3683208.44	333067.13	
	436	9	cavity	active	3683205.15	333084.16	
	437	28	cavity	relic	3683199.48	333086.26	
	438	684	cavity	relic	3683184.66	333089.45	
	439	9	cavity	relic	3683181.64	333111.72	
	440	95	cavity	relic	3683179.59	333117.37	
	441	4	no visible cavity	relic	3683174.15	333122.46	
	442	96	no visible cavity	relic	3683142.17	333116.60	
	443	8	cavity	relic	3683118.32	333133.21	
	444	3	advanced start	active	3683155.35	333096.37	
	445	2	cavity	relic	3683160.55	333067.59	
	446	98	cavity	relic	3683059.63	333073.53	
	447	5	start	inactive	3683233.95	333090.43	
	448	29	cavity	relic	3683243.94	333108.92	new 2012 nest tree, 1st attempt
	449	new tree	cavity	active	3683235.69	333145.44	
	450	30	start	relic	3683304.85	333110.11	
	451	6	cavity	relic	3683306.30	333100.43	
	452	10	cavity	inactive	3683311.81	333105.21	
	453	20	cavity	active	3683328.08	333101.65	
	454	31	no visible cavity	relic	3683334.79	333138.09	
	455	21	cavity	relic	3683389.75	333077.78	
15	183	5	cavity	active	3681994.34	328083.22	2012 nest tree all cavity trees are loblolly pine
	184	6	insert cavity	active	3681981.03	328136.64	
	185	nt5	recently complete cavity	active	3681996.07	328144.10	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
15 Cont.	186	2	cavity	relic	3682011.11	328160.37	
	187	7	insert cavity	inactive	3681964.88	328157.48	
	188	new tree	start	inactive	3681914.61	328236.07	
	189	nt4	cavity	active	3681904.86	328192.04	
	190	nt3	insert cavity	inactive	3681923.50	328142.99	
	191	nt2	insert cavity	active	3681941.53	328132.96	
	192	nt1	advanced start	active	3681954.39	328119.80	
	193	3	insert cavity	inactive	3681950.53	328114.82	
	194	717	insert cavity	missing from tree	3681967.14	328096.60	
	195	8	cavity	active	3681944.64	328064.27	
17	252	703	cavity	relic	3679518.34	330380.63	all cavity trees are loblolly pine 2012 nest tree
	253	639	cavity	relic	3679521.15	330424.85	
	254	758	insert cavity	relic	3679466.22	330424.41	
	255	9	recently complete cavity	active	3679452.80	330421.75	
	256	17	cavity	inactive	3679442.60	330397.64	
	257	new tree	cavity	active	3679415.77	330410.38	
	258	11	cavity	relic	3679442.47	330597.89	
	259	nt2	start	possibly active	3679475.61	330625.52	
	260	19	insert cavity	active	3679471.02	330565.95	
	261	20	start	possibly active	3679454.10	330536.22	
	262	5	insert cavity	active	3679458.59	330531.28	
	263	22	insert cavity	inactive	3679461.96	330517.54	
	264	6	cavity	inactive	3679451.47	330505.81	
	265	7	cavity	active	3679496.92	330491.05	
	266	14	advanced start	active	3679498.90	330498.58	
	267	nt3	start	relic	3679359.88	330430.62	
	268	2	start	relic	3679335.26	330374.53	
	270	ot 18/12	start	relic	3679311.17	330492.02	
	0	nt1	cavity	relic	3679790.01	330427.45	
							tree missed during tagging/painting
19	143	65	cavity	relic	3681124.37	327725.75	all cavity trees are loblolly pine 2012 nest tree
	144	799	cavity	relic	3681155.96	327624.59	
	145	13	cavity	relic	3681225.51	327602.45	
	146	61	cavity	relic	3681221.83	327636.30	
	147	63	cavity	relic	3681281.68	327632.17	
	148	64	cavity	relic	3681303.54	327654.63	
	149	nt2	cavity	active	3681459.38	327610.62	
	150	nt3	cavity	inactive	3681495.08	327608.48	
	151	nt4	start	active	3681517.93	327626.64	
	152	11	cavity	relic	3681435.12	327646.39	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
19 Cont.	153	new tree	cavity	relic	3681437.33	327691.79	
	154	681	cavity	relic	3681356.43	327678.62	
	155	nt1	cavity	active	3681339.03	327756.54	
	156	7	cavity	relic	3681246.87	327752.52	
	157	10	cavity	relic	3681250.57	327742.06	
	158	2	insert cavity	possibly active	3681237.61	327736.91	
	159	9	insert cavity	possibly active	3681228.39	327742.83	
	160	nt5	cavity	relic	3681200.91	327747.98	
	161	690	cavity	relic	3681190.13	327711.34	
	162	5	no visible cavity	relic	3681169.86	327740.16	
	163	4	insert cavity	inactive	3681198.93	327769.21	
23	76	7	cavity	relic	3676946.23	330819.25	all cavity trees are loblolly pine
	77	8	cavity	relic	3676707.57	330751.15	
	78	nt2	insert cavity	inactive	3676744.65	330720.44	
	79	RC82E.7/63-1	cavity	inactive	3676744.44	330698.15	
	80	3	insert cavity	inactive	3676693.47	330754.22	
	81	724	insert cavity	relic	3676670.82	330730.63	
	82	4	cavity	inactive	3676675.21	330728.28	
	83	5	cavity	relic	3676663.34	330721.93	
	84	723	start	inactive	3676663.71	330716.90	
	85	10	cavity	active	3676656.06	330717.14	
	86	nt1	start	possibly active	3676643.97	330734.84	
	87	11	cavity	relic	3676616.74	330725.55	
	88	6	cavity	relic	3676621.93	330705.72	
	89	12	insert cavity	inactive	3676682.37	330689.57	
	90	1	insert cavity	relic	3676686.48	330671.89	
	91	9	start	relic	3676695.47	330684.07	
27	308	14	start	relic	3679378.67	329320.48	all cavity trees are loblolly pine
	309	10	cavity	relic	3679392.27	329336.65	
	310	16	start	relic	3679410.64	329312.90	
	311	new tree	cavity	active	3679345.70	329170.39	
	312	nt2	start	inactive	3679436.25	329110.92	
	313	11	cavity	relic	3679270.26	329110.94	
	314	12	start	inactive	3679273.70	329130.20	
	315	13	advanced start	possibly active	3679267.62	329132.36	
	316	18	insert cavity	active	3679269.07	329117.50	
	317	5	cavity	relic	3679246.65	329096.72	
	318	19	insert cavity	possibly active	3679225.48	329132.22	
	319	4	cavity	active	3679241.93	329140.86	
							2012 nest tree

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
27 Cont.	320	17	start	inactive	3679289.54	329180.59	dead - did not tag/paint
	321	nt1	start	inactive	3679285.54	329242.26	
	0	2	insert cavity	relic	3679328.97	329237.15	
28	14	54	advanced start	relic	3691418.89	322983.58	all cavity trees are loblolly pine
	16	52	cavity	relic	3691396.88	322926.35	
	17	10	cavity	relic	3691380.41	322977.79	
	18	5	cavity	relic	3691344.35	322984.06	
	19	6	no visible cavity	relic	3691341.25	323015.21	
	20	4	insert cavity	active	3691348.83	323028.05	
	21	nt1	insert cavity	inactive	3691353.69	323036.22	
	22	new insert	insert cavity	inactive	3691382.64	323023.44	
	23	3	insert cavity	inactive	3691374.25	323037.20	
	24	new insert	insert cavity	inactive	3691390.35	323026.14	
	25	new insert	insert cavity	inactive	3691390.64	323040.50	
	26	7	start	inactive	3691411.58	323094.56	
	27	8	cavity	relic	3691373.43	323132.99	
	28	688	cavity	relic	3691411.64	323181.76	
	29	50	cavity	relic	3691460.32	322952.74	
	30	9	cavity	relic	3691505.12	323011.84	
	31	49	cavity	relic	3691539.69	322993.96	
	32	57	cavity	relic	3691516.69	322936.43	
37	417	3	start	relic	3679892.38	330072.52	all cavity trees are loblolly pine
	418	604	cavity	relic	3679848.05	330027.54	
	419	670	cavity	relic	3679808.01	330084.26	
	420	nt1	start	relic	3679875.39	330134.79	
	421	6	insert cavity	possibly active	3679901.30	330153.75	
	422	10	cavity	relic	3679880.60	330168.64	
	423	5	advanced start	inactive	3679893.74	330182.01	
	424	nt2	cavity	relic	3679913.43	330201.15	
	425	607	insert cavity	active	3679950.61	330212.07	
	426	2	insert cavity	active	3679947.23	330163.50	
	427	14	cavity	relic	3679925.19	330292.27	
	428	new tree	cavity	relic	3679948.58	330330.78	
	429	19	cavity	inactive	3679848.24	330370.59	
	430	nt3	start	inactive	3679847.84	330359.63	
	431	11	cavity	relic	3679876.95	330256.58	
	432	17	cavity	relic	3679875.85	330221.43	
	433	12	start	relic	3679906.16	330250.76	
48	0	1	insert cavity	relic	3681675.41	332036.11	all cavity trees are loblolly pine

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
48 Cont.	0	2	cavity	relic	3681651.89	332001.95	dead
	0	4	insert cavity	relic	3681647.99	331990.31	
	0	5	insert cavity	relic	3681642.26	331972.75	
	0	6	cavity	relic	3681651.01	331981.84	
	0	9	cavity	relic	3681571.69	331942.29	
	0	10	cavity	relic	3681734.13	331990.20	
	0	11	cavity	relic	3681661.25	332010.10	
	0	12	cavity	relic	3681637.33	332015.77	
	0	12a	cavity	relic	3681642.51	331970.58	
	0	13	insert cavity	relic	3681716.30	331988.48	
	0	14	cavity	relic	3681678.14	331906.29	
54	353	new insert	insert cavity	inactive	3694992.78	324806.30	installed fall of 2011
	354	11	cavity	relic	3694998.75	324806.18	
	355	new insert	insert cavity	inactive	3694995.25	324811.66	installed fall of 2011
	356	new insert	insert cavity	inactive	3695007.54	324813.74	installed fall of 2011
	357	new insert	insert cavity	inactive	3695012.76	324829.47	installed fall of 2011
	358	3	insert cavity	missing from tree	3695092.70	324746.67	
	359	10	cavity	inactive	3695111.03	324726.60	
	360	8	cavity	relic	3695112.61	324748.41	
	361	4	insert cavity	relic	3695114.89	324756.82	
	362	new tree	start	inactive	3695104.52	324758.14	
	363	nt1	cavity	relic	3695146.19	324744.04	
	364	9	cavity	relic	3695124.94	324744.58	
	365	7	insert cavity	missing from tree	3695159.32	324785.19	
	366	5	insert cavity	relic	3695124.86	324774.69	
	367	6	insert cavity	relic	3695118.82	324792.21	
60	0	1	cavity	relic	3692239.83	322053.14	all cavity trees are loblolly pine
	0	7	insert cavity	relic	3692283.15	322049.26	
	0	10	cavity	relic	3692434.67	322157.55	
	0	25	cavity	inactive	3692354.25	322051.25	
	0	26	insert cavity	inactive	3692364.86	322066.01	
	0	780	cavity	inactive	3692296.07	322056.93	
	0	785	cavity	relic	3692450.06	322194.74	
	0	786	cavity	relic	3692449.97	322198.37	
	0	787	cavity	relic	3692408.51	322032.79	
	0	new insert	insert cavity	inactive	3692306.84	322056.62	
	0	new insert	insert cavity	inactive	3692325.43	322083.95	
	0	new insert	insert cavity	inactive	3692312.40	322088.99	
	0	nt1	insert cavity	relic	3692318.67	322037.59	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
60 Cont.	0	nt2	insert cavity	missing from tree	3692377.25	322039.50	healed over
	0	nt3	cavity	relic	3692462.75	322053.15	
	0	nt4	cavity	relic	3692323.47	322200.89	
	0	nt5	cavity	relic	3692299.59	322130.17	
	0	nt5	cavity	relic	3692299.59	322130.17	
79	0	1	insert cavity	relic	3683297.52	332232.53	all cavity trees are loblolly pine
	0	3	cavity	relic	3683299.06	332162.11	
	0	4	insert cavity	relic	3683294.91	332219.67	
	0	5	insert cavity	relic	3683263.61	332287.07	
	0	6	advanced start	relic	3683294.06	332223.54	
	0	14	start	relic	3683276.63	332207.69	
	0	15	start	relic	3683274.93	332215.96	
	0	16	cavity	relic	3683311.26	332200.68	
	0	732	insert cavity	relic	3683304.48	332203.59	
	0	733	cavity	relic	3683289.72	332191.39	
	0	nt1	insert cavity	relic	3683269.99	332268.85	
	0	nt1	insert cavity	relic	3683269.99	332268.85	
80	0	3	start	relic	3680204.42	330889.56	all cavity trees are loblolly pine
	0	4	insert cavity	relic	3680208.29	330912.33	
	0	5	cavity	relic	3680211.81	330919.82	
	0	6	insert cavity	relic	3680202.58	330955.80	
	0	7	cavity	relic	3680166.00	330921.20	
	0	8	cavity	inactive	3680183.57	330888.72	
	0	9	insert cavity	inactive	3680143.19	330944.41	
	0	11	insert cavity	inactive	3680151.09	330965.06	
	0	757	cavity	relic	3680229.20	330910.36	
	0	new insert	insert cavity	inactive	3680108.75	330998.44	
	0	new insert	insert cavity	inactive	3680128.07	331020.22	
	0	nt1	cavity	relic	3680051.81	330828.93	
	0	nt2	insert cavity	inactive	3680176.63	330962.95	
	0	nt2	insert cavity	inactive	3680176.63	330962.95	
82	1	6	cavity	inactive	3691056.14	323584.73	all cavity trees are loblolly pine installed fall of 2011 2012 nest tree
	2	new insert	insert cavity	active	3691052.60	323588.70	
	3	nt1	cavity	active	3691052.23	323584.75	
	4	new tree	cavity	active	3691145.24	323513.65	
	5	new tree	cavity	active	3691139.26	323452.07	
	6	9	insert cavity	inactive	3691077.52	323603.07	
	7	nt3	start	relic	3691094.67	323629.13	
	8	7	cavity	relic	3691119.31	323612.03	
	9	8	insert cavity	active	3691132.42	323594.27	
	10	nt4	start	relic	3691147.98	323562.35	
	11	5	insert cavity	inactive	3691167.19	323539.21	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
82 Cont.	12	RC82A.5	cavity	relic	3691198.37	323583.06	
	13	651/RC82A.1	cavity	relic	3691191.29	323603.75	
	15	761	advanced start	relic	3691219.59	323621.98	
88	68	998-999	cavity	relic	3676556.12	326504.60	all cavity trees are loblolly pine installed April 2012 installed April 2012 installed April 2012 installed April 2012
	69	new insert	insert cavity	inactive	3676559.35	326494.63	
	70	new insert	insert cavity	inactive	3676551.26	326483.59	
	71	998-999	cavity	relic	3676541.20	326493.30	
	72	new insert	insert cavity	inactive	3676526.08	326485.74	
	73	new insert	insert cavity	inactive	3676527.00	326474.39	
	74	998-999	cavity	relic	3676513.22	326477.08	
	75	998-999	cavity	relic	3676516.36	326473.32	
	468	998-999	cavity	relic	3676627.02	326641.86	
	469	998-999	cavity	relic	3676597.72	326636.83	
89	0	1	insert cavity	relic	3687632.76	328889.99	all cavity trees are loblolly pine
	0	3	insert cavity	relic	3687697.73	328828.00	
	0	4	insert cavity	relic	3687743.04	328821.53	
90	329	1	insert cavity	relic	3694431.38	323387.96	all cavity trees are loblolly pine installed April 2012 installed April 2012
	330	new insert	insert cavity	inactive	3694466.85	323369.65	
	331	new insert	insert cavity	inactive	3694470.18	323378.55	
	332	3	insert cavity	inactive	3694481.18	323328.56	
	333	nt1	cavity	relic	3694501.72	323323.91	
	334	4	insert cavity	inactive	3694513.49	323316.99	
	335	new tree	start	inactive	3694524.69	323306.45	
	336	nt2	cavity	inactive	3694536.21	323348.92	
91	348	new insert	insert cavity	inactive	3694817.26	324224.94	installed April 2012 installed April 2012 installed April 2012 installed April 2012 all cavity trees are loblolly pine installed April 2012 installed April 2012 installed April 2012 all cavity trees are loblolly pine
	349	new insert	insert cavity	inactive	3694824.24	324219.52	
	350	new insert	insert cavity	inactive	3694813.89	324221.32	
	351	new insert	insert cavity	inactive	3694807.64	324236.82	
	352	1	insert cavity	relic	3694865.13	324232.85	
92	463	new insert	insert cavity	inactive	3692770.52	323122.94	
	464	new insert	insert cavity	inactive	3692781.34	323126.07	
	465	new insert	insert cavity	inactive	3692782.20	323129.19	
	466	4	insert cavity	inactive	3692794.53	323212.77	
	467	1	insert cavity	inactive	3692760.73	323099.90	
93	92	new insert	insert cavity	inactive	3677655.98	332610.61	installed April 2012 all cavity trees are loblolly pine
	93	4	insert cavity	inactive	3677672.78	332613.31	
	94	3	insert cavity	inactive	3677700.47	332589.48	
	95	2	insert cavity	inactive	3677684.13	332637.36	
	96	nt1	insert cavity	inactive	3677688.80	332634.59	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
93 Cont.	97	1	insert cavity	inactive	3677720.66	332650.95	
94	53	1	insert cavity	active	3676467.30	329990.10	all cavity trees are loblolly pine 2012 nest tree
	54	nt1	insert cavity	inactive	3676465.21	330003.61	
	55	2	insert cavity	active	3676471.50	330029.73	
	56	6	insert cavity	active	3676458.67	330066.86	
	57	3	insert cavity	inactive	3676483.46	330074.75	
95	456	2	insert cavity	relic	3690724.00	324478.88	all cavity trees are loblolly pine installed fall of 2011 2012 nest tree
	457	new insert	insert cavity	inactive	3690729.41	324462.72	
	458	1	insert cavity	relic	3690724.78	324504.66	
	459	4	insert cavity	active	3690691.16	324466.18	
	460	3	insert cavity	active	3690667.91	324474.66	
	461	5	cavity	possibly active	3690662.97	324466.13	
	462	6	recently complete cavity	active	3690617.56	324468.18	
96	0	1	insert cavity	relic	3687890.83	327496.01	all cavity trees are loblolly pine
	0	3	insert cavity	relic	3687938.61	327459.67	
	0	5	cavity	relic	3687770.45	327487.88	
	0	nt1	cavity	relic	3687757.15	327464.52	
97	0	1	insert cavity	relic	3687694.03	326803.90	all cavity trees are loblolly pine
	0	2	insert cavity	relic	3687726.99	326805.90	
	0	3	insert cavity	relic	3687750.15	326800.72	
98	0	3	insert cavity	relic	3688434.44	324710.81	all cavity trees are loblolly pine
	0	4	insert cavity	relic	3688475.62	324735.20	
99	0	1	insert cavity	relic	3687928.02	328148.10	all cavity trees are loblolly pine
	0	2	insert cavity	relic	3687931.63	328130.47	
	0	3	insert cavity	relic	3687889.25	328110.58	
	0	4	insert cavity	relic	3687882.06	328132.94	
100	281	nt2	start	active	3678005.18	328151.19	all cavity trees are loblolly pine 2012 nest tree
	282	7	cavity	relic	3677966.16	328218.01	
	283	4	insert cavity	relic	3677909.51	328309.56	
	284	1	insert cavity	relic	3677951.17	328300.31	
	285	8	insert cavity	active	3677824.66	328278.02	
	286	10	insert cavity	active	3678029.28	328135.02	
	287	9	advanced start	active	3678026.31	328133.15	
	288	3	insert cavity	active	3678029.37	328103.19	
	289	2	advanced start	inactive	3678030.56	328102.02	
	290	new tree	start	inactive	3678040.07	328108.96	
	291	5	insert cavity	active	3678041.56	328098.94	
	292	new tree	start	active	3678060.10	328084.73	
	293	new tree	start	active	3678063.10	328078.18	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
100 Cont.	294	8	insert cavity	active	3677993.73	328140.54	
101	337	4	insert cavity	relic	3694076.44	322866.63	all cavity trees are loblolly pine installed fall of 2011 installed fall of 2011
	338	3	advanced start	relic	3694087.94	322795.30	
	339	2	insert cavity	relic	3694068.14	322772.65	
	340	nt3	start	inactive	3694169.75	322895.55	
	341	nt2	insert cavity	inactive	3694143.82	322912.15	
	342	new insert	insert cavity	inactive	3694141.10	322915.03	
	343	nt1	insert cavity	inactive	3694134.15	322923.92	
	344	new insert	insert cavity	inactive	3694136.12	322934.61	
	345	nt4	cavity	relic	3694213.70	322923.60	
	346	6	insert cavity	relic	3694119.60	322918.76	
	347	5	insert cavity	relic	3694108.78	322896.69	
102	0	1	insert cavity	relic	3682672.35	335438.98	all cavity trees are loblolly pine PIWO damage installed fall of 2011 installed fall of 2011
	0	2	insert cavity	relic	3682699.17	335457.76	
	0	3	insert cavity	inactive	3682704.66	335474.28	
	0	4	insert cavity	relic	3682655.49	335440.01	
	0	new insert	insert cavity	inactive	3682666.86	335440.63	
	0	new insert	insert cavity	inactive	3682649.47	335445.38	
103	196	nt1	cavity	active	3682171.74	326658.15	all cavity trees are loblolly pine installed fall of 2011; 2012 nest tree
	197	new insert	insert cavity	active	3682169.89	326679.94	
	198	19	cavity	inactive	3682172.66	326734.69	
	199	26	insert cavity	active	3682147.99	326751.26	
	201	15	insert cavity	relic	3682118.43	326773.09	
	202	25	insert cavity	possibly active	3682177.49	326820.09	
	203	6	cavity	relic	3682181.53	326813.13	
	204	9	cavity	relic	3682185.24	326894.05	
	205	7	cavity	relic	3682227.76	326920.25	
	206	28	cavity	relic	3682273.49	326905.12	
	207	5	cavity	relic	3682243.06	326822.18	
	208	725	cavity	relic	3682232.57	326657.85	
104	371	3	insert cavity	active	3682979.06	331558.06	all cavity trees are loblolly pine 2012 nest tree
	372	nt1	insert cavity	active	3683017.07	331595.02	
	373	11	cavity	inactive	3683046.37	331580.49	
	374	new tree	start	active	3683036.30	331616.92	
	375	new tree	advanced start	active	3683040.24	331622.03	
	376	708	insert cavity	missing from tree	3683049.24	331631.33	
	377	1	cavity	relic	3683037.85	331632.42	
	378	nt2	recently complete cavity	active	3683011.77	331628.53	
	379	12	cavity	active	3683019.85	331653.11	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
104 Cont.	380	10	cavity	relic	3682966.73	331625.86	healed over
	381	5	cavity	relic	3682956.72	331612.62	healed over
	382	709	cavity	relic	3682955.39	331607.76	healed over
105	209	1	insert cavity	inactive	3680753.30	325630.59	all cavity trees are loblolly pine installed April 2012 installed April 2012 installed April 2012
	210	new insert	insert cavity	inactive	3680703.00	325651.13	
	211	new insert	insert cavity	inactive	3680691.76	325652.96	
	212	new insert	insert cavity	inactive	3680684.47	325639.69	
	213	4	insert cavity	inactive	3680649.43	325627.73	
	214	3	insert cavity	inactive	3680690.15	325613.20	
	215	2	insert cavity	relic	3680726.95	325654.28	
106	383	7	insert cavity	relic	3680746.68	331644.07	all cavity trees are loblolly pine 2012 nest tree
	384	nt1	cavity	active	3680763.58	331644.76	
	385	8	insert cavity	missing from tree	3680761.62	331671.86	
	386	2	cavity	relic	3680780.64	331612.07	
	387	4	insert cavity	active	3680769.36	331607.63	
	388	754	insert cavity	missing from tree	3680748.48	331598.75	
	389	5	insert cavity	active	3680738.88	331603.38	
	390	3	insert cavity	active	3680726.43	331595.99	
	391	nt3	cavity	active	3680679.10	331830.61	
	392	nt2	recently complete cavity	active	3680673.17	331801.87	
107	226	new insert	insert cavity	active	3681354.79	328866.60	installed fall of 2011; 2012 nest tree all cavity trees are loblolly pine installed fall of 2011 insert replaced fall of 2011
	227	nt1	start	possibly active	3681353.98	328874.45	
	228	2	insert cavity	active	3681362.14	328871.11	
	229	new insert	insert cavity	active	3681348.95	328869.13	
	230	1	insert cavity	active	3681342.31	328866.59	
	231	9	insert cavity	active	3681337.90	328856.38	
	232	5	insert cavity	relic	3681330.63	328860.40	
	233	8	advanced start	inactive	3681292.07	328849.21	
	234	3	insert cavity	missing from tree	3681382.82	328881.90	
	235	4	insert cavity	inactive	3681430.31	328887.55	
108	0	1	insert cavity	relic	3680101.73	323890.52	all cavity trees are loblolly pine
	0	2	insert cavity	relic	3680094.31	323901.59	
	0	3	insert cavity	relic	3680068.67	323852.96	
	0	4	insert cavity	relic	3680112.99	323938.42	
109	0	1	insert cavity	relic	3682516.18	334543.03	all cavity trees are loblolly pine
	0	3	insert cavity	inactive	3682482.44	334573.60	
	0	4	cavity	inactive	3682443.11	334651.57	
	0	5	start	relic	3682555.66	334576.90	
	0	7	start	relic	3682496.51	334549.41	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
109 Cont.	0	9	insert cavity	relic	3682484.03	334555.43	
	0	719	insert cavity	relic	3682509.11	334570.81	
110	244	7	cavity	active	3679394.24	330213.94	2012 nest tree all cavity trees are loblolly pine
	245	9	insert cavity	active	3679401.92	330206.09	
	246	new substart	substart	active	3679439.87	330210.65	
	247	2	insert cavity	relic	3679456.22	330185.25	
	248	3	insert cavity	inactive	3679462.11	330175.93	
	249	10	insert cavity	active	3679486.14	330145.66	
	250	8	insert cavity	active	3679476.22	330191.83	
	251	1	cavity	relic	3679595.90	330318.64	
	269	1a	cavity	relic	3679350.36	330361.34	
112	38	16	cavity	active	3676565.20	331567.03	2012 nest tree all cavity trees are loblolly pine healed over
	39	4	insert cavity	relic	3676549.38	331564.63	
	40	14	insert cavity	active	3676546.86	331584.24	
	41	3	insert cavity	relic	3676510.34	331547.41	
	42	2	insert cavity	relic	3676477.09	331533.26	
	43	5	cavity	relic	3676447.31	331533.76	
	44	6	cavity	relic	3676422.19	331539.39	
	45	12	cavity	relic	3676448.29	331508.66	
	46	15	insert cavity	possibly active	3676517.71	331496.99	
	47	14	cavity	relic	3676539.47	331504.39	
	48	1	insert cavity	relic	3676566.62	331510.47	
	49	10	cavity	relic	3676573.54	331523.88	
	50	13	start	relic	3676579.06	331526.57	
	51	8	cavity	relic	3676609.49	331540.74	
	52	9	insert cavity	active	3676584.60	331502.90	
113	130	3	insert cavity	possibly active	3678605.67	326905.31	all cavity trees are loblolly pine 2012 nest tree
	131	6	insert cavity	active	3678591.86	326915.81	
	132	nt2	recently complete cavity	active	3678579.67	326925.34	
	133	5	insert cavity	inactive	3678575.07	326923.34	
	134	nt6	cavity	active	3678578.54	326895.46	
	135	nt5	advanced start	possibly active	3678573.02	326885.41	
	136	8	start	possibly active	3678563.69	326883.15	
	137	1	insert cavity	relic	3678570.74	326878.21	
	138	7	insert cavity	active	3678607.86	326873.43	
	139	nt3	cavity	inactive	3678590.27	326833.86	
	140	nt4	cavity	inactive	3678575.06	326845.75	
	141	2	insert cavity	relic	3678506.77	326891.76	
	142	nt1	advanced start	inactive	3678621.37	326941.40	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
114	216	nt2	advanced start	active	3678661.88	329001.75	all cavity trees are loblolly pine 2012 nest tree
	217	9	cavity	active	3678703.72	329009.82	
	218	11	cavity	active	3678698.34	328983.83	
	219	20	insert cavity	possibly active	3678685.08	328974.86	
	220	nt1	insert cavity	active	3678683.61	328952.26	
	221	2	insert cavity	inactive	3678742.80	328960.81	
	222	6	insert cavity	active	3678747.21	328972.51	
	223	12	cavity	active	3678764.90	328950.94	
	224	7	cavity	relic	3678783.16	328991.06	
	225	8	insert cavity	relic	3678753.75	328991.67	
116	271	9	insert cavity	inactive	3679867.63	331418.53	all cavity trees are loblolly pine installed fall of 2011 2012 nest tree
	272	12	insert cavity	inactive	3679849.39	331411.19	
	273	new insert	insert cavity	inactive	3679837.47	331413.67	
	274	nt1	insert cavity	active	3679838.33	331432.63	
	275	6	cavity	relic	3679844.61	331452.42	
	276	5	insert cavity	active	3679838.36	331458.49	
	277	2	insert cavity	relic	3679857.85	331459.14	
	278	4	insert cavity	relic	3679878.47	331430.25	
	279	11	cavity	relic	3680033.03	331464.59	
	280	10	cavity	relic	3680048.28	331448.74	
117	33	1	insert cavity	relic	3677804.50	331788.66	all cavity trees are loblolly pine 2012 nest tree
	34	9	insert cavity	active	3677821.19	331784.97	
	35	4	insert cavity	relic	3677807.07	331762.63	
	36	8	insert cavity	active	3677828.15	331799.72	
	37	5	insert cavity	missing from tree	3677862.35	331815.14	
118	98	nt1	Start	inactive	3677876.84	331075.26	shortleaf pine all other cavity trees are loblolly pine installed April 2012 installed April 2012 installed April 2012 healed over
	99	2	insert cavity	inactive	3677916.58	331053.48	
	100	new insert	insert cavity	inactive	3677918.37	331043.36	
	101	new insert	insert cavity	inactive	3677925.47	331038.28	
	102	new insert	insert cavity	inactive	3677916.57	331033.62	
	103	7	cavity	relic	3677919.44	331027.28	
	104	1	insert cavity	inactive	3677917.94	331069.69	
	105	5	cavity	relic	3677921.51	331077.15	
	106	14	start	relic	3677923.64	331084.71	
	107	16	start	relic	3677937.84	331091.90	
	108	15	cavity	relic	3677940.07	331103.69	
	109	8	insert cavity	inactive	3677960.71	331080.86	
	110	9	insert cavity	inactive	3678000.62	331098.08	
	111	17	start	relic	3678013.84	331075.90	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
119	0	1	insert cavity	relic	3682781.13	328675.31	all cavity trees are loblolly pine most trees exhibiting PIWO damage
	0	5	insert cavity	relic	3682753.60	328629.29	
	0	6	insert cavity	relic	3682777.31	328631.28	
	0	7	start	relic	3682765.56	328594.79	insert replaced fall of 2011 insert replaced fall of 2011
	0	8	cavity	inactive	3682723.75	328583.76	
	0	9	insert cavity	inactive	3682741.44	328576.84	
	0	10	insert cavity	inactive	3682735.07	328562.16	installed in fall of 2011; PIWO damage
	0	20	start	inactive	3682764.81	328575.05	
	0	new insert	insert cavity	inactive	3682743.28	328570.21	
120	0	1	insert cavity	missing from tree	3691762.73	322511.88	all cavity trees are loblolly pine
	0	2	start	relic	3691786.09	322539.66	
	0	4	insert cavity	relic	3691758.40	322550.04	
	0	5	cavity	relic	3691790.34	322542.48	installed fall of 2011 installed fall of 2011 installed fall of 2011 installed fall of 2011
	0	6	insert cavity	relic	3691752.65	322536.70	
	0	7	insert cavity	inactive	3691737.64	322527.51	
	0	9	cavity	relic	3691856.65	322528.16	
	0	new insert	insert cavity	inactive	3691742.67	322543.33	
	0	new insert	insert cavity	inactive	3691748.30	322551.21	
	0	new insert	insert cavity	inactive	3691764.90	322526.98	
	0	new insert	insert cavity	inactive	3691737.50	322540.45	
	0	nt1	insert cavity	relic	3691767.07	322541.05	
122	0	new tree	start	active	3676716.85	327166.62	tree missed during tagging/painting all cavity trees are loblolly pine 2012 nest tree - PIWO damage installed fall of 2011 installed fall of 2011 installed fall of 2011
	58	2	insert cavity	relic	3676628.80	327118.18	
	59	nt1	insert cavity	active	3676641.68	327139.04	
	60	new insert	insert cavity	inactive	3676648.68	327137.53	
	61	new insert	insert cavity	inactive	3676651.78	327133.85	
	62	new insert	insert cavity	inactive	3676654.06	327137.60	
	63	nt3	cavity	possibly active	3676609.29	327166.10	
	64	nt4	cavity	relic	3676608.73	327199.73	
	65	4	insert cavity	inactive	3676595.20	327160.18	
	66	3	insert cavity	relic	3676590.53	327142.70	
	67	nt2	insert cavity	inactive	3676566.42	327162.28	
123	0	11 (dead)	insert cavity	inactive	3680871.44	328214.59	dead - did not tag/paint all cavity trees are loblolly pine 2012 nest tree
	408	9	cavity	relic	3680927.14	328312.44	
	409	12	cavity	active	3680986.62	328204.50	
	410	nt1	advanced start	active	3681026.28	328127.34	
	411	new cavity tree	cavity	active	3681008.83	328092.21	
	412	10	insert cavity	active	3680941.13	328199.28	
	413	2	insert cavity	inactive	3680943.12	328187.44	

Table 3. 2012 red-cockaded woodpecker cavity tree status on the Sam D. Hamilton Noxubee National Wildlife Refuge, Brooksville, Mississippi.

Cluster	New Tree #	Old Tree #	Status	Activity	GPS Coordinates (16 N)		Notes
					Northing	Easting	
123 Cont.	414	new start	start	inactive	3680914.60	328221.31	
	415	13	insert cavity	active	3680913.60	328230.95	
	416	4	insert cavity	missing from tree	3680929.21	328241.98	
126	236	7	insert cavity	relic	3682898.13	329676.63	all cavity trees are loblolly pine 2012 nest tree
	237	6	insert cavity	inactive	3682908.77	329662.05	
	238	10	cavity	relic	3682921.66	329648.56	
	239	8	cavity	active	3682928.33	329643.04	
	240	12	insert cavity	active	3682912.72	329636.39	
	241	11	insert cavity	inactive	3682942.11	329621.09	
	242	5	insert cavity	relic	3682973.85	329630.68	
	243	4	start	relic	3683018.96	329673.21	
127	0	1	insert cavity	inactive	3676475.86	332008.39	all cavity trees are loblolly pine
	0	2	insert cavity	inactive	3676481.38	331984.59	
	0	3	insert cavity	inactive	3676527.05	332009.29	
	0	nt1	insert cavity	inactive	3676502.54	331999.13	
128	368	2	insert cavity	relic	3693140.15	324718.64	all cavity trees are loblolly pine beehive in base of tree
	369	3	insert cavity	relic	3693180.90	324724.78	
	370	1	insert cavity	relic	3693125.88	324734.08	
129	322	8	advanced start	inactive	3693678.60	324987.33	all cavity trees are loblolly pine
	323	5	insert cavity	inactive	3693689.12	324920.58	
	324	6	insert cavity	active	3693702.56	324879.47	
	325	nt2/7	advanced start	inactive	3693690.51	324872.62	
	326	9	cavity	active	3693692.70	324810.80	
	327	nt3	cavity	active	3693611.53	324844.95	
	328	nt1	cavity	relic	3693470.56	325055.37	

Color denotes tree not tagged/painted; in most cases being out-of-scope

Appendix 1. Habitat management and/or maintenance recommendations

Active NOX RCW clusters that could benefit from habitat maintenance:

NOX 15 – Needs RX burning to keep re-growth out of cleared areas

NOX 19 – Needs RX burning to keep re-growth out of cleared areas

NOX 23 – Needs RX burning to keep re-growth out of cleared areas

NOX 27 – Needs RX burning to keep re-growth out of cleared areas

NOX 37 - Treat pine regeneration and hardwoods mechanically or chemically

NOX 95 - Treat hardwoods mechanically or chemically and RX burn

NOX 103 – Needs RX burning to keep re-growth out of cleared areas

NOX 104 - Treat hardwoods mechanically or chemically that are growing between the two clumps of cavity trees

NOX 106 – Needs RX burning to keep re-growth out of cleared areas

NOX 116 – Needs RX burning to keep re-growth out of cleared areas

NOX 117 - Treat pine regeneration and hardwoods mechanically or chemically

NOX 126 - Treat pine regeneration and hardwoods mechanically or chemically

Inactive NOX RCW clusters in need of habitat maintenance:

NOX 54 - Treat pine regeneration and hardwoods mechanically or chemically

NOX 91 - Treat pine regeneration and hardwoods mechanically or chemically

NOX 92 - Treat pine regeneration and hardwoods mechanically or chemically

NOX 93 - Treat pine regeneration and hardwoods mechanically or chemically

For all clusters, we suggest treating pine regeneration and hardwoods mechanically or chemically within a 50-foot radius of all cavity trees. Where possible, clear the understory between cavity trees. Post-understory treatment, prescribe burn when there's enough fuel on the ground.