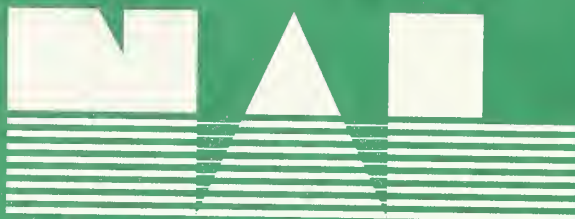


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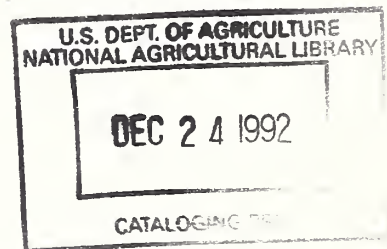
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DRAFT

SUPPLEMENT

**TO THE ENVIRONMENTAL ASSESSMENT
INTERIM STANDARDS AND GUIDELINES FOR THE
PROTECTION AND MANAGEMENT OF RCW HABITAT
WITHIN 3/4 MILE OF COLONY SITES
(Pertaining to the National Forests In Texas)**

DRAFT



Southern Region - USDA Forest Service

June 1991

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United States
Department of
Agriculture

Forest
Service

Regional
Office

1720 Peachtree Rd., NW
Atlanta, Ga. 30367

Reply to:1920/1950/2600

Date: June 28, 1991

Dear Reader:

Enclosed for your review is a supplement to the Environmental Assessment (EA) for Interim Standards and Guidelines for the Protection and Management of Red-cockaded Woodpecker (RCW) Habitat Within 3/4 Mile of Colony Sites. This document pertains only to the National Forests in Texas. As you may recall, we issued a Decision Notice and EA in May 1990, that identified standards and guidelines for protecting and managing RCW habitat until we can develop long-range management strategies. The RCW population on the National Forests in Texas were excluded from that EA because they have been managed under a Court ordered management plan since December 1988. The Forest Service appealed the District Court decision to the U.S. Fifth Circuit Court of Appeals. On March 4, 1991, the Appeals Court issued an opinion, the mandate for which issued on April 18, 1991, vacated that part of the District Court's order mandating the specific features of a RCW Habitat Management Plan. The Appellant Court ruled that, although the District Court may order formulation of a plan addressing the Forest Service's actions with respect to the RCW, the Court must allow the agency to propose a plan and consult upon it with the Fish and Wildlife Service, in accordance with the Endangered Species Act. This Supplement documents the results of analyzing in detail, for the National Forests in Texas, the original five alternatives developed as interim standards and guidelines in the EA for the management of RCW habitat within 3/4 mile of active and inactive colonies on National Forest System (NFS) land in Texas. The selected alternative will be presented to the District Court as the Forest Service's interim RCW management strategy for the National Forests in Texas.

My preference in alternatives, analyzed in this supplement, at this point is alternative 3. This alternative would bring the RCW populations on the National Forests in Texas under the interim standards and guidelines. The biological evaluation (Appendix A of the supplement) indicates alternative 3 is not likely to adversely affect and, in fact, will benefit the RCW. However, prior to making my decision, I would like your comments. I'd like to know how you feel about alternative 3, or if you prefer another alternative, and why. I'll be selecting an alternative in approximately 30 days, so in order for your comments to be considered, they must be sent to Joseph M. Dabney, RCW Team Leader, 1720 Peachtree Rd. NW, Atlanta, GA 30367-9102 by August 2, 1991.

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We will initiate consultation with the USDI Fish and Wildlife Service under Section 7 of the Endangered Species Act for their concurrence with the determination in the biological evaluation to ensure alternative 3, if selected, is not likely to jeopardize the continued existence of a threatened or endangered species.

After considering your comments and those of the Fish and Wildlife Service, I will select the alternative to be implemented and amend the affected Forest Plan, accordingly.

As a point of clarification, this Supplement differs somewhat from the norm in that a significant amount of information from the May 1990, EA has been included in its entirety. Normally, this information would have been included by reference only. The decision to include this information was based on the large number of people/organizations in Texas who are interested in this decision, but have not been keeping abreast of the interim process as the National Forests in Texas have, in the past, been excluded.

I appreciate your time and effort in helping us. If you have questions concerning the proposal, please contact Joseph M. Dabney at 404/347-5097.

Sincerely,



JOHN E. ALCOCK
Regional Forester

Enclosure

I. INTRODUCTION

This document, pertaining only to the National Forests in Texas, is a supplement to the Environmental Assessment Interim Standards and Guidelines for the Protection and Management of RCW Habitat Within 3/4 Mile of Colony Sites (Interim Standards and Guidelines), the Decision Notice for which was signed on May 9, 1990. In that decision, the USDA Forest Service Regional Forester for the Southern Region amended some of the existing Forest Plans to provide additional habitat protection and management measures for Red-cockaded Woodpeckers (RCW) in the National Forests with RCW populations that were experiencing a population decline. Populations to be protected were those with fewer than 250 active colonies. The specific area affected by that decision is all habitat located within 3/4 mile of both active and inactive RCW colonies. The decision applied to all RCW colonies on National Forest System (NFS) lands except the Kisatchie-Vernon-Evangeline (K-V-E) population in Louisiana, the Apalachicola population in Florida, and the populations on the National Forests in Texas. The K-E-V and Apalachicola populations were excluded because they had more than 250 active colonies and had stable or increasing population trends. The National Forests in Texas were excluded because RCW habitat there was being managed under a U.S. District Court-ordered plan.

The Regional Forester's decision of May 9, 1990, selected alternative 3 from the Environmental Assessment (EA) as the interim RCW standards and guidelines. The interim standards and guidelines do not change handbook direction, but supplement it with additional criteria for the protection and management of potential nesting habitat and foraging habitat. They also add mitigation measures to be taken within 3/4 mile of RCW colony sites, to minimize adverse effects. More detailed information regarding the alternative selected can be found on page 5 of the Decision Notice, and pages 14-17 of the EA.

The affected forest plans were amended through the May 9, 1990, decision to add the interim RCW standards and guidelines. Prior to this decision, RCW habitat protection and management standards and guidelines in all Forest Plans was based on the Forest Service Wildlife Habitat Management Handbook, prepared in 1985. As a point of clarification, portions of those compartments identified as having RCW population objectives which fall outside the 3/4 mile zones, will continue to be managed under the handbook.

The EA accompanying the May 9, 1990, interim standards and guidelines was subsequently supplemented with analysis of the RCW populations on the Kisatchie, Evangeline and Vernon Districts of the Kisatchie National Forest in Louisiana and the Apalachicola and Wakulla Districts of the Apalachicola National Forest in Florida. The Decision Notice for that Supplement was signed May 3, 1991, expanding the scope of the interim guidelines to include the Apalachicola National Forest in Florida and the Kisatchie-Vernon-Evangeline Districts of the Kisatchie National Forest in Louisiana. Copies of that supplement and decision are available from Joseph M. Dabney, U.S. Forest Service, 1720 Peachtree RD NW, Atlanta, GA. 30367. At this time, the RCW on the National Forests in Texas are the only populations not being managed under the RCW interim standards and guidelines.

Since December 1988, those RCW populations on NFS lands in Texas have been managed under a District Court ordered plan. The Forest Service appealed the District Court decision to the U.S. Fifth Circuit Court of Appeals. On March 4, 1991, the Appeals Court issued an opinion, the mandate for which issued on April 18, 1991, vacated that part of the District Court's order mandating the specific

features of a RCW Habitat Management Plan. The Appellate Court ruled that, although the District Court may order formulation of a plan addressing the Forest Service's actions with respect to the RCW, the Court must allow the agency to propose a plan and consult upon it with the Fish and Wildlife Service, in accordance with the Endangered Species Act.

This Supplement documents the results of analyzing in detail, for the National Forests in Texas, the original five alternatives developed as interim standards and guidelines in the EA for the management of RCW habitat within 3/4 mile of active and inactive colonies on NFS land in Texas. The selected alternative will be consulted upon with the U.S. Fish and Wildlife Service and be presented to the District Court as the Forest Service's interim RCW management strategy for the National Forests in Texas. The selection of an alternative, other than alternative 1 (no action), will require an amendment to the Land and Resource Management Plans for the affected Forests. It is anticipated that any such amendment will be made through the Decision Notice.

As with the EA, site-specific environmental impacts are not disclosed in this document. Before any ground-disturbing activities can occur, a site-specific environmental analysis and appropriate National Environmental Policy Act (NEPA) document must be prepared. Each project level proposal will also require compliance with the Endangered Species Act (ESA). In addition, any further proposed action will require compliance at the Forest or Project level with the National Forest Management Act (NFMA), or other applicable laws.

II. NEED FOR THE PROPOSAL

PROPOSED ACTION

The proposed action is to supplement the EA for interim standards and guidelines for the protection and management of RCW habitat within 3/4 mile of colony sites with new information to determine an interim management strategy for RCW habitat on the National Forests in Texas. A total of 10 alternatives were developed. Five were considered but eliminated from detailed analysis (see pages 7 & 8). The remaining five were analyzed in detail.

PURPOSE AND NEED

RCW population surveys indicated a significant decline in the number of active colonies for the RCW populations on the National Forests in Texas. This decline prompted a law suit by the Texas Committee on National Resources (TCONR), and the Sierra Club and the Wilderness Society, alleging that the Forest Service's timber management practices harmed the RCW. The Court ruled in favor of the plaintiffs and imposed a Court ordered management plan on RCW habitat within 1200 meters of colony sites. The Forest Service appealed the Court's decision. The Appeals Court's opinion of March 4, 1991, with the issuance of the mandate on April 18, 1991, vacated that part of the District Court's order mandating the specific features of a RCW management plan. Except for this Court ordered plan, the National Forests in Texas would have been included in the scope of the EA for interim standards and guidelines and would have been brought under that direction by the May 9, 1990, decision.

The purpose of this proposed action is to determine an interim management strategy which will halt the current decline in RCW populations and designed to maximize the probability of their survival in the National Forests of Texas in compliance with the standards of administrative review by the District Court.

SCOPE OF THE ANALYSIS AND LOCATION

The scope of analysis and the decision to be made for this supplement is limited to consideration of the RCW populations on NFS lands in Texas, none of which were covered by the May 9, 1990, decision. These areas are currently being managed under a District Court ordered management plan.

The areas are:

<i>National Forest</i>	<i>Population¹ Objective Active Colonies</i>	<i>Number of Colonies³</i>		
		<i>Active</i>	<i>Inactive</i>	<i>Total</i>
Angelina-Sabine NF	250	33	92	125
Davy Crockett NF	125	29	80	109
Sam Houston NF ²	250	135	112	247

¹ --Population objectives from FSM 2609.23R

² --Recovery Populations

³ --Number of colonies based on colony status surveys completed during the 1990 nesting season. These are not population estimates, but represent the current information on known colonies in District records.

ISSUES AND CONCERNS

Public Issues - On April 3, 1991, a scoping letter was sent to interested and affected individuals and organizations that have responded to previous requests, or had ask to be placed on the RCW mailing list. In addition, copies of the letter were sent to the Forest Supervisor in Texas for distribution in local communities. More than 1000 letters were mailed.

The letter requested the public to identify their concerns regarding the proposal to analyze five alternatives to determine the best interim management strategy for the RCW on NFS lands in Texas. The letter requested a response within 30 days. However, all letters, regardless of when they were received, were considered. A total of 35 letters were received. Content analysis was done on each and relevant issues were identified, consolidated, and summarized as follows:

Issue 1 *Whether all applicable laws, such as ESA, NEPA, and NFMA are being met.*

The supplement must fully analyze a complete array of alternatives.

An EA is inadequate, the FS must do an EIS.

The Supplement must have an alternative the same as or similar to the Court Ordered Plan.

One alternative must consider full implementation of the handbook.

Issue 2 ***Whether the socio-economic effects of reducing timber harvest on the National Forest is considered.***

Jobs and economic activity outweigh any RCW considerations.

Reduction of "in lieu of taxes" payment to county governments.

Regional and local impacts to timber industry related employment.

Interim is too costly, impractical, and biologically unfounded.

The FS should provide substitute timber volume for that lost to interim.

Issue 3 ***Modify existing timber management within 3/4 mile of RCW colonies.***

There should be no conversion of off-site pine species back to longleaf pine.

No cutting of any kind in RCW habitat until the species is recovered, then only single tree selection cutting.

No even-aged management of any type.

Issue 4 ***Whether the impacts to other resources caused by RCW management are being considered.***

Protect all species, not just the RCW.

The RCW population on the Sam Houston National Forest is increasing, therefore, the FS should stop spending money to further increase RCW populations.

Relocation of ORV trails should not be required due to RCW.

Evaluate impacts of RCW on other wildlife species, especially the impacts of eliminating hardwoods.

Table 1 displays how each alternative responds to the issues.

TABLE 1 - Alternative Responses to Issues

Issues	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
1. Whether all applicable laws, such as ESA, NEPA and NFMA are being met.	1. Forest regulations require our compliance with all applicable laws, including the analysis of an adequate array of alternatives.	1. Same as alternative 1.	1. Same as alternative 1.	1. Same as alternative 1.	1. Same as alternative 1.
2. Whether the socioeconomic effects of reducing timber harvest from the National Forest is considered.	2. Potential effects analyzed and displayed for review and consideration by decision-maker under environmental consequences.	2. Same as alternative 1.	2. Same as alternative 1.	2. Same as alternative 1.	2. Same as alternative 1.
3. Modify existing forest management within 3/4 mile of RCW colonies.					
a. There should be no conversion of off-site pine species back to longleaf pine.	a. Not specifically addressed in the handbook. Follow standard silvicultural guidelines.	a. Conversion allowed to improve RCW habitat.	a. Same as alternative 2.	a. Conversion allowed to improve RCW habitat. Requires Regional Forester's signature.	a. Not allowed.
b. No cutting of any kind in RCW habitat until the species is recovered, then only single tree selection.	b. Habitat management would follow FSH 2609.23R.	b. Emphasis would be on thinning pine stands. Regeneration would be by the shelterwood method unless certain criteria met to allow clearcutting that would improve RCW habitat.	b. Same as alternative 2.	b. Only thinning would be allowed during the interim period unless regeneration needed for understocked, damaged stands or conversion to longleaf and RCW would not be adversely affected. Requires Regional Forester's signature.	b. Only thinning would be allowed during the interim period.

TABLE 1 - Alternative Responses to Issues

Issues	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
c. No even-aged management of any type.	c. Even-aged management would continue with artificial and natural regeneration.	c. Even-aged management would continue but emphasis on shelterwood and seedtree methods of regeneration. Clearcutting would be done only under specific criteria to benefit RCW habitat.	c. Same as alternative 2.	c. Regeneration under even-aged management would be minimal and limited to understocked and damaged stands not identified as foraging and conversion of off-site pine back to long-leaf. Requires Regional Forester's signature.	c. No regeneration would occur during interim period.
4. Whether the impacts to other resources caused by RCW management are being considered.	4. Site specific environmental analyses would identify and evaluate potential impacts to RCW and other resources.	4. Same as alternative 1.	4. Same as alternative 1.	4. Same as alternative 1.	4. Same as alternative 1.

III. ALTERNATIVES

The preceding issues, as well as those identified in the EA, were used in considering and developing 10 alternatives. Five alternatives were considered but eliminated from detailed analysis. Five alternatives were analyzed in detail.

Alternatives Considered But Eliminated From Further Analysis:

1. *No cutting within 3/4 mile of RCW colonies during the Interim period.*

Reason for elimination: Implementing this alternative would likely result in a Section 7 ESA violation by not taking action to protect and manage RCW habitat thus allowing the continued decline of the smaller RCW populations. Management of RCW habitat, including cutting, is critical in enhancing existing habitat through the removal of mid-story encroachment in the colony site. It is also necessary to provide future suitable habitat and protect the existing habitat from insects and disease.

2. *Implement an uneven-aged management silvicultural system within 3/4 mile of RCW colonies.*

Reason for elimination: This alternative was eliminated because uneven-aged management is not feasible to implement within the timeframe of these guidelines. Major changes in the way stands are inventoried, regenerated, monitored, and treated would be required to ensure that overall forest productivity and viability remains high. The time it would take to develop and implement these changes would likely be longer than the interim standards and guidelines would be in effect. It is expected that such a small area of land is likely to be affected during the interim period, irrespective of which alternative is selected, that the possibility to choose other management options in the EIS would be maintained. Thus, an uneven-aged alternative can be analyzed in the EIS for the amendment to the Regional Guide for RCW.

3. *Continue implementation of the Court ordered management plan which is a modified and unproven uneven-aged management silvicultural system.*

Reason for elimination: The FWS, in its Biological Opinion of the Court ordered plan, states that the plan is likely to jeopardize the continued existence of the RCW. The opinion states, "With an unproven forest management system such as the one proposed, no one can be absolutely sure about the success or failure of the system. I believe, however, that the inflexible criteria of always leaving 40 BA of the oldest trees in the thinning regime will, in all probability, result in a deficit in certain age classes of trees. Some management zones are expected to already be adequately stocked with older aged trees for the next 10 to 50 years. In those zones where there are sufficient numbers of old trees that some are actually surplus to RCW needs, management flexibility is needed in order to prescribe retention of trees younger than the oldest trees present in the 40 BA component. Without that management flexibility, some management zones would, in 50 to 120 years, be overstocked with very old trees, but inadequately stocked with trees needed to replace the oldest trees, when they are lost from the management zone. Under that circumstance, there would eventually be a period of time during which there would be an

insufficient number of suitable cavity trees in that particular 1200 m. management zone. In my judgment, the absolute thinning criteria will most certainly restrict the ability of managers to insure the continuous supply of adequate foraging and nesting habitats that is needed in the long term to maintain the RCW."

Based on the FWS jeopardy opinion, this alternative was excluded. Also, alternative 5 in the Supplement is very similar to the Corut ordered plan in that it allows only thinning harvest.

4. Implement the FWS Reasonable and Prudent Alternative.

5. Implement the FS August 19, 1988, Comprehensive Plan as presented to the District Court.

Reason for elimination: They were excluded because all the major points in each has been incorporated into alternative 3 which is analyzed in detail. Alternative 3 provides an even greater degree of protection for the RCW than either the reasonable and prudent alternative or the comprehensive plan.

Alternatives Considered In Detail

Cutting or other actions within 3/4 mile of RCW colonies would require project level compliance with NEPA, NFMA, and ESA, as well as other applicable laws and regulations.

A summary of specific activities associated with cutting, colony site protection and management for each alternative are displayed in Table 2. For a more detailed description of activities associated with each alternative, see pages 18-29 of the EA.

The alternatives are:

ALTERNATIVE 1 - No action. Activities under this alternative associated with colony site protection and habitat management within 3/4 mile of RCW colonies are consistent with the direction found in Chapter 420 of the Forest Service Wildlife Habitat Management Handbook, FSH 2609.23R (handbook). The Handbook is considered the no-action alternative because it was the last Forest Service directed management plan prior to implementation of the Court Ordered Plan.

The following activities associated with RCW and other resource management could occur within 3/4 mile of active and inactive RCW colony sites:

- a. **Thinning** - Thinning within suitable habitat is allowed for timber management, southern pine beetle (SPB) risk reduction, and RCW habitat improvement. To accomplish these objectives, the number and spacing of trees to be left varies by site-specific conditions. Thinnings within suitable habitat may occur within 3/4 mile of a colony provided a minimum of 6350 trees equal to or greater than 10" in diameter at breast height (DBH) remain within 1/2 mile of the colony site. In order to reduce the risk of SPB infestations, stands should be thinned to maintain or increase tree vigor and reduce SPB risk.

TABLE 2 - Differences in Management Activities by Alternative

Specific Activities	Alternative 1 Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
I. Cutting Activities					
A. Thinning	A. Allowed in both mgmt. zones for forest mgmt., SPB risk reduction and RCW habitat improvement.	A. Similar to Alternative 1, but emphasizes protection of potential nesting habitat.	A. Same as Alternative 2.	A. Same as Alternative 2	A. Same as Alternative 2
B. Regeneration Cutting					
1. Clearcut	1. Allowed if adequate foraging habitat is maintained and colony site is not isolated from foraging habitat. Both mgmt. zones.	1. In 1/4 mile zone: Allowed to convert off-site pine to longleaf. In the 1/4-3/4 mile zone slash pine on wet sites and understocked and damaged stands not identified as foraging habitat are included.	1. Same as Alternative 2.	1. Allowed to regenerate understocked and damaged stands not identified as foraging habitat or to convert off-site pine back to long-leaf pine.	1. Not allowed.
2. Shelterwood/Seedtree	2. Allowed under same criteria for clearcutting (I.B.2) in both zones.	2. Not silviculturally appropriate for stand conditions where regeneration is allowed in the 1/4 mile zone. Allowed with mitigation in the 1/4-3/4 mile zone.	2. Same as Alternative 2 in 1/4 mile zone. Can be considered in 1/4-3/4 mile zone if oldest 1/3 of suitable habitat is unaffected.	2. Not silviculturally appropriate for stand conditions where regeneration is allowed in both zones.	2. Not allowed.
C. Cutting For Other Than Management					
1. Clearing <10 acres.	1. Not addressed specifically, coordinated at the project level in both zones.	1. Allowed if criteria under clearcutting within 1/4 mile of colony center (I.B.1.) met in 1/4 mile zone. Allowed with mitigation direction in FSH 2609.23R in 1/4-3/4 mile zone.	1. Activity requiring the clearing should be relocated outside 1/4 mile zone if possible. If consideration is necessary, criteria under clearcutting within 1/4 mile will be followed. Not to occur in oldest 1/3 of the existing suitable habitat in 1/4-3/4 mile zone.	1. Same as Alternative 1 in both zones.	1. Not allowed in either zone.

TABLE 2 - Differences in Management Activities by Alternative

Specific Activities	Alternative 1 Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
2. Clearings > 10 acres.	2. Not specifically addressed, coordinated at the project level in both zones.	2. Not allowed in 1/4 mi. zone. Allowed with mitigation in the 1/4-3/4 mile zone.	2. Not allowed in 1/4 mile zone. Allowed in 1/4-3/4 mile zone if oldest 1/3 of suitable habitat unaffected.	2. Same as Alternative 1 in both zones.	2. Not allowed in either zone.
II. Tree Retention Priority	II. Under all cutting methods, retention is not specifically addressed. Silvicultural guidelines apply. Relict trees and potential cavity trees not protected.	II. Under all cutting methods, some combination of the following will be retained: (1) relict trees. (2) potential cavity trees. (3) Trees >10" DBH that are not potential cavity trees. (4) Trees <10" DBH.	II. Same as Alternative 2.	II. Same as Alternative 2.	II. Same as Alternative 2.
III. Foraging Habitat	III. Management objectives are tied to acres by providing pine and pine-hardwood stands totaling a min. of 125 acres which are 30 years old or older, 40% (50 acs.) of which must be 60 yrs. old or older.	III. Management objectives are tied to suitable trees by providing at least 6,350 pine stems > than 10" DBH and 8,490 sq. ft. of pine BA within 1/2 mi. and contiguous with the colony site.	III. Same as Alternative 2.	III. Same as Alternative 1.	III. Same as Alternative 2.
IV. Monitoring	IV. Annual colony checks in prescribed compartments to determine status and 10 year trend survey.	IV. Annual colony checks to determine status and presence of single birds in smaller populations. 100% survey of baseline and prescribed compartments in larger populations.	IV. Same as Alternative 2.	IV. Same as Alternative 2.	IV. Same as Alternative 2.

TABLE 2 - Differences in Management Activities by Alternative

Specific Activities	Alternative 1 Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
V. Colony Site and Replacement/Recruitment Stand Management and Protection.					
	Only minor changes have been made in the management and protection of colony sites and replacement/recruitment stands. Following are measures which have been added to Alternative 2 through 5 (all additions may not apply to all alternatives):				
	--Disturbing activities such as motorized or heavy equipment use, log decks, ORV trails, campsites, etc. are prohibited in colony sites.				
	--No plow lines are allowed within colony sites when burning.				
	--Existing roads which impact RCW can be closed.				
	--Hardwood mid-story control is expanded to include all hardwoods and a 10 acre minimum treatment area.				
	--Colony site monumentation must be updated before any planned habitat alteration project can occur within 1/4 mile of a colony site.				
	--Cavity restrictors will be used when needed to protect cavities threatened by enlargement or when needed to rehabilitate enlarged cavities when cavities appear limiting.				
	--Augmentation of single male clans with sub-adult femalese will be done to maintain viability of single male colonies and maintenance for long-term genetic diversity.				
	--Artificial cavities will be used to supplement existing cavities when cavities are limiting especially in support of augmentation efforts.				

Generally, a thinning range of 60-100 square feet of basal area per acre is desired. The trees left to grow should be well formed, healthy, and vigorous.

b. Stand Regeneration Using the Clearcutting Method - The clearcut method of regenerating stands of suitable habitat may be used provided the site-specific analysis determines adequate foraging is maintained and not isolated from the colony as a result of the clearcut.

c. Stand Regeneration Using the Shelterwood/Seed-tree Methods - Regeneration of suitable habitat, using the shelterwood or seed-tree method, may occur within 3/4 mile of the colony if the site-specific analysis determines that adequate foraging habitat would be maintained and not isolated from the colony as a result of the seed-tree or shelterwood cut. The amount of shelterwood or seed-trees retained on the site would depend on site conditions and species. Guidance is provided by FSH 2409.21d and 2471.1-R-8, Silvicultural Handbooks.

d. Clearing for Non-timber Management Purposes - Cutting in suitable habitat for purposes such as oil and gas exploration, powerline or gas line rights-of-way establishment or maintenance, may occur provided the site-specific analyses indicates RCW is not likely to be adversely affected.

e. Colony Site, Replacement/Recruitment Stand Protection

1. **Cutting** - Cutting may occur within the colony site including cutting of cavity trees if necessary to protect or enhance RCW habitat or to remove a hazard to public safety. Consultation with F&WS is necessary prior to cutting a cavity tree.

2. **Motorized or Heavy Equipment Use** - Use of this type equipment in the colony site is prohibited during the breeding season (generally March 1 - July 31) in RCW populations with less than 50 active colonies. In populations with 50 or more active colonies, use of this equipment will be minimized during the breeding season. Concentrated equipment or human use, such as log decks or off-road vehicle trails within the colony site, are not prohibited, but project planning should locate such activities outside the colony if possible.

3. **Prescribed Burning** - Burning to control mid-story encroachment could occur and is recommended in the 3/4 mile zone including the colony site. Cavity trees will be protected from fire by hand raking flammable debris from base of cavity tree a minimum of 10 feet.

4. **Construction of linear rights-of-way such as roads and utility lines** - These activities may occur within the colony site except during the RCW breeding season and with adequate cavity tree protection.

5. **Existing roads through colony site** - Roads may be used if not adversely impacting RCW.

6. **SPB suppression** - Efforts to protect existing habitat from SPB would continue under the direction in the SPB EIS Record of Decision.

7. **Any other potentially disturbing activities not specifically identified or known at this time that may affect RCW during the breeding season (generally March 1 - July 31)** - In populations with less than 50 active colonies, any potentially disturbing activities such as trail rides, enduro races, etc., would be prohibited in the colony site during the breeding season. In populations with 50 or more active colonies, potentially disturbing activities will be minimized.

f. **Colony Site, Replacement/Recruitment Stand Management**

1. **Mid-story Control** - Hardwood mid-story should be reduced to less than 20 square feet of hardwood basal area per acre. All hardwood stems 1 inch in diameter or larger within 50 feet of cavity trees should be removed.

2. **Colony Site Designation** - Designate a 200 foot boundary around the aggregate of cavity trees and manage as a colony site.

3. **Marking** - Mark all cavity trees and map colony sites.

4. **Thinning Within Colony Site** - Thin colony site as needed to reduce SPB risk.

5. **Recruitment Replacement Stands** - Establish recruitment and replacement stands for classification as unsuitable acres (unsuitable for timber management). These stands would not have a rotation age and would be managed as colony sites.

g. **Foraging Habitat Management** - At least 125 acres of well stocked (60-90 sq. ft. per ac. BA) pine or pine-hardwood stands which are 30 years or older (40% or 50 acres > 60 years old) contiguous to the colony site would be managed as foraging habitat for each colony. As an option, a Forest may provide an equivalent foraging amount of 6350 trees > 10 inches DBH.

h. **Monitoring** - Approximately 8.5% of the colonies would be checked annually to determine the colony status as part of the prescription process. A 10 year trend survey has been developed utilizing sample (baseline) compartments in each RCW population.

i. **Special Area Management** - Habitat manipulation and special protection measures may be implemented in special areas, such as wilderness, in order to protect or recover RCW. The focus would be to maintain viability of essential RCW colonies in these areas. Only the minimum actions necessary would be used following appropriate NEPA compliance and a biological evaluation. Recruitment and replacement stands for these special areas would be established outside special areas to encourage RCW population growth outside the special area.

ALTERNATIVES 2-5

Alternatives 2-5 identify two zones for protecting RCW colony sites. These are within 1/4 mile of a colony center and between 1/4 and 3/4 mile of the center. Suitable foraging habitat within 1/4 mile of each colony is critical in sustaining that colony. Suitable nesting habitat within 3/4 mile

of each colony is recommended by the Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R) and the U.S. Fish and Wildlife Service's RCW Recovery Plan to enhance colonization and provide for recruitment. Because RCW management objectives are different in each zone, they are identified separately and specific habitat management direction and mitigation measures are provided.

Within 1/4 mile of the colony center, RCW can be adversely affected if cutting causes habitat fragmentation, isolates the colony or depletes the minimum amount of foraging habitat necessary to sustain the colony. Alternatives 2-5 provide guidelines to allow cutting, protect the colony site and manage the habitat within this zone to minimize these impacts.

In the area between 1/4 and 3/4 mile of the colony center, the management objectives are to provide suitable old growth pine for future colonization, population recruitment and reduce the chance of colony isolations. Therefore, alternatives 2-5 provide guidelines to allow cutting, protect the colony site and manage the habitat in this area, while providing for a component of the oldest age pine trees.

Alternatives 2-5 are consistent with the direction in the Forest Service Handbook (2609.23R) and offer additional management measures for the smaller RCW populations in order to prevent any further population decline during the interim period. Mitigation measures to reduce the potential impacts of these activities in these zones have been incorporated in all the alternatives instead of being listed separately.

Alternative 2, 3, and 5 contain additional colony site protection and management measures, as well as more foraging habitat management, monitoring, and special area management over what is found in FSH 2609.23R. These measures were developed from public issues, management concerns, the Forest Service Comprehensive Plan and F&WS prudent and reasonable alternative as described in their biological opinion of the Court ordered management plan.

ALTERNATIVE 2 - Activities under this alternative associated with cutting, colony site protection and habitat management within 3/4 mile of RCW colonies would follow the "Proposed Action - Interim Policy on Cutting Within 3/4 Mile of RCW Colonies", that was distributed with the July 7, 1989, scoping letter for this EA.

The following direction associated with RCW and other resource management applies within 1/4 mile of active and inactive colony sites:

- a. **Thinning** - Thinning within suitable habitat is emphasized to improve RCW habitat and reduce the risk of SPB infestations. To accomplish these objectives, the number and spacing of trees to be left varies by site-specific conditions. Thinnings within suitable habitat may occur within 3/4 mile of a colony provided a minimum of 6350 trees equal to or greater than 10" in diameter at breast height would remain within 1/2 mile of the colony site to provide adequate foraging. In order to reduce the risk of SPB infestations, stands should be thinned to attain maximum growth and vigor. Generally, a 60 to 100 sq. ft. basal area per acre is recommended depending on site conditions. Thinnings would retain trees most suitable for future RCW nesting habitat. Trees left in order of priority are (1) relict trees, (2) potential cavity trees, (3)

trees 10 inches and greater DBH that are not potential cavity trees, (4) trees less than 10 inches DBH, and (5) longleaf pine where possible.

b. Stand Regeneration Using the Clearcut Method - Regeneration using the clearcut method would not occur during the interim period unless a determination is made that RCW would be enhanced and not adversely affected as a result of the clearcut. The circumstances under which this could occur is when opportunities arise for converting longleaf pine sites occupied by another pine species back to longleaf. The only feasible way of accomplishing this is by clearcutting and planting longleaf seedlings. However, in order to ensure adequate foraging, clearcuts would not occur if more than 25 percent of the existing suitable habitat within 1/4 mile of the colony is less than 30 years old. In addition, a site-specific analysis must indicate RCW habitat would be enhanced by converting a site back to longleaf pine. Relict longleaf trees and one acre or larger clumps of longleaf pine containing at least 40 square feet of basal area per acre of longleaf pine would be retained in the clearcut. In addition to the longleaf relicts, 5-6 potential longleaf cavity trees per acre would be retained, if available.

c. Stand Regeneration Using the Shelterwood or Seed-tree Method - Regeneration using these methods would not occur within 1/4 mile of the colony site during the interim period. Existing shelterwood or seed-trees would not be removed during the interim period.

d. Clearing for Non-timber Management Purposes - Clearings 10 acres or less for non-timber management purposes may occur if no more than 25 percent of the suitable habitat within 1/4 mile of the colony site is less than 30 years of age. Clearings over 10 acres cannot occur within this zone unless a biological evaluation determines that the action would not likely adversely affect RCW. The F&WS concurs with this determination.

The following direction associated with RCW and other resource management applies between 1/4 and 3/4 mile of active and inactive colony site centers under this alternative:

a. Thinning - The same guidelines described for use within 1/4 mile of the colony site apply.

b. Stand Regeneration Using the Clearcut Method - Clearcutting may only be considered when the shelterwood or seed-tree methods are not feasible. These conditions include:

1. Converting sites where other species of pine are occupying longleaf sites back to longleaf.
2. Sparse or damaged stands where natural regeneration is not feasible. These stands are understocked and the trees are often unevenly distributed over the area.
3. Slash pine sites with very wet conditions due to a high water table.

When converting back to longleaf, longleaf relicts and one acre or larger clumps of longleaf pine with at least 40 square feet of basal area per acre would be retained in the clearcut.

When clearcutting sparse, damaged, or wet sites, relict trees and one acre or larger clumps of pine with at least 40 square feet basal area per acre would be retained. In addition, 5-6 potential cavity trees per acre would be retained if available.

c. Stand Regeneration Using the Shelterwood or Seed-tree Method - These methods can be used for regenerating stands at or above RCW rotation age (See RCW Extended Rotation Guide, pg 12) provide adequate nesting or potential nesting habitat remains for replacement or recruitment following the proposed action. Regeneration may occur if more than 50% of the suitable habitat within 3/4 mile of a colony is 60 years or older and at least 50% would remain following the proposed action. The cutting should occur in the predominate age class not necessarily the oldest. In addition, RCW Handbook direction (FSH 2609.23R) would be followed, and fragmentation, colony isolation, foraging habitat amounts and continuity, isolation of recruitment or replacement (R/R) stands, and age class distribution considered. Leave trees in existing shelterwood or seed-trees would not be removed during the interim period.

The following shelterwood or seed-tree leave basal area ranges should be left as a minimum:

1. Loblolly pine: 20-30 square feet/acre
2. Shortleaf pine: 20-30 square feet/acre
3. Longleaf pine: 25-40 square feet/acre
4. Slash pine: 25-40 square feet/acre

Trees to be retained would be selected in the following order:

1. relict trees
2. potential cavity trees
3. other trees 10 inches or greater DBH that would meet the requirements for seed trees.

RCW extended rotation guide:

Forest Type	With R/R Stands	Without R/R Stands
yellow pine	70 years or longer	80 years or longer
longleaf pine	80 years or longer	100 years or longer

d. Clearing for Non-Timber Management Purposes - Clearing less than 10 acres are allowed following the existing direction to ensure 125 acres of foraging are provided and not isolated from the colony as well as protecting the colony site. Clearings greater than 10 acres would occur in stands below RCW stand rotation age if the clearing and associated activities adhere to the RCW handbook direction (FSH 2609.23R) and consider the effects of fragmentation, colony isolation, foraging habitat continuity, foraging habitat amount, isolation of recruitment and replacement stands, and age class distribution. Clearings over 10 acres in stands above RCW stand rotation age would not occur during the interim period.

e. **Colony Site, Replacement/Recruitment Stand Protection**

1. **Cutting** - Cutting in colony site or in replacement or recruitment (R/R) stands, which are managed as colony sites, would only be done to protect or improve RCW habitat or to remove a public hazard. If cavity tree cutting is considered, F&WS would be consulted.
2. **Motorized or Heavy Equipment Use** - If motorized or heavy equipment is needed for colony site improvement or protection, contract administration and/or special contract provisions would be sufficient to protect the colony site, especially the cavity and relict trees. Areas of concentrated equipment or human use, such as log decks or ORV trails, would not be located within the colony site.
3. **Prescribed Burning** - When prescribed burning is planned within the colony site, adequate protection measures for cavity trees, such as hand raking debris a minimum of 10 feet away from the trees, would occur. Plow lines would be excluded from the colony site.
4. **Construction of Linear Rights-of-way such as Roads and Utility Lines** - Roads, power lines, or other linear rights-of-way would not be constructed within a colony site.
5. **Existing Roads Through Colony Site** - Level D and other improved Forest Service roads through colony sites that are likely to have an adverse affect on the RCW would be closed. All other roads would remain open.
6. **SPB Suppression** - When SPB infestations are detected within the 3/4 mile zone and control is necessary, the SPB Record of Decision and EIS would be followed with appropriate NEPA compliance on site-specific projects.
7. **Nesting Season Disturbance** - Any resource management activities that could disturb RCW during this nesting season (generally March 1 - July 31) would not occur. This includes habitat improvement activities unless the continued viability of the clan requires nesting season treatments.

f. **Colony Site, Replacement/Recruitment Stand Management**

1. **Mid-story removal and control** - These activities could occur within colony sites and replacement/recruitment (R/R) stands on a biological priority basis. Mid-story hardwoods would be removed on an entire stand basis unless a site-specific evaluation identifies that their removal would decrease the suitability of the colony or R/R stands for RCW. A minimum of 10 acres should be treated. Hardwood control in natural hardwood areas, i.e., riparian area or hardwood stringers should be limited to the area within 50 feet of cavity trees. Pine mid-story should only be controlled to remove physical barriers to the cavity tree, potential cavity trees, and line of site between them.
2. **Thinning** - Overstory pine would be thinned within colony sites and R/R stands if needed to reduce SPB risks. A 20-25 foot tree spacing is desired.

3. **Replacement stands** - These stands would be selected for all active and inactive colonies and should be as close as possible and not more than 1/2 mile from the colony site.

4. **Recruitment stands** - These stands would be selected on a compartment basis for those compartments in which the population goal is greater than the number of existing colonies. The number of recruitment stands would equal the compartment goal minus the number of colonies in that compartment. The recruitment stand should be between 1/4 and 3/4 of a mile from the colony site.

5. **Monumentation** - Colony site monumentation must be updated before any planned habitat alteration project would occur within 1/4 mile of a colony site.

6. **Restrictors** - Cavity restrictors would be used when needed to protect cavities threatened by enlargement or when needed to rehabilitate enlarged cavities when cavities appear limiting. After installation, use of restrictors would require additional monitoring to ensure acceptance by the RCW.

7. **Augmentation** - Augmentation of single male clans with subadult females would be done to maintain viability of single male colonies and maintenance for long-term genetic diversity.

8. **Artificial cavities** - Artificial cavities would be used to supplement existing cavities when cavities are limited, especially in support of augmentation efforts.

g. **Foraging Habitat Management** - Pine and pine-hardwood forest stands 30 years of age and older within 1/2 mile of and contiguous with a colony are considered foraging habitat for the RCW. At least 6,350 pine stems equal to or greater than 10 inches DBH and a total of 8,490 square feet of pine basal area are required as foraging substrate within this area to support a colony. The number of acres required to produce this number of trees will vary depending on site and stand conditions. Normally, 125 acres of well stocked (70-90 sq. ft. BA/acre) pine or pine-hardwood stands with 50% or more of the BA in pine 30 years of age or older, with 40% of this being 60 years or older, having a minimum of 24 pines 10 inches DBH or larger will provide ample foraging substrate. The actual foraging substrate equivalents, as described above, should be calculated when foraging habitat appears to be limited.

h. **Monitoring** - Each colony would be checked annually to determine the colony status and presence of birds. This would include (a) 100% transect of suitable habitat in the compartment prescribed, (b) a repeat of sample compartments in populations greater than 100 active colonies, and (c) survey of suitable habitat not previously surveyed. A 10-year population trend survey developed utilizing sample (baseline) compartments in each RCW population would continue.

i. **Special Area Management** - Habitat manipulation and special protection measures may be implemented in special areas such as Wilderness in order to protect or recover RCW.

The focus would be to maintain viability of essential RCW colonies in these areas. Only the minimum actions necessary would be used following appropriate NEPA compliance and a biological evaluation. Recruitment and replacement stands for these special areas would be established outside special areas to encourage RCW population growth outside the special areas.

ALTERNATIVE 3 - Activities under this alternative associated with cutting, colony site protection, and habitat management within 3/4 mile of RCW colonies are based on the "Proposed Action - Interim Policy on Cutting Within 3/4 Mile of RCW Colonies", that was distributed with the July 7, 1989, scoping letter for the EA (alternative 2) as modified by public issues, management concerns, and F&WS recommendations. Public issues and management concerns were identified through the NEPA scoping process. F&WS recommendations were provided through the consultation process on the Texas comprehensive RCW management plan and on the Policy on Cutting Within 3/4 Mile of RCW Colonies on Existing Timber Sale Contracts dated March 27, 1989. All or part of these recommendations, as they are applicable to interim guidelines, are included.

The following direction associated with RCW and other resource management applies within 1/4 mile of active and inactive colony site boundaries:

a. **Thinning** - The guidelines described when thinning within 1/4 mile of a colony site are the same as alternative 2, only the BA range was increased to allow for forests with higher site indices.

b. **Stand Regeneration Using the Clearcut Method** - Regeneration, using the clearcut method, would not occur during the interim period unless a determination is made that RCW would be enhanced and not adversely affected as a result of a clearcut. Clearcutting is necessary when converting other species of pine occupying longleaf sites back to longleaf pine. Longleaf seedlings could then be planted to re-establish a longleaf pine stand. However, before any cutting occurs, a site-specific analysis would be conducted to ensure (a) sufficient foraging would remain following the proposed action, (b) the proposed action would not cause habitat fragmentation, (c) R/R stands would not be isolated from the colony, and (d) the distribution of age classes in suitable habitat is maintained or enhanced by the proposed action.

Specific guidelines to achieve a desirable age class distribution to meet future RCW habitat needs would be evaluated before a clearcut is made. These include (a) clearcuts would average less than 25 acres in size, (b) cutting would be done in the dominant age class and not necessarily the oldest, (c) cutting would only be considered if no more than 25% of the suitable habitat within 1/4 mile of the colony is less than 30 years of age, and (d) cutting may only be considered if no more than 8.5% of the suitable habitat within 1/4 mile of the colony is 10 years old or less including non-stand size temporary openings due to insects, disease, or other resource management activities.

There would be 5-6 relict longleaf trees and/or potential longleaf cavity tree per acre, as well as one acre or larger clumps of longleaf pine, containing at least 40 square feet basal area per acre longleaf retained in clearcuts where available.

c. Stand Regeneration Using the Shelterwood or Seed-tree Method - Regeneration using these methods would not occur within 1/4 mile of the colony site during the interim period. Existing shelterwood or seed-trees would not be removed during the interim period.

d. Clearing for Non-timber Management Purposes - Clearing 10 acres or less for non-timber management purposes would not occur if one or both of the following conditions exist.

1. More than 25 percent of the suitable habitat within 1/4 mile of the colony site is less than 30 years of age.
2. 8.5% of the suitable habitat within 1/4 mile of the colony site is 10 years old or less including all non-stand size temporary openings due to insects, disease, or other resource management activities.

Clearings greater than 10 acres would not be considered.

The following direction associated with RCW and other resource management applies between 1/4 and 3/4 mile of active and inactive colony site boundaries under this alternative:

a. Thinning - The same guidelines described for use within 1/4 mile of the colony site apply to the area between 1/4 and 3/4 mile from the colony.

b. Stand Regeneration Using the Clearcut Method - Clearcutting and artificial regeneration would occur when natural regeneration is not feasible. These conditions include (1) converting sites where other species of pine are occupying longleaf sites back to longleaf, (2) slash pine sites with very wet conditions due to a high water table, and (3) damaged and sparse stands with 24 or less stems per acre > 10 inches DBH. However, before any cutting occurs, the site-specific analysis would ensure (a) sufficient and accessible foraging for the colony would remain following the proposed action, (b) the proposed action would not cause habitat fragmentation, and (c) R/R stands would not be isolated from the colony.

Specific guidelines to achieve a desirable age class distribution to meet future RCW habitat needs would be evaluated before a clearcut could occur. These include (a) clearcuts would average less than 25 acres in size, (b) cutting would be done in the dominant age class and not necessarily the oldest, (c) cutting can only be considered if no more than 25% of the suitable habitat within 3/4 mile of the colony is less than 30 years of age, and (d) cutting would only be considered if no more than 8.5% of the suitable habitat within 3/4 mile of the colony is 10 years old or less, including non-stand size temporary openings due to insects, disease, or other resource management activities.

When regenerating a stand using the clearcut method to convert other species of pine growing on longleaf sites back to longleaf pine, 5-6 relict longleaf trees and/or potential cavity trees, as well as one acre or larger clumps of longleaf pine containing 40 or more square feet of basal area per acre, would not be cut. When regenerating sparse, damaged, or wet slash pine sites, relict pine trees, and clumps of pine containing 40 or more square

feet of basal area per acre, would not be cut. Clearcuts would average less than 25 acres in size.

c. Stand Regeneration Using the Shelterwood or Seed-tree Method - In order to meet the long-range RCW habitat needs, stand regeneration would be necessary to even out the age class distribution within suitable RCW habitat. These new stands would be needed for RCW foraging and nesting habitat in the future. This process would begin during the interim period, provided the action does not adversely affect the existing RCW populations. By using the shelterwood or seed-tree method of regeneration, new stands would be established while maintaining a component of potential foraging and nesting habitat. To ensure the regeneration of suitable habitat does not adversely affect RCW populations during the interim, a site-specific analysis would be done for each proposed regeneration. The site-specific analysis would evaluate (a) foraging area amounts and continuity, (b) habitat fragmentation, (c) isolation of R/R stands, and (d) age class distribution of suitable habitat.

Specific guidelines for considering regeneration between 1/4 and 3/4 mile of a RCW colony are provided to ensure desired age class distribution within this area and maintenance or enhancement of existing suitable habitat. They are:

-- no regeneration harvest in the oldest 1/3 of the suitable habitat within 3/4 mile of the colony site.

-- if possible, regeneration in the predominant age class and not necessarily the oldest.

-- no regeneration harvest if more than 25% of the suitable habitat within 3/4 mile of the colony is less than 30 years old.

-- no regeneration harvest if more than 8.5% of the suitable habitat within 3/4 mile of the colony site is 10 years old or less, including non-stand size openings due to insects, disease, or other resource management activities.

If the above criteria is met and a shelterwood or seed-tree regeneration cut is considered, the minimum leave basal area to be left for loblolly and shortleaf pine is 30 sq. ft./acre and 25-40 sq. ft./acre for longleaf and slash pine.

Relict trees, potential cavity trees, and trees 10 inches dbh or larger, meeting seed-tree requirements, should be selected in that order for retention in the regeneration areas. Existing shelterwood or seed-trees would not be removed during the interim period.

d. Clearing for Non-timber Management Purposes - Clearings less than 10 acres would occur, but not in the oldest 1/3 of the existing suitable habitat.

If a clearing greater than 10 acres is considered within suitable habitat that is at or above RCW rotation age (see RCW extended rotation guide, pg. 12), it would occur if it doesn't affect the oldest 1/3 of the existing suitable habitat. If a greater than 10 acre clearing is considered in suitable habitat below RCW rotation age, guidelines in FSH 2609.23R would

be followed and consideration would be given to the potential adverse effects of habitat fragmentation, colony isolation, foraging habitat amounts and continuity, R/R stand isolation, and age class distribution imbalances.

RCW colony site protection and management guidelines, as well as foraging habitat management, monitoring, and special area management, are the same as alternative 2. (See page 12).

One exception is the selection and management of corridors (see glossary for definition) to maintain habitat continuity between colonies, even though these areas are outside the specified 3/4 mile zone.

ALTERNATIVE 4 - Activities under this alternative associated with cutting, colony site protection, and habitat management within 3/4 mile of RCW colonies are consistent with the guidelines for proposed sales in the "Policy For Cutting Within 3/4 Mile of RCW Colonies on Existing Timber Sale Contracts", dated March 27, 1989.

The following activities associated with RCW and other resource management would occur within 3/4 mile of active and inactive colony site boundaries under this alternative:

a. **Thinning** - The guidelines described when thinning within 1/4 mile of a colony site under alternative 2 apply. In addition, at least 60 square feet basal area per acre would be retained, longleaf if available.

b. **Stand Regeneration Using the Clearcut Method** - Clearcutting and artificial regeneration would occur when natural regeneration is not practical. These conditions including converting sites where other species of pine are occupying longleaf sites back to longleaf pine and in sparse or damaged stands. Clearcutting and planting of longleaf seedlings is necessary to re-establish a longleaf pine stand. Clearcutting and planting would also be necessary to regenerate slash pine stands on very wet sites. Damaged and sparse stands with 24 or more pine stems > 10 inches DBH would not be regenerated unless a site specific analysis indicates the stand(s) is not critical for RCW habitat. Damaged and sparse stands with less than 24 pine stems > 10 inches DBH could be regenerated. Regeneration under these conditions can be considered if:

1. stand is below RCW rotation age. (see RCW Extended Rotation Guide under Alternative 2)
2. site-specific analysis indicates action is not likely to have an adverse affect on RCW habitat.
3. Regional Forester approves.
4. regeneration area is designed to consider the potential adverse effects of fragmentation, colony isolation, foraging habitat amount and continuity, isolation of recruitment or replacement stands, and age class distribution.

c. **Stand Regeneration Using the Shelterwood or Seed-tree Method** - Would not be considered during the interim period. Leave trees in existing shelterwood or seed-trees would not be removed during the interim period.

d. **Clearing for Non-timber Management Purposes** - Clearings for non-timber management purposes may occur during the interim period provided the site-specific analysis indicates that action would not be likely to have an adverse affect on RCW.

RCW colony site protection and management guidelines, as well as foraging habitat management, monitoring and special area management, are the same as alternative 1. (See page 8)

ALTERNATIVE 5 - This alternative would only allow thinning within 3/4 mile of active or inactive RCW colonies. Guidelines for thinning under alternative 4 would be followed.

RCW colony site protection and management guidelines, as well as foraging habitat management, monitoring, and special area management, are the same as alternative 2. (See page 12)

III. ENVIRONMENTAL CONSEQUENCES

This chapter discloses the environmental consequences that may result from implementing each of the 5 alternatives as interim standards and guidelines for RCW habitat protection and management. The environmental consequences are displayed by the associated activities that could affect, either directly or indirectly, the biological, physical, social, or economic components of the human environment. Direct effects are those that are caused by the activity and occur in the same place and time. Indirect effects are those caused by the activities that are removed in time and/or place, but that are still reasonably foreseeable. For purposes of discussion, the physical component considers the soil, water, and air; the biological component, the plant or animal life; and the social and economic component considers those attributes or conditions affecting the economic livelihood or the physical, mental, and spiritual well-being of the human population.

The National Forests in Texas identified output levels for goods and services in their Land and Resource Management Plan (LRMP). An EIS was prepared which assessed the environmental consequences associated with producing these levels of outputs. The plans also identified standards and guidelines to avoid or mitigate these consequences. The standards and guidelines, as they relate to RCW, were based on the RCW Chapter of the Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R, Ch. 420). The LRMP was amended December 15, 1988, to incorporate the Court ordered RCW management plan. Because the Court ordered plan has been vacated by the Appeals Court, the last Forest Service directed management plan (the Handbook) will be considered the "no action" alternative. That alternative, number 1 (no action), would leave Forest Plan implementation as it was prior to the December 15, 1988, Amendment; therefore, Forest Plan RCW related standards and guidelines would revert back to the Handbook if alternative 1 is selected.

Alternative 1 can be used as a base line for estimating the changes in outputs and environmental consequences associated with those outputs that could result from implementing alternatives 2 through 5. For comparison purposes, the timber outputs under the Court ordered plan are displayed in the Economic impacts section. This supplement should be read in conjunction with the Forest Plan EIS in order to understand the changes in environmental effects that are to be expected from the implementation of these standards and guidelines.

Because of the limited scope of the proposal, particularly the time the interim standards and guidelines would be in effect (about 2 years), no cumulative effects are anticipated. Also, no irretrievable or irreversible commitment of resources would result by selecting any of the alternatives as interim standards and guidelines.

A. BIOLOGICAL

1. Red-cockaded Woodpecker

a. Activity: *Thinning Within 3/4 Mile of Colony Site.*

Alternative 1

Direct Effects: Relict trees and potential cavity trees outside the colony site and R/R stands would not be protected and usually selected for removal. These trees are often less desirable to leave in a stand because of slow growth, lack of vigor, and their susceptibility to insects and disease. Removal of these trees could limit the opportunities for RCW population growth.

Indirect Effects: Removal of relict trees and potential cavity trees could contribute to population decline and affect achievement of long-term population objectives.

Alternatives 2 - 5

Direct Effects: Relict trees and potential cavity trees outside the colony site and R/R stands would be retained during thinning operations. This would benefit RCW by providing potential nesting habitat which increases the opportunities for establishment of new colonies. Retention of these older, slower growing trees increases stand susceptibility to SPB, which could adversely affect RCW.

Indirect Effects: Since it takes about 60 years to produce a suitable cavity tree, retention of these older trees provides an opportunity for colonization 30-40 years sooner than alternative 1. Possibility of achieving long-term population objectives is enhanced.

b. Activity: *Regenerating Using the Clearcut Method.*

Alternative 1

Direct Effects:

Providing adequate amounts of habitat suitable for recruitment is essential for establishing new colonies and population growth. This alternative provides recruitment habitat primarily through the designation of recruitment stands. These stands are to be a minimum of 10 acres, located 1/4 to 3/4 mile from active colony sites and at least 60 years old. In addition, 40% (50 acres) of the 125 acre foraging area is to be 60 years old or older. There is no provision for retention of relict trees, potential cavity trees, or inclusions of longleaf pine within regeneration areas. These areas will generally take 30 years to provide foraging habitat and a minimum of 60 years to provide nesting habitat. Given the current decline of smaller populations, such conditions would likely result in the continued decline in the number of active colonies.

This alternative would not provide as much suitable habitat for nesting opportunities as other alternatives. Potential for nesting is proportional to the acreage retained in older aged suitable habitat. Assuming a 70-80 year rotation, most 3/4 mile zones under this alternative would have about 20-31% of the pine and pine-hardwood habitat greater than 60 years of age suitable for RCW nesting. Potential cavity tree formation at 60 years of age (heart rot) is relatively low and may not offset cavity tree mortality. Preferred nesting habitat would only be available in the colony site, recruitment and replacement stands (6% of the area).

The amount of time or duration that habitat is available for recruitment and nesting is important. This alternative would allow 70-80 year rotation within 3/4 mile of RCW colonies so suitable recruitment and nesting habitat will be available to RCW for a shorter period of time than other alternatives. Generally, it takes at least 60 years for a pine tree to have enough heart rot to become suitable for cavity excavation and nesting. For loblolly and shortleaf pine on a 70 year rotation, the tree could only be available 10 years. For longleaf pine on an 80 year rotation, the tree would be available 20 years.

RCW may be adversely affected due to fragmentation of its habitat. This alternative is more likely than alternatives 2-5 to adversely affect RCW by fragmenting its habitat and isolating the colony site from adequate foraging areas. Assuming a 70-80 year rotation, from 38% to 42% of the potentially suitable habitat could be non-foraging habitat less than 30 years old.

Since more cutting is allowed under this alternative, the opportunities for disturbance from motorized equipment, which could adversely affect the RCW, is greater than Alternatives 2-5.

Indirect Effects:

Short-term population declines will likely continue and long-term population objective will be difficult to achieve. Provisions for adequate amounts and dispersal of suitable habitat to maintain or enhance current population levels are lacking given the existing habitat and population conditions. If the population trend continues to decline, achievement of the population objectives will be difficult, if not impossible, and some populations may be extirpated.

Alternatives 2-4

Direct Effects:

There will be more habitat suitable for recruitment and nesting under alternatives 2, 3, and 4 than alternative 1. These alternatives contain criteria when stand regeneration is considered within 3/4 mile of RCW colonies that will provide significantly more older aged stands suitable for recruitment and nesting habitat. In areas that do qualify for regeneration, these alternatives provide for an element of nesting and foraging habitat (relicts, potential cavity trees, and pine inclusions) to be retained in the regeneration areas during the interim period.

The affects of habitat fragmentation and colony isolation under these alternatives will be less than alternative 1. Besides the provisions of these alternatives to retain significantly more older age classes, they also require stricter limits on the amount of pine in non-foraging conditions (less than 30 years old). These alternatives only allow a maximum of 8.5% in the 0-10 year age class and a maximum of 25% less than 30 years old within the 3/4 mile zone. Alternative 3 takes an additional step to avoid colony isolation by providing corridors (see glossary for definition) to maintain habitat continuity between colonies.

It is anticipated that potential disturbance from motorized equipment, which could adversely affect RCW, will be reduced from that expected under alternative 1 during the interim period, due to greater colony site protection and restrictions on road construction through the colony site that is provided by these alternatives.

Indirect Effects:

Alternatives 2, 3, and 4 provide an opportunity to enhance RCW habitat using clearcutting if the site-specific analysis indicates RCW will benefit for this action. Provided other criteria are met, clearcutting could be done to convert off-site pine growing on longleaf pine

sites back to longleaf, or regenerate sparse or damaged stands that are not suitable RCW habitat.

Retention of potential nest trees in clearcuts provides an opportunity for regeneration and colonization simultaneously during the interim period. However, the suitability for colonization will diminish as pine seedlings grow into the mid-story. Also, retaining these trees in a regeneration area will reduce the number of trees available for foraging and nesting in the future stand because of competition for sunlight, moisture, and nutrients.

Alternative 5

Direct Effects: Alternative 5 allows no regeneration using the clearcut method, so the potential impacts associated with Alternatives 1-4 would not occur.

Indirect Effects: None anticipated during the interim period.

c. Activity: *Regeneration Using the Shelterwood or Seed-tree Method.*

Alternative 1

Direct Effects: As with using the clearcutting method, provisions for providing suitable nesting habitat to promote the establishment of new colonies when regenerating with the shelterwood or seed-tree method, may cause further decline of active colonies under the current RCW habitat and population conditions. The potential adverse effects, associated with shorter rotations and less available habitat in the older age classes, discussed under regenerating using the clearcut method for this alternative, also apply to this activity.

The traditional shelterwood and seed-tree method only requires the retention of an adequate number of trees meeting the requirements for seed-trees. Consequently, relict trees, potential cavity trees, or foraging habitat are not retained in regeneration areas. These trees are usually removed during the seed-tree or shelterwood cut. RCW could be adversely affected if available nesting habitat is limited. Some potential for colonization does exist as the shelterwood or seed-trees are generally retained 2 to 7 years (depending on species and site preparation) until regeneration is established. The seed-trees will provide some potential nesting and foraging habitat until they are removed. If RCW colonize the shelterwood or seed-trees, the area would be identified as a colony site. It would be

managed as such and the shelterwood or seed-trees would not be removed. If not colonized and the seed-trees removed, it will take the stand 33 to 44 years to provide foraging habitat, and 63 to 74 years to provide nesting habitat.

Indirect Effects: Stopping or slowing the declining population trend during the interim is not likely. Opportunities for the establishment of new colonies is less than alternatives 2-5, especially if nesting habitat is limited. Achievement of long-range population goals under the current habitat and population would be more difficult than other alternatives.

Alternatives 2 and 3

Direct Effects: These alternatives require a non-traditional shelterwood and seed-tree method when regeneration is allowed and criteria that must be met when planning regeneration so nesting habitat is not depleted. Alternative 2 requires the retention of at least 50% of the suitable habitat (250 acre average) within 3/4 mile of the colony that is 60 years old or older. Alternative 2 also requires that cutting be planned in the predominant age classes and not necessarily the oldest. These criteria under alternative 2 should reduce the loss of nesting habitat (70-100 year age classes) that could occur under alternative 1 as well as enhance recruitment objectives. These provisions ensure that potential cavity tree formation exceeds cavity tree mortality.

Alternative 3 requires the oldest 1/3 (regardless of age) of the suitable habitat within 3/4 mile of the colony site to be retained. The benefits to RCW described under alternative 2 would apply and possibly be increased. Retaining the oldest 1/3 of the existing habitat will ensure retention of the stands most suitable or likely to be most suitable for nesting. As with alternative 2, this alternative should ensure potential cavity tree formation exceeds cavity tree mortality.

For both alternatives 2 and 3, retaining of 5-6 relicts and/or potential cavity trees per acre, along with the seed-trees, enhance the opportunities for colonization over alternative 1. Retention of 5-6 relicts or potential cavity trees will also significantly increase the quality of nesting habitat once the stand reaches foraging age. These older aged trees should stimulate colonization in the first 10 year period.

Indirect Effects: Alternatives 2 and 3 increase the chance of stopping or slowing the declining population trend over alternative 1 during the interim period. They also enhance future chances and opportunities of

achieving the long-range population objectives better than alternative 1. This is due to the retention of the older pine stands, limitations on the amounts of non-foraging habitat that can occur within 3/4 mile of colonies, and providing suitable nesting habitat in regeneration areas. In areas where nesting habitat is not limited and significant amounts of older pine age classes are located within 3/4 mile of RCW colonies, regeneration will enhance long-range population objectives by ensuring a supply of future suitable habitat.

Retaining additional trees on regeneration areas will take longer than alternative 1 for these stands to become suitable foraging and nesting habitat and reduce the number of pine trees available because of the competition for sunlight, moisture, and nutrients. It will likely take 35 to 53 years to establish foraging habitat and 65 to 83 years for suitable nesting habitat. The additional trees will enhance the development of shade tolerant hardwoods in the regeneration areas. Hardwoods, could cause mid-story problems and adversely affect the RCW. Also, the increased competition will slow pine growth and the use of fire to control hardwoods will be delayed. The usefulness of relict trees and potential cavity trees for nesting will diminish over time as the pine grows into the mid-story.

If the trees retained in the regeneration areas are colonized, there could be problems maintaining the site in a suitable condition. In addition, the site will not remain as suitable for as long as sites are colonized in fully stocked stands. This is due to the initial low stocking levels of pines and a continued loss of trees due to mortality.

Alternatives 4 and 5

Direct Effects:

These alternatives maximize the amount of foraging and potential nesting habitat as no shelterwood or seed-tree regeneration would occur during the interim. RCW is least likely to be adversely affected during the interim period under these alternatives. Stopping or slowing the declining population trend and enhancing future chances and opportunities of achieving long-range population objectives is most likely under these alternatives.

Indirect Effects:

These alternatives would perpetuate the current stand age class distributions. If evenly distributed, the RCW would benefit. If age classes are predominately older and suitable foraging and nesting habitat are not limiting, perpetuating this condition could limit amounts and quality of future habitat needed to achieve the long-range population objectives.

d. Activity

Survey and Monitoring.

Alternatives 1 & 4

Direct Effects:

The new information that has become available, indicating a decline in the smaller populations, suggest that monitoring procedures under these alternatives are not sensitive enough and do not provide enough information for populations with less than 250 active colonies. Colony status is usually determined when a compartment prescription is done once every ten years. Activity was noted indicating colony status, however, no information is gathered indicating clan size. A 10 year trend survey was developed using information that could be up to 10 years old. Consequently, a true indication of the current population trend was not being portrayed. Continued use of this monitoring system could lead to false assumptions of the true population condition and colony status for the smaller populations and allow activities within 3/4 mile of RCW colonies to occur that could unknowingly affect RCW colonies.

Indirect Effects:

For the smaller RCW populations, continued use of the monitoring system may lead to failure to discover further decline and make achievement of long-range population objectives difficult or impossible.

Alternatives 2, 3 and 5

Direct Effects:

These alternatives provide more monitoring of known colonies than in alternatives 1 and 4. All colonies will be checked annually to determine status and the presence of single bird colonies. This system will allow for the continued assessment of the effects forest management practices and disturbances may have on RCW using current data for each colony. The monitoring information will also provide current information in planning habitat management to benefit RCW such as augmentation.

The survey procedures to locate uninventoried colonies are more intense than in alternatives 1 and 4. These alternatives call for a 100 percent transect survey in compartments being prescribed. By surveying more suitable habitat than under alternatives 1 and 4, new RCW colonies will be located, protected, and managed to enhance their habitat.

Indirect Effects:

This survey and monitoring system will enhance the achievement of long-range population objectives.

e. Activity *SPB Suppression.*

Alternatives 1-5

Direct Effects: Actions for SPB suppression within 3/4 mile of RCW colonies will be guided by the EIS and Record of Decision (ROD) for the Suppression of the SPB-Southern Region, February 1987. Controlling SPB spot spread will preserve RCW habitat. Cavity trees will be protected.

Indirect Effects: SPB risk reduction in foraging and nesting habitat losses will afford additional opportunities for RCW population expansion.

2. Wildlife

a. Activity *Prescribed Burning.*

Alternatives 1-5

Direct Effects: Prescribed burning is the primary tool used to control hardwoods under alternative 1. Under alternatives 2-5, it is used primarily to maintain the open park like pine stands once the hardwoods have been controlled. Regardless of the objectives, the effects on wildlife would be similar. Since most animals that co-exist with RCW evolved or adapted to the occurrence of fire in the ecosystem, the associated wildlife populations are not expected to be adversely affected and in some cases may benefit.

Indirect Effects: Prescribed burning increases the amount, availability, and palatability of forage, changes in production of soft mast, changes in invertebrates populations, and the creation and destruction of snag trees.

Prescribed burning decreases the amount of fuels available to potential intense wildfires that could affect the habitat of wildlife including RCW.

b. Activity *Mid-story Removal and Control.*

Alternative 1

Direct Effects: Alternative 1 requires the hardwood mid-story to be reduced to less than 20 square feet of basal area per acre and all stems one inch or greater in diameter within 50 feet of cavity trees removed. This can be accomplished manually or with herbicides, or in combination. Removing these stems affects wildlife species' habitat in differ-

ent ways. For example, removing the mid-story will allow additional sunlight to the forest floor and stimulate vegetative growth there and provide additional forage for white-tailed deer. On the other hand, removal of mid-story will reduce the habitat of songbirds, like hooded warblers (*Wilsonia citrina*), which use woody understory. Impacts are expected to be minimal because of the limited area being treated. The site-specific analysis NEPA documentation and appropriate Vegetation Management FEIS's for the Southern Region will be used to disclose such effects.

Indirect Effects: Because of the mobility of the species that may be affected and the limited amount of habitat treated, no indirect effects are anticipated.

Alternatives 2-5

Direct Effects: The effects will be similar to alternative 1, but since these alternatives require a larger area to be treated (minimum of 10 acres) and all hardwood removed, wildlife species dependent on mid-story vegetation are likely to be impacted more. The total habitat affected is approximately 4,810 acres (481 colonies x 10 acres per colony), which is approximately 2% of the total pine and pine/hardwood habitat within the 3/4 mile zone. Hardwood control should be held to a minimum in natural hardwood areas, i.e., stream bottoms, stringers, etc.

Indirect Effects: Because of the mobility of the species that may be affected and the limited amount of habitat treated, no indirect effects are anticipated.

3. Endangered, Threatened or Sensitive Species (other than RCW)

a. **Activity** *Implementation of Interim Standards and Guidelines for RCW Habitat Protection and Management.*

Alternatives 1-5

Direct Effects: There are six other known threatened or endangered species that could be affected by implementing these alternatives as interim standards and guidelines. The Biological Evaluation discloses that none of these species is likely to be adversely affected. (See Appendix B, Biological Evaluation). However, before any ground disturbing action is implemented under any of the alternatives, a site-specific analysis and biological evaluation will be done to ensure each project level proposed action is not likely to adversely affect any proposed, endangered, threatened or sensitive plant or animal species.

Indirect Effects: Populations of associated species could increase, enhancing long-term recovery efforts for these species.

4. **Timber Stand Establishment and Development**

a. **Activity:** **Implementation of Interim Standards and Guidelines for RCW Habitat Protection and Management.**

Alternative 1

Direct and Indirect Effects:

Traditional silvicultural methods for regenerating and thinning stands within 3/4 mile of RCW colonies would be used during the interim period. Trees retained in stands would not be selected using RCW desirability criteria. No additional trees would be retained for RCW in the clearcuts or shelterwood/seed-tree cuts that could affect stand establishment and retard stand development. Using the clearcut method with site preparation and tree planting, it will take the new stand about 30 years to provide suitable foraging habitat and 60 years for suitable nesting habitat.

Alternatives 2 and 3

Direct Effects: The traditional silvicultural practices for cutting have been modified under these alternatives to emphasize protection of essential RCW habitat.

Thinning practices have been modified. Emphasis is on retaining relict trees and other older and/or larger trees that could be suitable nesting habitat. Since growth has usually slowed on these trees, the rate of mortality, due to insects and disease, could increase over what would occur under alternative 1. Stand development would likely take longer due to the retention of less vigorous and more vulnerable trees within the stand.

Stands would be established under these alternatives using non-traditional regeneration methods. Clearcuts would retain relict trees, potential cavity trees, and clumps of pine that could be used by RCW as nesting and foraging during stand establishment and development. While benefiting RCW, these provisions will retard stand development. Stocking levels or number of new trees developing in the new stand will be lower and growth slowed as compared to clearcutting under alternative 1 because of the older trees competing for sunlight, soil moisture, and nutrients. Regeneration, using the shelterwood or seed-tree method, will be done differently

than the traditional methods used under alternative 1. The non-traditional shelterwood or seed-tree method of regenerating stands under these alternatives will retain relict trees and potential cavity trees in addition to the seed trees. The additional trees retained for RCW will increase competition for sunlight, soil moisture, and nutrients, thus reducing stocking and retarding development similar to the effects described in leaving trees in clearcuts. Stand establishment and development may take from 5 - 23 years longer than the traditional methods used under alternative 1.

Indirect Effects: Stocking and growth rates in these stands could be reduced. Mortality within the stand over a rotation period could be increased because trees retained would be more susceptible to insects and disease.

Alternative 4

Direct Effects: No regeneration, using the seed-tree or shelterwood methods, would be done. The effects on stand development when thinning would be the same as alternatives 2 and 3. The effects on stand establishment and development when clearcutting would be the same as using the clearcut method under alternatives 2 and 3.

Indirect Effects: Similar to alternative 2 and 3, but reduced because less regeneration would occur.

Alternative 5

Direct Effects: Only thinning is allowed. The effects on stand development discussed under alternatives 2 and 3 would apply for stands thinned under alternative 5.

Indirect Effects: Same as alternative 2 and 3 for stand development.

B. PHYSICAL

1. Soil, Water and Air Quality

a. Activity: *Implementation of Interim Standards and Guidelines for RCW Habitat Protection and Management.*

Alternative 1

Direct and Indirect Effects:

There would be no effects associated with implementing this alternative on soil, water, and air quality other than those discussed in each Forest Land and Resource Management Plan EIS.

Alternatives 2-5

Direct and Indirect Effects:

It is likely that harvesting activities and projects anticipated in Forest Plans will be fewer during the interim period if these alternatives are implemented to protect RCW. If the amount of harvesting activities is reduced, there will be a subsequent reduction in the environmental consequences to soil, water, and air quality associated with the various projects and activities anticipated as identified in each Forest Plan EIS. Further NEPA environmental analysis, with appropriate documentation, will be done on each proposed project to identify the site-specific environmental consequences of each proposed action within 3/4 mile of RCW colonies during the interim period.

- b. **Activity:** *Implementation of Interim Standards and Guidelines for RCW Habitat Management - mid-story Removal and Control.*

Alternatives 1-5

Direct Effects:

Soil - The direct effects of mid-story removal and control by use of manual (handtool) methods would be negligible on the soil. The litter and duff layer is not disturbed and revegetation is not suppressed. Herbicides used for mid-story removal and control may affect soil productivity if application deviates from prescribed rates. Forestry herbicides are formulated to affect the more complex metabolic processes of higher plants that are absent in micro flora. Since herbicides do not physically disturb soil, treated areas would not have erosion caused by the application. (FEIS, Vegetation Management in the Coastal Plain/Piedmont, January, 1989.) The use of prescribed fire (underburning) for mid-story removal and control during the growing season may affect soil productivity, if improperly applied. Underburns more frequent than every three years do not allow the litter/duff biota to recover as a burn would with 3 to 4 year intervals. A burn with intervals of more than 5 year intervals would have little effect on biota and soil structure. Erosion and nutrient leaching may occur but underburns are usually light

to moderate in intensity, so plants would be retained on site to minimize erosion. Nutrients would be retained through uptake by unburned plants.

Indirect Effects: **Soil** - None anticipated.

Direct Effects: **Water** - The use of manual (handtool) methods for mid-story removal and control would not affect water quality. Peak flows are not increased and stream nutrients and sediment loads are not increased because litter and duff are left intact and revegetation is not affected. The standard procedure for using herbicides to control mid-story vegetation is by applying a basal spray or single stem application. There would not be any herbicides broadcast or applied to the ground so ground water contamination is not likely. Erosion and sediment would not occur since the type of herbicide applications to be used would not disturb the soil. The use of prescribed fire may increase stream nutrients, stormflows, and sediment loads. The amount of increase depends directly on fire severity. Underburns that would be used are light to moderate in intensity, and if intervals between burns described under "soil" are followed, then no adverse conditions would develop.

Indirect Effects: **Water** - None anticipated.

Direct Effects: **Air** - Mid-story removal and control by manual (handtool) methods, including the use of single stem or basal spray applied herbicides, would not affect air quality. Prescribed fire is the only mid-story removal and control method that affects the air quality in and around the colony site. On a given site, underburns may occur once every 3-7 years. Effects on air quality is brief and intermittent in each area affected. The major effects of smoke on air quality are visibility reduction and a respiratory impairment near the burn. This is especially true near roads, airports, and in populated areas in and around the National Forests. These effects are reduced and controlled by following strict USDA Forest Service Prescribed Fire burning plans and State and Federal Air Quality laws.

Indirect Effects: **Air** - No indirect effects on air quality are anticipated since actions would comply with burning plans and applicable State and Federal air quality laws.

C. SOCIAL

1. Recreation

- a. Activity: **Implement Interim Standards and Guidelines for RCW Habitat Protection and Management.**

Alternative 1-5

Direct and Indirect Effects:

Recreation use in developed areas is not expected to be affected. Dispersed recreation could be affected if road or trails are temporarily closed to protect RCW and cannot be re-routed around colony site.

2. Recreation Development

- a. Activity: **Implement Interim Standards and Guidelines for RCW Habitat Protection and Management.**

Alternative 1

Direct and Indirect Effects:

There should be no direct and indirect effects on planned recreation development from implementing alternative 1.

Alternatives 2-5

Direct Effects: Recreation development activities are prohibited within the colony site, but not within the remainder of the 3/4 mile zone. Any clearing of suitable habitat will adhere to criteria for clearings under each alternative. Recreation development could be curtailed within 3/4 mile of a colony site if the criteria could not be met. If a comparable site can not be located further than 3/4 mile from an RCW colony, the recreation experience of National Forest visitors could be adversely affected.

Indirect Effects: No long-term or indirect effects on these programs is anticipated because of the limited time the interim standards and guidelines would be in effect.

3. Cultural and Historical Resources

- a. **Activity:** *Implementation of interim standards and guidelines for RCW habitat protection and management.*

Alternatives 1-5

Direct and Indirect Effects:

None anticipated.

4. Roads, Trails, and Utility Corridors

- a. **Activity:** *Implementation of Interim Standards and Guidelines for RCW Habitat Protection and Management.*

Alternatives 1 and 4

Direct and Indirect Effects:

These alternatives would have little or no effect on these activities or programs as planned in Forest LRMP's. Construction and maintenance associated with these activities or programs is allowed, even within colony sites, if the actual work takes place other than during the RCW breeding season.

Alternatives 2, 3 and 5

Direct Effects: No construction would be allowed in colony sites. This provision could adversely affect planned activities under these programs if relocation outside of the colony site was not feasible. Forest visitors could be adversely affected due to closure of existing roads which are likely to adversely affect RCW.

Indirect Effects: No long-term or indirect effects on these programs is anticipated because of the limited time the interim standards and guidelines would be in effect.

B. ECONOMIC

In October 1988, the National Forests in Texas were ordered by the Federal District Court of East Texas to begin more restrictive RCW management within 3/4 miles of each RCW colony. All timber sales, active and planned, were halted and cutting methods revised to comply with the Court's order. Some planned sales were eliminated. Approximately 200,000 acres were withdrawn from timber production. There would be no attempt to manage the 200,000 acres for a sustained, stable flow of timber for the next three years (1988-1990; Table 4 is a comparison of all alternatives to the 3-year sale volume). The Forest Plan was then amended to include the Court ordered direction. Management prior to the Court decision was directed by the Forest Plan, which in-turn referenced the Forest Service Handbook (FSH 2609.23R) for direction on RCW management. The 5-year average sale volume was obtained while under handbook direction (Table 3).

Alternative 1:

Direct and Indirect Effects:

Some economic impacts are anticipated. Forest outputs of goods and services were planned considering standards and guidelines that followed the direction in Forest plans and the Handbook (FSH 2609.23R). Under alternative 1, the National Forests in Texas would implement the handbook direction.

The proposed action is based upon data supplied by the National Forests in Texas. Approximately 72 million board feet (MMBF) of green timber could be harvested in fiscal year 1992. Approximately 71 MMBF could be harvested in fiscal year 1993. Table 3 represents past harvest levels (a 5-year average) and estimates of what could be harvested, by District, under each alternative. The 5-year average is the baseline to which all alternatives can be compared. As Table 3 points out, volumes will average less than the 5-year average sale volume.

Table 3 *Projected Timber Harvest Volumes In Million Board Feet That Could Be Cut For Each Alternative by District In Fiscal Year 1992 and 1993.*

District	5 YR AV.* 1983-87	ALTERNATIVES				
		FY-92				
		1	2	3	4	5
Angelina	20.0	18.6	18.2	18.1	17.9	17.1
San Jacinto	14.2	6.7	6.6	6.5	6.4	6.4
Neches	17.7	10.0	6.6	6.6	5.7	5.1
Raven	24.7	18.0	17.6	17.0	16.9	16.9
Tenaha	17.5	12.5	12.5	12.5	12.5	12.5
Trinity	24.6	7.8	7.6	7.6	7.6	7.6
Yellow Pine	14.1	13.4	13.1	13.2	13.2	13.2
Total	132.8	87.0	82.2	81.5	80.2	78.8
		FY-93				
Angelina	20.0	19.4	17.7	17.6	17.7	17.6
San Jacinto	14.2	5.9	5.9	5.8	5.9	5.7
Neches	17.7	7.3	6.3	3.9	2.1	2.1
Raven	24.7	13.9	13.5	13.0	13.0	13.0
Tenaha	17.5	11.9	12.1	12.1	12.1	12.0
Trinity	24.6	7.3	5.0	5.5	5.0	5.0
Yellow Pine	14.1	18.2	17.9	18.1	17.9	18.6
Total	132.8	83.9	78.4	76.0	73.7	74.0

*--Average volume sold over the 5-year period 1983-87. RCW management directed by the handbook. Some Districts in some years sold very high volumes due to SPB outbreaks.

The volume estimates under all alternatives is less than the 5-year average and previous estimates disclosed to the public in the Forest Plan. There will be a corresponding reduction in the 25% fund that is returned to the State from the Forest receipts. This is due to the reduction in total timber volume offered for sale. There are several reasons why the sale volumes proposed in the five alternatives are less than the 5-year average. New information pertaining to natural resource or ecosystem management has become available. Consequently, as this information surfaces, additional guidelines are often needed to insure adequate protection and management of the resource. These additional guidelines may affect or modify traditional resource management activities under which previous estimates of outputs were made. Also new technology has become available allowing a more comprehensive in-depth analysis of the landbase, resulting in the location of more environmentally sensitive areas. Natural disturbances have occurred, changing the condition of the resource, thus causing a reduction in planned outputs. Finally, approximately 35,000 acres

of wilderness has been designated and has reduced the timber base accordingly.

New information includes location and/or listing of a proposed, endangered, or threatened plant or animal species. New information, also, includes additional management guidelines developed in response to research and study findings. One significant additional guideline is applicable to all alternatives. In September 1989, the Southeastern Region of the USDI Fish and Wildlife Service (FWS) issued the *Guidelines for Preparation of Biological Assessments and Evaluations for the Red-cockaded Woodpecker*. This document provides procedures to acquire and evaluate necessary data regarding RCW habitat alteration. Among these procedures is criteria for determining foraging habitat availability. As a result of applying these criteria, as opposed to providing 125 acres of well stocked pine stands as has been done in the past, the projected volumes available from intermediate cuts or thinning in suitable habitat within 3/4 mile of colony sites, has been reduced. In some cases, the application of these guidelines has resulted in substantial reduction in thinning volumes that were projected prior to the issuance of the FWS guidelines. This is an indication that the 125 acres of foraging habitat previously being designated did not provide the proper number of pine stems >10" DBH to ensure adequate foraging. Also, as the Forest Plan directs, the use of uneven-age management and the use of seed-tree/shelterwood cuts for natural regeneration is to be utilized whenever possible in the place of clearcutting. These different silvicultural systems retain various amounts of standing live timber, much as a thinning would. This in turn is volume not harvested during the planned period.

In most cases, the level of technology used in natural resource planning and analysis has significantly increased since forest plans were prepared. For instance, through the use of a new computer enhanced Geographical Information System (GIS), there has been a dramatic increase in the capability to identify the locations and amounts of natural resource management zones. For instance, GIS has led to a significant increase in the identification of streamside zones where timber harvest is restricted. This indicates the amount of areas where timber harvest is restricted was underestimated during the Forest planning process when plan outputs were estimated.

Finally, in some cases, resource conditions have changed since the initial estimation of the amount and kind of forest products that could be harvested from these areas. These changes are due to natural catastrophic events such as wildfire, insect outbreaks, and

high winds from tornadoes or hurricanes. As a result, the volume of timber that was planned for harvest in these areas is reduced, or is no longer available. This has resulted in an overall reduction in harvest estimates.

Alternatives 2-5

Direct Effects:

The primary economic consequences of these alternatives are related to the reduction of timber volumes that is expected to be harvested. Data from the affected Districts was analyzed to assess the affects of alternatives on timber outputs and consequently, on economics. Table 3 compares the estimated volumes which could be harvested under each alternative to the 5-year average. As explained under alternative 1, there are various factors affecting projected volumes, not just new RCW management guidelines.

On a Regional or Statewide basis, the commercial impact on Forests affected by these alternatives is minimal. However, the economic impacts that could occur on the local level could be greater. There are many rural communities adjacent to National Forests in East Texas. In some cases, local forest product industries in these communities rely on trees from the National Forest for raw materials. If the planned flow of raw materials from the National Forests is interrupted by implementing one of these alternatives, then local industries--and ultimately the communities--could be affected. As under alternative 1, these alternatives will result in a lower 25% fund return to the State. This is due to lower sale volumes.

Reductions in the amount of timber offered for sale from the 5-year average is primarily due to limitations on acreage allowed in the 0-10 and the 0-30 year age classes. These age class restrictions are due to the standards and guidelines brought forth by the interim policy, past cutting practices, Southern Pine Beetle infestations, and the Forest Plan. Other reductions are due to some Ranger Districts having completed management practices imposed upon the National Forests in Texas by the Court ordered Texas Comprehensive Plan.

Table 4 compares each proposed alternative with the 3-year average under the Court ordered plan. As the table points out, volumes will increase with a subsequent increase in the 25% payment to the State.

Table 4

Average Timber Sale Volume From 1988 through 1990 Under The Court Ordered Plan Compared by Alternative

District	3 YR. AV.** 1988-90	ALTERNATIVES				
		FY-92				
		1	2	3	4	5
Angelina	4.2	18.6	18.2	18.1	17.9	17.1
San Jacinto	4.4	6.7	6.6	6.5	6.4	6.4
Neches	17.2	10.0	6.6	6.6	5.7	5.1
Raven	7.4	18.0	17.6	17.0	16.9	16.9
Tenaha	9.9	12.5	12.5	12.5	12.5	12.5
Trinity	14.6	7.8	7.6	7.6	7.6	7.6
Yellow Pine	7.1	13.4	13.1	13.2	13.2	13.2
Total	64.8	87.0	82.2	81.5	80.2	78.8
		FY-93				
Angelina	4.2	19.4	17.7	17.6	17.7	17.6
San Jacinto	4.4	5.9	5.9	5.8	5.9	5.7
Neches	17.2	7.3	6.3	3.9	2.1	2.1
Raven	7.4	13.9	13.5	13.0	13.0	13.0
Tenaha	9.9	11.9	12.1	12.1	12.1	12.0
Trinity	14.6	7.3	5.0	5.5	5.0	5.0
Yellow Pine	7.1	18.2	17.9	18.1	17.9	18.6
Totals	64.8	83.9	78.4	76.0	73.7	74.0

**-Average volume sold over the 3 year period 1988-90. RCW management directed by the court ordered plan. Again, some Districts in some years cut significant volumes due to Southern Pine Beetle and other natural catastrophes.

When Table 4 is compared to Table 3, differences in the proposed sale volumes in each alternative, and, also, between the 3 and 5-year averages, are quite evident. The proposed sale volumes will be less than the Table 3, five-year average, but will be higher than the Table 4, 3-year average. As stated earlier, the 25% fund to States will directly relate to the amount of timber volume sold on each Ranger District.

2. Minerals and Energy Resources

a. Activity

Implementation of Interim Standards and Guidelines for RCW Habitat Protection.

Alternatives 1 and 4

Direct and Indirect Effects:

Generally, no additional consequences are expected to these programs over what has traditionally occurred in the past when an endangered or threatened species or its habitat is involved. These alternatives contain fewer provisions that could curtail mineral and energy resource exploration within 3/4 mile of RCW colonies during the interim period than alternatives 2, 3, or 5.

There are proposed developments known at this time that would require further project level evaluation and analysis once proposals and locations within 3/4 mile of RCW colonies are known. A provision of the Crude Oil Windfall Profit Tax of 1980 (Section 29), gives tax credits for the development and production of non-conventional fuels. The tax credit expired on December 31, 1990. Therefore, it is anticipated that gas exploration and possibly development will be stepped up during the interim period. A number of companies are currently developing methane gas from coal seams in the Black Warrior Basin of western Alabama under this program and are trying to meet the tax credit deadline. Only the Oakmulgee District in Alabama is affected at this time. It is possible that proposals for clearing associated with this activity would exceed the limits allowed under the guidelines of an interim policy. If this occurs, project level proposals will be analyzed in compliance with NEPA, NFMA, ESA and other applicable laws, and consequently, clearings may be restricted.

Alternatives 2 and 3

Direct Effects:

Minerals and energy exploration and/or development could be affected. Criteria for clearing must be met before these activities can occur within 3/4 mile of RCW colonies. While curtailment of these activities could have economic impacts, they are not likely to occur because of the small amount of clearing involved (drill sites average less than one acre) and mitigating measures included in lease contracts. Applications would be evaluated on a case by case basis at the project level through the site-specific analysis.

These alternatives could limit access to the drill sites as new road construction is excluded from colony sites under these

alternatives. This impact should be minimal as access roads would be located outside the colony site in most cases.

The requests for gas exploration and/or development resulting from the Crude Oil Windfall Profit Tax of 1990 expiration date, would necessitate requiring additional coordination and evaluation as discussed under alternative 1.

Indirect Effects:

Opportunities to take advantage of the tax credits that are stimulating gas exploration and/or development within 3/4 mile of RCW colonies could be foregone. Outstanding or reserved mineral rights would need to be purchased by the Federal Government in order to prevent exploration or development activities that are likely to have an adverse affect on the RCW.

Alternative 5

Direct Effects:

Clearings or access road construction for mineral exploration and/or development would not be allowed during the interim period. Exploration and/or development activities could be curtailed during this time if they could not be located further than 3/4 mile from RCW colonies resulting in economic impacts. Generally, the grid system used to explore for oil and gas is flexible enough to allow location of drill pad further than 3/4 from RCW colonies. However, this may not always be the case, especially in areas like the Oakmulgee District in Alabama where an area with a high concentration of RCW colonies coincide with the likely increase in requests for gas exploration and/or development resulting from the Crude Oil Windfall Profit Tax of 1990 expiration date. Additional coordination and evaluation at the project level as discussed under alternative 1 would be necessary.

Indirect Effects:

Opportunities to take advantage of the tax credits that are stimulating gas exploration and/or development within 3/4 mile of RCW colonies could be foregone. Outstanding or reserved mineral rights would need to be purchased by the Federal Government.

Because of the limited scope of the proposal, particularly the time the interim standards and guidelines would be in effect (about 2 years), no cumulative effects are anticipated. Also, no irretrievable or irreversible commitment of resources would result by selecting any of the alternatives as interim standards and guidelines.

IV. AGENCIES AND PERSONS CONSULTED

On April 3, 1991, a letter requesting public issues and concerns regarding the proposed action of developing interim guidelines on cutting within 3/4 mile of RCW colonies on NFS lands in Texas was sent to over 1000 agencies and individuals.

Representatives from the Sierra Club Legal Defense Fund and the Forest Service Timber Purchasers Council have been actively involved in the development of and have provided input into the development of the proposed interim guidelines.

Consultation with the USDI, Fish and Wildlife Service (FWS) will be conducted per Section 7 of the Endangered Species Act on the preferred alternative. The type of consultation (formal or informal) would be determined by the findings in the biological evaluation (BE) of the selected alternative. If a "may affect" determination is found, then formal consultation will be requested. If a "not likely to adversely affect" determination is found, then concurrence (informal consultation) would be requested. Alternative 3 has been identified as the preferred alternative, therefore, concurrence with the BE finding of not likely to adversely affect would be requested. All project level actions, in accordance with the interim guidelines, would be covered under the Section 7 consultation for the selected alternative and would not require further consultation with FWS on the RCW. This does not eliminate the requirement to complete a project level BE to determine the effects on other proposed, endangered, threatened or sensitive (PETS) species, and to determine if actions are in accordance with the interim guidelines or not. Actions not covered in the interim guidelines, or not in accordance with the interim guidelines, would require the appropriate consultation (based on project level BE) with the FWS.

APPENDIX A

BIOLOGICAL EVALUATION

BIOLOGICAL EVALUATION

Supplement to the Interim Guidelines for Protection and Management of RCWs (Texas)

June, 1991

I. INTRODUCTION

This biological evaluation (BE) will determine the effects on proposed, endangered, or threatened species of the five alternatives developed as the Interim Standards and Guidelines for the Protection and Management of RCW Habitat Within 3/4 Mile of Colony Sites (Interim Guidelines) on the National Forests in Texas.

Recent RCW surveys indicated a decline in the number of active colonies for most of the RCW populations with less than 250 active colonies (Costa and Escano, 1989). Most of these populations are small (< 50 active colonies) and have a high risk of extirpation. The primary cause of these declines, in most populations, is believed to be from mid-story encroachment in the colony sites. Other factors that may be contributing to these declines are isolation and demographic problems, lack of potential cavity trees, genetic problems, cavity competition, loss of cavity trees, and habitat fragmentation. The Regional Forester decided immediate action was needed to stabilize these populations, as well as new long range standards and guidelines for RCW management, in order to reverse this decline and progress toward achieving RCW population objectives. He issued a Policy on Cutting Within 3/4 Mile of RCW Colonies on Existing Timber Sale Contracts on March 27, 1989. This policy provided criteria for modifying existing timber sales within 3/4 mile of RCW colonies as necessary to protect RCW habitat. The Policy was an urgent and temporary action designed to maintain the environmental status quo and protect RCW habitat. In May, 1989, a Notice of Intent to prepare an Environmental Impact Statement (EIS) to amend the Regional Guide for RCW management was published. This EIS will establish long-term management direction for the RCW. In the meantime, more detailed interim standards and guidelines for habitat protection and management within 3/4 mile of RCW colonies were needed. In May 1990, the Regional Forester signed a Decision Notice implementing the Interim Standards and Guidelines for the Protection and Management of RCW Habitat Within 3/4 Mile of Colony Sites.

These guidelines applied to RCW habitat (pine and pine-hardwood) within 3/4 mile of active and inactive RCW colonies in populations with less than 250 active colonies. They included all of the populations on National Forests in the Southern Region except the Apalachicola population in Florida, the Vernon-Kisatchie-Evangeline population in Louisiana, and the National Forests in Texas. The guidelines supplemented Forest Service Handbook 2609.23 (FSH 2609.23) in the affected populations. The guidelines are in full accordance with the RCW Chapter and expand upon it providing more detailed protection and management direction.

The Apalachicola and the Kisatchie-Vernon-Evangeline (K-V-E) populations were originally excluded because each had greater than 250 active colonies and colony survey information indicated that the populations were stable to increasing. However, the U.S. Fish and Wildlife Service (FWS) in their response to our request for concurrence on the guidelines questioned whether the K-V-E was a single population. They contended that each Ranger District was a distinct population and that interim guidelines should be applied to each. We completed an analysis of the RCW colony distribution and RCW habitat availability on the three District area including Intervening private lands between the Districts. This analysis was completed in November and concludes that the three Districts are separate populations as defined by the recovery plan. (Petrick and Escano, 1990A)

During this same time period, two things caused the FS to question the population status of the Apalachicola. On-going RCW survey work, conducted by FS personnel and Dr. Fran James of Florida State University, indicates that RCW on the Wakulla District appears to be decreasing, while the birds on the Apalachicola District appear to be stable or increasing. Also, in June 1990, the results of RCW research conducted on Ft. Bragg, North Carolina, by Walters, Doerr and Lape, and the results of the long-term RCW research in the Carolina sandhills by North Carolina State University (Walters, 1990) suggested redefining what constitutes separate demographic populations. A detailed analysis of the RCW colony distribution and intervening habitat between the two Districts on the Apalachicola National Forest was completed to determine if these Districts should be considered separate populations. The conclusion of this analysis is that although the distance between active colonies on the two Districts is not far enough to cause genetic isolation, it is great enough to cause demographic isolation and the two Districts should be considered isolated demographic units or sub-populations. (Petrick and Escano, 1990B). The Apalachicola and Wakulla Districts are one population as defined by the RCW Recovery Plan.

The above analyses are documented in a previous supplement to the Environmental Assessment for the Interim Standards and Guidelines for the Protection and Management of RCW Habitat Within 3/4 Mile of Colony Sites (EA). The Regional Forester signed the Decision Notice for that document May 9, 1991, placing the five Ranger Districts assessed in the Supplement under the Interim guidelines.

Since December 1988, the RCW populations on the National Forest in Texas have been managed under a District Court ordered plan. Soon after implementation of the Court ordered plan, the Forest Service appealed this decision to the U.S. Fifth Circuit Court of Appeals. On March 4, 1991, the Appeals Court issued an opinion which, upon issuance of a mandate, will vacate that part of the District Court's order mandating the specific features of a RCW Habitat Management Plan. The Appellate Court ruled that although the District Court may order formulation of a plan addressing the Forest Service's actions with respect to the RCW, the Court must allow the agency to propose a plan and consult upon it with the Fish and Wildlife Service, in accordance with the Endangered Species Act.

The enclosed supplement to the EA describes the effects of implementing the five alternatives developed as Interim Guidelines for the management of RCW habitat. The selected alternative will be consulted upon with the U.S. Fish and Wildlife Service and be presented to the District Court as the Forest Service's Interim RCW management strategy for the National Forest in Texas.

II. BIOLOGICAL BACKGROUND

Many species listed as proposed, endangered, or threatened (PET Species) are found throughout the range of the RCW, however, only four (including the RCW) are found within the habitat types utilized by the RCW on the National Forests in Texas that could be affected by the guidelines. These are: bald eagle (*Haliaeetus l. leucocephalus*), red-cockaded woodpecker (*Picoides borealis*), American alligator (*Alligator mississippiensis*), and Navasota ladies-tresses (*Spiranthes parksii*).

A. RCW

1. Background

Twenty-four RCW populations on National Forest lands in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee are currently under the guidelines. Eleven of these are identified as recovery populations. The population goals and current status of these populations are shown in Table 1.

Table 1 - RCW Colonies Currently Under Guidelines

National Forests	Population*	Number of Colonies***		
	Objective	Active	Inactive	Total
1 Apalachicola NF (FL)	826**	684	215	899
2 Bankhead NF (AL)	50	0	7	7
3 Bienville NF (MS)	286**	86	110	196
4 Caney RD., Kis. NF (LA)	20	0	3	3
5 Catahoula-Winn RD, Kis.NF (LA)	125	50	110	160
6 Cherokee NF (TN)	N/A	1	1	2
7 Conecuh NF (AL)	125**	13	36	49
8 Croatan NF (NC)	90**	48	28	76
9 Daniel Boone NF(KY)	50	4	24	28
10 DeSoto NF (MS)	250**	15	93	108
11 Evangeline RD, Kis. NF (LA)	70	43	35	78
12 Francis Marion NF (SC)	500**	364	69	433
13 Homochitto NF (MS)	125	25	36	61
14 Kisatchie RD, Kis. NF (LA)	100	68	66	134
15 Oakmulgee Div., Tall. NF (AL)	250**	120	179	299
16 Ocala NF (FL)	125	11	49	60
17 Oconee-Hitchiti (GA)	210**	11	14	25
18 Osceola NF (FL)	250**	44	61	105
19 Ouachita NF (AR)	50	13	14	27
20 Sumter NF (SC)	10	0	10	10
21 Talladega Div., Tall. NF (AL)	125**	7	166	173
22 Tuskegee NF (AL)	21	1	2	3
23 Uwharrie NF (NC)	N/A	0	2	2
24 Vernon RD., Kis. NF (LA)	230**	169	62	231
TOTAL	3887	1777	1392	3169

* - Population objectives from FSM 2609.23 or Interagency MOU (Oconee-Hitchiti)

** - Recovery Populations

*** - Number of colonies based on colony status surveys completed during the 1990 nesting season. Francis Marion information based on 1990 population trend surveys and population estimate, post Hugo. Except for the Francis Marion, these are not population estimates, but represent the current information on known colonies in District records.

Table 2 displays the population goals and current status of the National Forest being addressed in this supplement.

**Table 2 - RCW Colonies Being Considered
For Inclusion Under The Guidelines**

National Forests	Population* Objective Active Colonies	Number of Colonies***		
		Active	Inactive	Total
Angellna-Sabine NF (TX)	250	33	92	125
Davy Crockett NF (TX)	125	29	80	109
Sam Houston NF (TX)**	250	135	112	247

* --Population objectives from FSM 2609.23.

** --Recovery Populations

*** --Number of colonies based on colony status surveys completed during the 1990 nesting season. These are not population estimates, but represent the current information on known colonies in District records.

The RCW is endemic to the pine forests of the southern United States. It is found from Texas to the Carolinas. The species is non-migratory and clans maintain year-round territories near their nesting and roost trees. One of the more unique features of the RCW's life history is its selection of mature, living pines for cavity excavation. It is the only woodpecker species to excavate a nesting cavity in living pine trees, exclusively. Most active colonies are found in open, park-like pine stands. RCW exhibit a distinct preference for living pine for foraging as well. For a more detailed description of the RCW and its ecology, see the RCW Recovery Plan (USDI, 1985).

The RCW was identified as a rare and endangered species in 1968 (USDI 1968), and was officially listed as endangered in 1970 (Federal Register 35:16047). With passage of the Endangered Species Act (ESA) in 1973, the RCW received federal endangered species protection. Following this listing, the Forest Service (FS), in July 1975, amended its FSH 2609.23, including a chapter (420) on management of the RCW. In 1979, under the authority of the ESA, the USDI Fish and Wildlife Service (FWS) approved a RCW Recovery Plan (USDI 1979). In October 1979, following approval of the recovery plan, the FS revised the RCW chapter of its FSH 2609.23 to include discussion of species habitat requirements and guidelines for standard management practices (USDA, 1979).

In 1985, the FWS issued an approved revision of its 1979 RCW Recovery Plan (USDI, 1985). This revision was prepared cooperatively by the FWS and FS. It identified an objective of 15 RCW populations in specific geographic areas needed for recovery, 12 of which are on National Forests. Recognizing its responsibility for contributing to the recovery of the RCW, as outlined in the revised recovery plan, the FS again revised its handbook guidelines for the RCW in March 1985 (USDA, 1985). In addition to the 1980 amendment, the new chapter identified

individual National Forest population objectives and established detailed guidelines for nesting habitat management.

The 1985 Handbook revision guided FS management of RCW on the National Forests in Texas until December 1988. At that time, management of the RCW on NFS lands in Texas was placed under a District Court ordered plan resulting from a law suit filed by the Texas Committee on Natural Resources, the Sierra Club and the Wilderness Society. The Forest Service immediately filed an appeal of the Court's decision. The Appeals Court issued an opinion March 4, 1991, which, upon issuance of a mandate, will vacate that part of the District Court's order mandating the specific features of a RCW Management Plan. Due to the Court ordered plan, the National Forest in Texas was excluded from previous analyses to place RCW populations on other National Forest under Interim Standards and Guidelines.

2. Population Trends and Survey Data

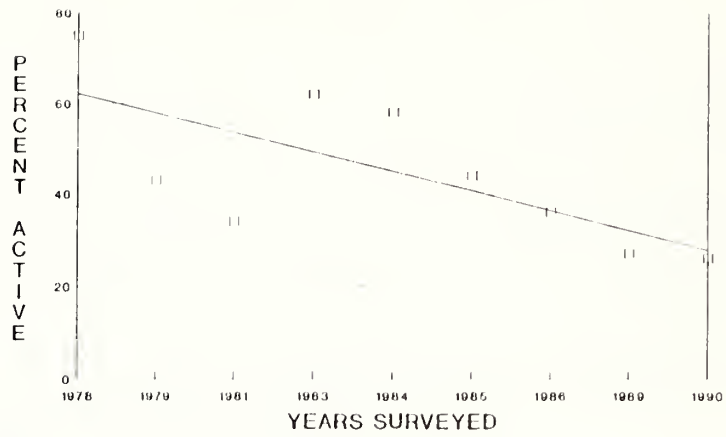
All off the colonies on the Angelina National Forest (ANF) have been checked annually since 1983 (Rudolph and Conner, 1987). Davy Crockett National Forest (DCNF) and Sabine National Forest (SNF) completed a status survey of all known colonies in 1987 (Rudolph and Conner, 1987), and all active colonies were resurveyed in 1988 (Conner, unpub. and Rudolph, unpub.). The Sam Houston National Forest (SHNF) completed a status survey of all known colonies in 1988 (Rudolph, pers. com.). A high percentage of single bird colonies were found during these surveys. Twenty-three percent of the active colonies on the ANF, SNF and DCNF were found to be single bird colonies in 1987 (Rudolph and Conner, 1987). A similar level of single bird colonies were found on the SHNF in 1988 (Rudolph, pers. com.).

Rudolph and Conner (1987) report that the ANF RCW population has steadily declined from 38 active colonies when surveys were started in 1978 to 22 active colonies in 1987. The 1988 survey of the ANF shows a further decline to 19 active colonies (Conner, unpub.). Similar declines were reported for the SNF and DCNF (Rudolph and Conner, 1987). Trend analysis on the Sam Houston is difficult, but the number of active colonies found in the 1988 survey is about the same as the number in Forest Service records on the Raven Ranger District and lower on the San Jacinto Ranger District. The ratio of the number of active colonies to number of colonies surveyed in the annual survey data for the SHNF indicated a possible decline in percent of active colonies found in their routine colony checks. The percent of colonies surveyed found to be active plotted by year are shown in Figure 1. Trend analysis of this type of survey data which is limited to known colonies locations may not be very accurate, but it should be sufficient to depict general trends. All of the possible indices of population trend point to the fact that the Angelina-Sabine and Davy Crockett RCW populations are declining. These indices include survey results, high percentage of single bird colonies, declining clan sizes and low cavity activity rates. The reliability ranking of the trend information from highest reliability to the lowest is: (1) ANF, (2) SNF and DCNF, and (3) SHNF.

FIGURE 1.

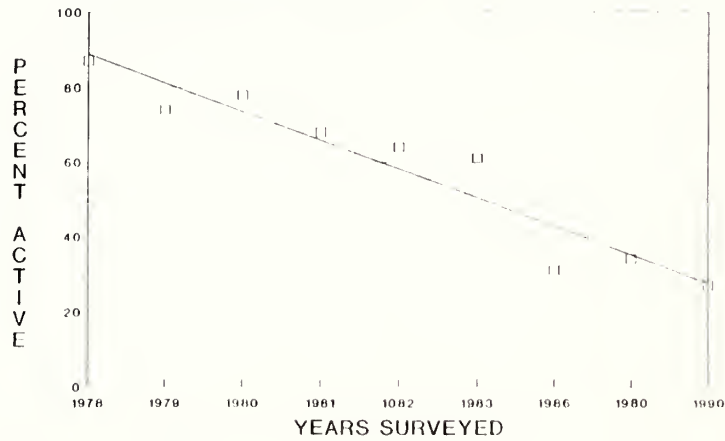
Percent of Colonies Found to be Active, by Year.

ANGELINA-SABINE RCW POPULATION



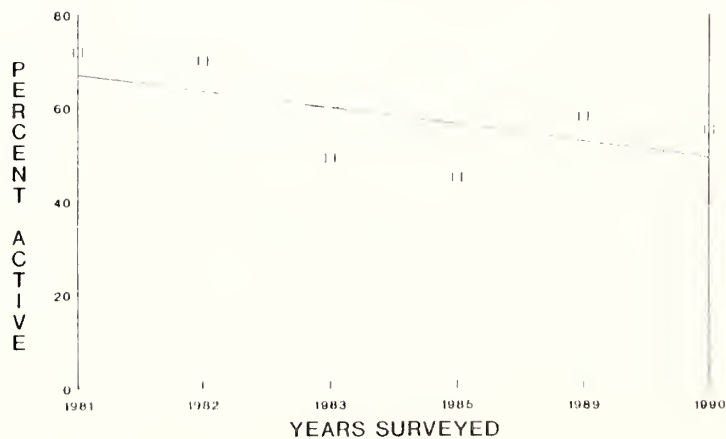
SAMPLE > 20% 1978,79,81,83-86,89,90
RCW-6/91-JJP

DAVY CROCKETT RCW POPULATION



SAMPLE > 20% 1978-83,86,89,90
RCW-6/91-JJP

SAM HOUSTON RCW POPULATION



SAMPLE > 20% - 1981-83,85,89,90
RCW-6/91-JJP

The Angelina-Sabine and Davy Crockett RCW populations have a high risk of extirpation because of the small population size (<50 active colonies), declining population trend indices and long distances between active colony centers. Although the Sam Houston RCW population is not in immediate danger of extirpation because the total number of active colonies is large enough to buffer stochastic perturbations, the San Jacinto portion of the population appears demographically isolated from the main colony concentration area on the Raven Ranger District. Twenty-two active colonies were found on the San Jacinto Ranger District during the 1988 survey (Rudolph, pers. com.). The San Jacinto portion of the Sam Houston RCW population may be at the same risk as the Angelina-Sabine and Davy Crockett populations.

3. Reasons for Decline

Several factors have probably contributed to the current status and trends of RCW populations. Generally, RCW population expansion is limited by existing forest age class distribution. In many Southern Region forests, the majority of nesting habitat is in old-growth relict trees. Many of these old trees are being lost to natural mortality and timber management practices. If availability of suitable cavity trees from increasing stand age is not adequate to offset this loss, decreases in RCW populations are possible. Even though stand age is increasing in most forests with RCW's, increases in suitable nesting habitat are not likely to offset cavity mortality for at least 10 years. In over half the Southern Region forest, high quality potential cavity trees will not be available for another 20 to 40 years. In Texas, it will be 30-40 years before an adequate percentage of the longleaf pine stands are old enough to provide nesting habitat. Conversely, the loblolly and shortleaf pine types, assuming proper spatial distribution, currently have adequate acreage in stands old enough to serve as potential nesting habitat.

Rapid population declines in some RCW populations are due to hardwood mid-story encroachment. This condition in colony stands increases competition for RCW cavities by other species as well as creating a favorable environment for nest predation. Conversely, in forests with a history of prescribed burning and, therefore, no mid-story problem, healthy RCW populations are present. Slow RCW population declines on such forests can probably be attributed to natural mortality of cavity trees and the nesting habitat bottleneck previously discussed. On forests where availability of suitable cavity trees is not limiting, mid-story control should favor population increases. The National Forest in Texas have completed mid-story control in 100% of their active RCW colonies and are proceeding with work in replacement/recruitment (R/R) stands. Given that the availability of potential cavity trees is not a serious problem in the loblolly and shortleaf pine types, this should trigger an increase in RCW populations. The mid-story control work has not been completed long enough to determine if a population increase is occurring.

Genetic and demographic factors further compromise the health of small RCW populations. Undoubtedly, there exist a minimum population level even with acceptable habitat conditions at which populations may be lost.

Rangewide, population fragmentation continues to be a serious problem. Approximately 80 percent of the RCW populations on FS lands are more than 50 miles apart. Frequently, the habitat between populations is not contiguous forested acreage and is often in private ownership. Known RCW populations in the 1970's are gone. Population fragmentation could have contributed to their decline and disappearance. These populations were small (less than 25 known colonies) and most colony sites exhibited significant hardwood encroachment. The remaining small, isolated populations exhibiting population declines are prime candidates for extirpation and, therefore, must be the focus for renewed conservation efforts. The Angelina-Sabine and Davy Crockett RCW populations are good examples.

B. Other PET Species

The American alligator (threatened species) may be found along the shoreline areas of San Rayburn Reservoir on the ANF, Toledo Bend Reservoir on the SNF and Lake Conroe on the SHNF. The 3/4 mile zones do extend to the shores of these lakes and the potential exists for RCW management activities to occur in occupied alligator habitat.

The bald eagle (endangered species) winters on all the major lakes and reservoirs on the National Forests in Texas. Wintering habitat would potentially involve 3/4 mile zones on the SHNF (Lake Conroe), ANF (Sam Rayburn Reservoir) and SNF (Toledo Bend Reservoir). Bald eagle nesting habitat exists on the ANF (Sam Rayburn Reservoir), but the current nest location is outside the 3/4 mile zones. Potential nesting habitat exists on all three of these lakes and potentially could involve 3/4 mile zones.

The Navasota ladies'-tresses (endangered species) is found in compartment 84 in the south end of ANF. The only known occupied habitat for this species on National Forest lands is outside the 3/4 mile zones identified for RCW management. Although the potential exists for Navasota ladies'-tresses to occur within the 3/4 mile zones this species is associated with post oak woodlands and would not be involved with RCW habitat.

III PROPOSED ACTION

A. General

The proposed action is to establish interim standards and guidelines for RCW habitat protection and management within 3/4 mile of active and inactive RCW colonies in RCW populations with less than 250 active colonies. This includes all the RCW populations on the National Forests in Texas. The interim standards and guidelines would be in effect until the analysis process is completed for the EIS supplement and Forest plans are amended to include the new RCW protection and management standards and guidelines. The scope of this proposal

is limited to proposed activities that may affect RCW or its habitat within 3/4 mile of the RCW colony site.

Any action that may affect RCW habitat considered within 3/4 mile of RCW colonies will require further site-specific (project level) compliance with the National Environmental Policy Act (NEPA), National Forest Management Act (NFMA), and Endangered Species Act (ESA) including consultation with the USDI Fish and Wildlife Service (F&WS). Compliance with any other applicable laws would be required also before any such projects or actions are carried out.

Inactive colonies and associated habitat are included in the scope of this proposal because they are needed to achieve population objectives. The inactive colony sites offer the best sites for colonization and are key for population growth. Maintenance of suitable habitat conditions across

all colonies ensures that the ability to achieve population objectives are not foregone and the highest probability of capturing dispersing RCW is achieved.

The proposed action has two primary objectives:

1. Halt the current decline in RCW populations through maximizing the opportunity for colonization.
2. Provide management direction that would not foreclose future RCW management options that could be selected as long-range management strategy following the EIS process.

The alternatives were developed using elements identified in FSH 2609.23, Public input through scoping, RCW Recovery Plan, Texas Comprehensive Plan, RCW Status and Management in the Southern Region in 1986 and the FWS Biological Opinion on the Texas Comprehensive Plan.

B. Specific Guidelines

All alternatives are based on two primary management zones around active and inactive RCW colonies. The zone within 1/4 mile of the colony center is most sensitive to potential impacts such as habitat fragmentation, colony isolation and foraging habitat depletion. The zone between 1/4 and 3/4 mile from the colony center is important for future colonization (nesting habitat), population recruitment and foraging habitat. Table 3 is a brief summary of allowed and proposed management activities by alternative, which have the greatest potential to affect the RCW. For a more detailed description of what is allowed under each alternative and the required criteria, see the attached Supplement.

BE Table 3 - Differences in Management Activities by Alternative

Specific Activities	Alternative 1 Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
I. Cutting Activities					
A. Thinning	A. Allowed in both mgmt. zones for forest mgmt., SPB risk reduction and RCW habitat improvement.	A. Similar to Alternative 1, but emphasizes protection of potential nesting habitat.	A. Same as Alternative 2.	A. Same as Alternative 2	A. Same as Alternative 2
B. Regeneration Cutting					
1. Clearcut	1. Allowed if adequate foraging habitat is maintained and colony site is not isolated from foraging habitat. Both mgmt. zones.	1. In 1/4 mile zone: Allowed to convert off-site pine to longleaf. In the 1/4-3/4 mile zone slash pine on wet sites and understocked and damaged stands not identified as foraging habitat are included.	1. Same as Alternative 2.	1. Allowed to regenerate understocked and damaged stands not identified as foraging habitat or to convert off-site pine back to long-leaf pine.	1. Not allowed.
2. Shelterwood/Seedtree	2. Allowed under same criteria for clearcutting (I.B.2) in both zones.	2. Not silviculturally appropriate for stand conditions where regeneration is allowed in the 1/4 mile zone. Allowed with mitigation in the 1/4-3/4 mile zone.	2. Same as Alternative 2 in 1/4 mile zone. Can be considered in 1/4-3/4 mile zone if oldest 1/3 of suitable habitat is unaffected.	2. Not silviculturally appropriate for stand conditions where regeneration is allowed in both zones.	2. Not allowed.
C. Cutting For Other Than Management					
1. Clearing <10 acres.	1. Not addressed specifically, coordinated at the project level in both zones.	1. Allowed if criteria under clearcutting within 1/4 mile of colony center (I.B.1.) met in 1/4 mile zone. Allowed with mitigation in direction in FSH 2609.23R in 1/4-3/4 mile zone.	1. Activity requiring the clearing should be relocated outside 1/4 mile zone if possible. If consideration is necessary, criteria under clearcutting within 1/4 mile will be followed. Not to occur in oldest 1/3 of the existing suitable habitat in 1/4-3/4 mile zone.	1. Same as Alternative 1 in both zones.	1. Not allowed in either zone.

Specific Activities	Alternative 1 Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
2. Clearings > 10 acres.	2. Not specifically addressed, coordinated at the project level in both zones.	2. Not allowed in 1/4 mi. zone. Allowed with mitigation in the 1/4-3/4 mile zone.	2. Not allowed in 1/4 mile zone. Allowed in 1/4-3/4 mile zone if oldest 1/3 of suitable habitat unaffected.	2. Same as Alternative 1 in both zones.	2. Not allowed in either zone.
II. Tree Retention Priority	II. Under all cutting methods, retention is not specifically addressed. Silvicultural guidelines apply. Relict trees and potential cavity trees not protected.	II. Under all cutting methods, some combination of the following will be retained: (1) relict trees. (2) potential cavity trees. (3) Trees >10" DBH that are not potential cavity trees. (4) Trees <10" DBH.	II. Same as Alternative 2.	II. Same as Alternative 2.	II. Same as Alternative 2.
III. Foraging Habitat	III. Management objectives are tied to acres by providing pine and pine-hardwood stands totaling a min. of 125 acres which are 30 years old or older, 40% (50 acs.) of which must be 60 yrs. old or older.	III. Management objectives are tied to suitable trees by providing at least 6,350 pine stems > than 10" DBH and 8,490 sq. ft. of pine BA within 1/2 mi. and contiguous with the colony site.	III. Same as Alternative 2.	III. Same as Alternative 1.	III. Same as Alternative 2.
IV. Monitoring	IV. Annual colony checks in prescribed compartments to determine status and 10 year trend survey.	IV. Annual colony checks to determine status and presence of single birds in smaller populations. 100% survey of baseline and prescribed compartments in larger populations.	IV. Same as Alternative 2.	IV. Same as Alternative 2.	IV. Same as Alternative 2.

BE Table 3 - Differences in Management Activities by Alternative

Specific Activities	Alternative 1 Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
V. Colony Site and Replacement/Recruitment Stand Management and Protection.	<p>Only minor changes have been made in the management and protection of colony sites and replacement/recruitment stands. Following are measures which have been added to Alternative 2 through 5 (all additions may not apply to all alternatives):</p> <ul style="list-style-type: none"> --Disturbing activities such as motorized or heavy equipment use, log decks, ORV trails, campsites, etc. are prohibited in colony sites. --No plow lines are allowed within colony sites when burning. --Existing roads which impact RCW can be closed. --Hardwood mid-story control is expanded to include all hardwoods and a 10 acre minimum treatment area. --Colony site monumentation must be updated before any planned habitat alteration project can occur within 1/4 mile of a colony site. --Cavity restrictors will be used when needed to protect cavities threatened by enlargement or when needed to rehabilitate enlarged cavities when cavities appear limiting. --Augmentation of single male clans with sub-adult femalese will be done to maintain viability of single male colonies and maintenance for long-term genetic diversity. --Artificial cavities will be used to supplement existing cavities when cavities are limiting especially in support of augmentation efforts. 				

IV. EVALUATION OF EFFECTS

A. General

The RCW is the only threatened, endangered, or proposed species in the National Forests in Texas that may be affected by any of the alternatives. RCW management does not conflict with or restrict bald eagle or alligator management in the shoreline zones which overlap with RCW habitat. RCW management would not be involved with the hardwood forest types the Navasota ladies'-tresses is associated with. The RCW is the target species and will be affected by the proposed management strategies.

Several factors have been identified which may be causing RCW declines in the Southern National Forests; (1) age class distribution (availability of potential cavity trees), (2) mid-story encroachment, (3) population fragmentation, (4) foraging habitat fragmentation, (5) colony isolation, (6) genetic and demographic problems, and (7) southern pine beetle (SPB) impacts. The following is a discussion of the affects of the interim guideline alternatives on the RCW in relation to the six factors listed above.

B. Age Class Distribution (*Availability of Potential Cavity Trees*)

As previously discussed, probably the most limiting factor on future RCW population growth over most of the Southern Region is the availability of potential cavity trees. At present, most cavity trees are relicts over 100 years of age. The National Forests in Texas is fortunate in having a relatively large percentage of their loblolly and shortleaf pine greater than 75 years old, the average age of RCW start holes in loblolly. The situation with respect to longleaf pine is not as favorable. There will be a 30-40 year lag until a significant portion of these stands reaches or exceeds 100 years of age, the average age of RCW start holes in longleaf.

Recent research conducted on the National Forests in Texas indicates that although the RCW occasionally excavates a cavity in relatively young trees, most frequently they select the oldest trees available (Rudolph and Conner, unpublished data). Therefore, although the availability of potential cavity trees may not be as limiting as on other National Forest, the need to protect existing relicts and the older age classes still exist.

The most significant shortcoming of Alternative 1 (handbook direction) is its failure to provide protection for these relicts and other potential cavity trees. Given the time lag between existing stand conditions and when they reach potential cavity tree status (heart rot) in the longleaf type it is very likely that loss of existing relicts will exceed new cavity tree formation from natural mortality alone. Preferred nesting habitat in longleaf would only be available in colony sites and replacement/recruitment stands (approximately 6% of the area). As explained above, the availability of potential cavity trees is much greater in the loblolly and shortleaf pine types, but the need to protect the oldest stands still exist. Alternative 1 does not provide this needed protection. Such conditions will not offer maximum opportunity for colonization that these small and declining populations will require.

Alternatives 2 through 5 not only call for protection of relicts and other potential cavity trees, but for retention of a greater percentage of each 3/4 mile zone in older age classes. For example, Alternative 2 calls for the retention of at least 50% of each 3/4 mile zone in 60 year old or older age classes. Alternative 3 retains the oldest 1/3 of suitable habitat, thus ensuring retention of all the > 100 year age classes (if available) and from 33% to 100% of the 60-90 age classes for nesting habitat. Alternatives 4 and 5 depend primarily or totally on thinning as a harvest method. Given the tree retention priorities in these alternatives, close to 100% of the older age classes should be retained for nesting habitat. This is fine for the short-term, but it should be pointed out that these alternatives applied over the long-term could have a negative effect on RCW populations because of their tendency to create a "boom and bust" situation with respect to suitable habitat.

By directing timber harvest to the dominant (younger) age classes, Alternative 2 through 5 will allow the greatest number of acres to reach optimal nesting habitat in the shortest period of time. The modification of thinnings to select for potential cavity tree characteristics and use of the "modified shelterwood" for most regeneration will produce ideal stand structure conditions which may stimulate colonization of younger stands.

C. Mid-story Encroachment

The most significant cause of RCW population decline throughout most of the Southern Region is mid-story encroachment in colony sites. Those small populations which have been extirpated in the past 15-20 years usually exhibited significant hardwood encroachment in the colony sites. Alternative 1 requires the reduction of hardwood mid-story to less than 20 sq. ft. BA/ac. in the colony site with all stems > 1" diameter being removed within 50 feet of cavity trees. Alternatives 2 through 5 call for removal of all hardwood within a 10 acre minimum treatment area with the area shaped to avoid natural hardwood areas such as streamside zones. The aggressive mid-story removal program based on biological priorities already being implemented by the National Forest in Texas and subsequent burning programs prescribed in Alternatives 2-5 will eliminate this as a factor causing population decline or potentially limiting population growth.

D. Population Fragmentation

With almost 80 percent of FS RCW populations more than 50 miles apart and 2/3 of these with fewer than 50 active colonies, they are prime candidates for extirpation. Much of this fragmentation is an artifact of land ownership patterns. Neither of the alternatives specifically address this problem. Any potential solutions will be long term projects and are beyond the scope of the interim guidelines. They will be discussed at length in the upcoming EIS.

E. Foraging Habitat Fragmentation

Alternative 1, which uses clearcutting as the primary harvest method, has the greatest potential to fragment foraging habitat. Assuming a 70-80 year rotation, from 38% to 42% of the suitable habitat could be unsuitable for foraging, i.e., less than 30 years old. Alternatives 2 and 3 utilize

a "modified shelterwood system" for the majority of regeneration cutting. This system requires retention of 20 to 40 square feet of basal area (BA) per acre depending on the species of pine being managed. Under this harvest method, the retention of the shelter-wood for up to 10 years will reduce the non-foraging period from 30 to 20 years, therefore, potential for fragmentation is much less than Alternative 1.

Alternatives 4 and 5 depend primarily on thinning for the harvest of timber, therefore, potential for fragmentation is practically nonexistent.

F. Colony Isolation

The potential for colony isolation closely parallels that for foraging habitat fragmentation and is especially prevalent in small populations of widely scattered colonies. However, another aspect of RCW management must be considered, the potential for recruitment. This is dependent on the availability of older age class which provide suitable nesting habitat. Alternative 1 which uses 125 acres of preferred foraging area as its basis, requires retention of 50 acres (40%) of 60+ year old pine per colony. Alternative 2 through 5 uses a 3/4 mile radius circle around each colony site as their basis. Alternative 2 calls for a minimum of 50% of the suitable habitat (250 acre average) in the 60+ age class. Alternative 3 requires that the oldest 1/3 of suitable habitat (165 acre average) be retained. Alternatives 4 and 5 should retain 50-60% of suitable habitat (250-300 acre average) in the older (60+) age classes. Alternative 2 through 5 all call for the retention of significant percentages (33% - 60%) of older age classes. In addition, all require retention of relict trees and potential cavity trees. Potential cavity tree formation, and therefore, recruitment, is expected to significantly exceed cavity tree mortality in these alternatives. Alternative 1, with its minimal requirements for older aged stands offers the least potential for recruitment, plus the potential that cavity tree mortality may exceed cavity tree formation.

G. Genetic and Demographic Problems

The demographic and genetic isolation problems associated with highly fragmented populations are compounded by the susceptibility of smaller populations (less than 50 active colonies) to extirpation. Even larger populations (50-250 active colonies), if widely scattered are susceptible to these problems. The demographic problems are immediate, whereas those of a genetic nature are long term. Until recolonization can reduce the distance between active colonies below 3 miles (demographic) and 20 miles (genetic), three short-term measures will be used to prevent continued population declines. Augmentation can ensure that colony abandonment due to lack of available dispersing females is minimized, and at the same time, eliminate or significantly decrease the potential for genetic isolation. The use of cavity restrictors and artificial cavities are also emergency measures to help bring RCW populations through the next 20 to 40 years, ensuring the presence of birds to recolonize what should be optimum habitat at that time.

Alternative 1 does not include any of these short-term measures. Alternatives 2 through 5 call for all three.

H. Southern Pine Beetle (SPB) Impacts

Much of the identified foraging habitat fragmentation problems are the result of SPB epidemics. These outbreaks occur on an 8 to 10 cycle and each recurring epidemic appears to be worse than the preceding one. SPB risks are reduced by the aggressive thinning program included in all alternatives. SPB outbreaks will be treated to protect RCW colony sites and associated foraging habitat in accordance with the EIS and Record of Decision for the suppression of the SPB-Southern Region, February 1987.

I. Summary of Effects

The most significant shortcoming of alternative 1 (Handbook) is its lack of protection for relicts and other potential cavity trees. Alternatives 2 through 5 not only provide protection for relicts and other potential cavity trees, but of a greater percentage of each 3/4 mile zone in older age classes as well. Both of these measures, protection of relicts, and other potential cavity trees and retention of a greater percentage of the older age classes, were designed to provide current and future cavity trees and are critical to the short-term survival of the RCW.

Mid-story encroachment in RCW colonies has been identified as the primary cause of population declines on the National Forests in Texas. The more aggressive mid-story removal and control program in alternatives 3 through 5 will speed up elimination of this problem.

The potential for foraging habitat fragmentation exist on all Districts. The 8.5% and 25% caps on 0-10 and 0-30 age classes (respectively), limitations on clearcutting and emphasis on thinning and modified shelterwood harvest methods as outlined in alternatives 2 through 5 are aimed at preventing such fragmentation. Alternative 1, with its emphasis on clearcutting as the primary harvest method, has the greatest potential to fragment forging habitat.

Colony isolation, as measured by long inter-colony distances, appears to be a problem on portions of the National Forests in Texas. The age class limitations, protection of the oldest one-third of suitable habitat and provision for habitat linkages as outlined in alternative 3 are designed to prevent further potential for colony isolation.

The small population sizes of the ANF, SNF, DCNF, and portions of the SHNF compound the demographic and genetic isolation problems of highly fragmented populations. Provisions for augmentation, artificial cavities, cavity restrictors, and habitat linkages, as outlined in alternatives 2 through 5, are short-term measures to alleviate such isolation problems.

The emphasis on thinning in Alternative 2 through 5 should help with the SPB problem.

V. DETERMINATION OF EFFECT

The 5 alternatives proposed as interim guidelines for the protection and management of RCW habitat on the National Forests in Texas are not likely to adversely affect any of the other 3 threatened or endangered species found in RCW habitat. Alternatives 2 through 5 are not likely to adversely affect the RCW and will actually benefit it. Alternative 1 will likely adversely affect the RCW in those populations with less than 50 active colonies and may adversely affect those populations with 50-250 active colonies. Should Alternative 1 be selected, formal consultation with the USDI, Fish and Wildlife Service will be requested. If Alternative 2, 3, 4 or 5 is selected, concurrence by FWS will be requested.

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VI. REFERENCES CITED

- Conner, R. Unpub. Letter to William M. Lannan, dated May 26, 1988. 1988 survey summary for the Angelina-Sabine.
- Costa, Ralph and R. Escano. 1989. Red-cockaded Woodpecker, Status and Management in the Southern Region in 1986. USDA Forest Service. Tech. Pub. R8-TP12. 71pp.
- Petrick, John and R.E. Escano. 1990A. RCW Habitat Analysis Between the Vernon, Evangeline, and Kisatchie Ranger Districts of the Kisatchie National Forest in Louisiana. USDA Forest Service, Southern Region. Atlanta. (unpublished administrative document).
- Petrick, John and R.E. Escano. 1990B. RCW Habitat Analysis Between the Wakulla and Apalachicola Ranger Districts in Florida, Include the Ochlockonee River Bottom. USDA Forest Service, Southern Region. Atlanta. (unpublished administrative document).
- Rudolph, D.C. and R. Conner. 1987. Final Report, Survey of the status of the red-cockaded woodpecker cavity trees in the Davy Crockett and Sabine National Forests. Wildlife Habitat and Silviculture Lab, Southern Forest Experiment Station, Nacogdoches, TX.
- Rudolph D.C. Unpub. Letter to William M. Lannan dated July 20, 1988. 1988 survey summary for the Davy Crockett National Forest.
- U.S. Department of Agriculture, Forest Service, Southern Region. 1975. Wildlife habitat management handbook, chapter 420, red-cockaded woodpecker. Forest Service Handbook 2609.23R. Atlanta. (unpublished administrative document).
- U.S. Department of Agriculture, Forest Service, Southern Region. 1979. Wildlife habitat management handbook, chapter 420, red-cockaded woodpecker. Forest Service Handbook 2609.23R. Atlanta. (unpublished administrative document).
- U.S. Department of Agriculture, Forest Service, Southern Region. 1985. Wildlife habitat management handbook, chapter 420, red-cockaded woodpecker. Forest Service Handbook 2609.23R. Atlanta. (unpublished administrative document).
- U.S. Department of the Interior, Fish and Wildlife Service. 1968. Rare and endangered fish and wildlife of the United States. U.S. Sport Fisheries and Wildlife Resource Publication 34. Washington.
- U.S. Department of the Interior, Fish and Wildlife Service. 1970. Listing of red-cockaded woodpecker as endangered. Federal Register.35:16047. October 13, 1970.
- U.S. Department of the Interior, Fish and Wildlife Service, Region 4. 1979. Red-cockaded woodpecker recovery plan. Atlanta. 38 p.
- U.S. Department of the Interior, Fish and Wildlife Service, Region 4. 1985. Red-cockaded woodpecker recovery plan. Atlanta. 88 p.

Walters, J.R., P.D. Doerr, and J.J. Lape. 1990. Population Status and Population Dynamics of the Red-Cockaded Woodpecker on Fort Bragg, North Carolina. North Carolina State University. (unpublished report to Dept. of Defense, Fort Bragg Division of Natural Resources).

Walters, J.R. 1990. Red-cockaded woodpeckers. A primitive cooperative breeder. In: Cooperative breeding in birds. Stacey and Koenig (eds.). Cambridge University Press.

APPENDIX B

GLOSSARY

GLOSSARY

ABANDONED COLONY - A colony site determined to be abandoned because of inactivity over an extended period of time. No colonies will be declared abandoned under the interim policy.

ACTIVE COLONY - It denotes that a specific colony is occupied in a given survey year. A colony is determined to be active when there are nesting or roosting red-cockaded woodpeckers present, or when one or more cavity trees exhibit fresh pitch wells and resin flow, reddish under-bark appearance and/or fresh chipping of cavity entrance or plate. It is synonymous with clan in recovery goal attainment reports and population monitoring.

AUGMENTATION - The translocation of RCW's from one clan to another to maintain clan viability or improve genetic diversity. Current techniques limit translocation of sub-adult female RCW's into single male clans to minimize the change of colony abandonment and help bolster the population.

BASAL AREA - This is the cross-sectional area at DBH of any tree tallied at a sample point. Basal area is separated by products, i.e., poletimber and sawtimber, and by species groups, i.e., pine or hardwood. In the south, the USDA Forest Service, Region 8, uses a 10 basal area factor prism and each tallied tree represents 10 square feet of basal area per acre.

CAVITY TREE - The tree that contains a red-cockaded woodpecker cavity or start hole. Frequently, nest competitors will enlarge a RCW cavity. Enlarged RCW cavities will still be considered RCW cavities for inventory and management purposes.

CLAN - A breeding pair of red-cockaded woodpeckers plus helpers living as a family group. Clan size can vary from just a mated pair to as large as nine individuals, but averages about three birds. Occasionally, clan size may be reduced to a single individual (usually a male). This is usually a temporary phenomenon with either successful mating or colony abandonment occurring in a short period of time.

CLEARCUTTING - A cutting method in the even-aged silvicultural system, employing one operation entry, in which all trees in an area are cut for the purpose of creating a new, even-aged stand. The area harvested may be a patch, stand or strip large enough to be mapped or recorded as a separate age class.

COLONY OR COLONY SITE - A site in which a clan of red-cockaded woodpeckers nest or roost. It includes the aggregate of cavity trees plus at least a 200-foot zone around them. The cavity trees used by a clan tend to be clustered and in most cases are clumped with an area that can be encompassed by a circle 1,500 feet in diameter.

COLONY ISOLATION - The decrease in the effective dispersal between clans. Isolation can result from unsuitable habitat serving as barriers to dispersal or just the increasing distance between clans

decreasing the probability of effective dispersal taking place. Demographic isolation (insufficient dispersal to offset mortality, etc.) occurs when the distance between active colonies approaches 3 miles (unsuitable habitat) to 5 miles (suitable habitat). Genetic isolation (insufficient dispersal to maintain genetic diversity) occurs when the distance between active colonies is 18 miles or greater (no habitat barrier) or when 5 miles of continuous unsuitable habitat poses a barrier to dispersal.

CORRIDOR OR HABITAT LINKAGE - Corridors or habitat linkages to maintain continuity of RCW habitat between colonies are contiguous stands of pine or pine-hardwood at least 30 years of age. The actual stands serving as a habitat linkage can vary through time. Corridors should link individual colonies up to 3 miles apart. Additionally, groups of 5 or more linked colonies should be linked if the closest colonies are less than 20 miles apart. All distances should be measured from the colony centers. When corridors between colony sites or groups of 5 or more colonies can not be maintained because of private land, water bodies, etc., serve as barriers to RCW movement, a reasonable effort should be made to establish the corridors along tracts of National Forest, other public or private lands with a suitable easement that is the most direct and least interrupted linkage. Future acquisition of private land or their consolidation actions should focus on completing corridors.

DAMAGED STAND - Includes trees that have sustained considerable damage from wind, fire, insects, disease or other destructive agents in which the undamaged trees consist of less than the basal area per acre shown in the following table.

<i>Total Height</i>	<i>Minimum Basal Area</i>
36-65	30
66-95	40
96+	50

DBH - Diameter at Breast Height; The most frequent measurement made by foresters. This is defined as the tree stem diameter, outside the bark at a point 4.5 feet above the ground.

DEMOGRAPHIC ISOLATION - See Colony Isolation.

DESTROYED COLONY - A colony site in which the cavity trees no longer exist or have died. A colony will not be declared destroyed until a follow-up survey during a subsequent nesting season is completed to confirm the lack of new cavity trees within 1,500 feet of the colony. A destroyed colony is not managed as a colony site.

ESSENTIAL WILDERNESS COLONY - Those RCW colonies in Wilderness identified in the SPB FEIS and USDI, Fish and Wildlife Service Biological Opinion dated December 12, 1986 as essential for the recovery of the species.

EXTIRPATION - A species being removed from a geographical portion of its original range, the species still exists, but its range is now much smaller. An example would be the Mountain Lion, it once occurred throughout the Eastern United States, but due to human pressure, now only occurs in remote areas of the Western United States.

FORAGING HABITAT - Pine and pine-hardwood forest stands 30 years of age and older within 1/2 mile of a colony are considered foraging habitat for the RCW. At least 6,350 pine stems equal to or greater than 10 inches DBH and 8,490 square feet of pine basal area are required as foraging substrate within this area to support a colony. The number of acres required to produce this number of trees will vary depending on site and stand conditions. Normally 125 acres of well stocked (70-90 sq. ft. BA/acre) pine or pine-hardwood stands with 50% or more of the BA in pine 30 years of age or older, with 40% of this being 60 years or older, having a minimum of 24 pines 10 inches DBH or larger will provide ample foraging substrate. The actual foraging substrate equivalents, as described above, should be calculated when foraging habitat appears to be limited. See USDI, Fish and Wildlife Service Guidelines For Preparation of Biological Assessments and Evaluations for the Red-Cockaded Woodpecker for details.

FRAGMENTATION - This refers to the suitable habitat of a RCW. It is the scattering or isolating of habitat required by the RCW to forage.

GENETIC ISOLATION - See Colony Isolation.

HABITAT - The physical and biological environment of a plant or animal where all essentials for its development and existence are present.

INACTIVE COLONY - A colony site is determined to be inactive when there are no red-cockaded woodpeckers present and when none of the cavity trees exhibit active resin wells. Active resin wells are noted by recent pecking and clear, fresh resin flowing from the well, reddish under-bark appearance or fresh chipping of cavity entrance or plate. Inactive status denotes that a specific colony is unoccupied in a given year.

INVALID COLONY - A stand misidentified as an RCW colony site. Often, especially older survey information, trees with pileated feeding holes or sapsucker feeding holes are misidentified as RCW cavity trees. If such a misidentification is confirmed by a biologist, the colony is to be deleted from the colony inventory and not managed as a colony site.

LONGLEAF SITE - South Atlantic and Gulf Coastal plains from sea level up to 1,900 feet in the Appalachian Mountains of Alabama. Longleaf grows best on deep, well-drained acid sandy soils. In summer, these areas are usually very dry and trees such as blackjack, turkey oak and bluejack are scattered under the longleaf. Pure, open stands are typical in the Gulf Coastal Plain while further North, stands with loblolly pine and upland hardwoods are common associates (see 'suitable habitat').

MID-STORY - A middle canopy layer of smaller trees that occur under an overstory of trees. These 'mid-story' trees are usually of a different species than the large trees and can grow in almost total shade. Some trees in this category include dogwood, red maple, sourwood, holly, some hickories, oaks and gums. Usually these trees never develop into large, dominant forest trees.

PETS SPECIES - Proposed, endangered, threatened or sensitive plant, or animal species.

PINE STAND - A stand in which 70 percent or more of the basal area of the dominant and co-dominant position trees are softwood species (see 'Stand').

PINE-HARDWOOD STAND - Stands in which 51 to 69 percent of the basal area of the dominant or co-dominant position trees are softwood species (see 'Stand').

POTENTIAL CAVITY TREE - A pine tree which currently exhibits (or is likely to in the future) characteristics of high quality red-cockaded woodpecker cavity trees: presence of red-heart fungus at average cavity height, 14 inches DBH or larger, high ratios of heart wood to sap wood, clear and straight boles and large, flat topped crowns with large limbs. Loblolly trees will usually start showing incidence of red-heart at 60 years of age (five percent of trees) and the incidence quadruples by age 100.

PRESCRIBED BURNING - An application of fire burning under preplanned, specified conditions to accomplish specific planned objectives of forest or wildlife management and fire hazard reduction.

RECRUITMENT STAND - A stand, at least 10 acres in size, identified as potential nesting habitat required to meet the identified population goal on a compartment basis. Recruitment stands are located between 1/4 mile and 3/4 mile of a colony site. Foraging habitat allocation is required for recruitment stands.

RELICT TREE, (Relicts) - A pine tree which is left over from the original forests cut over during the period from 1890 - 1930. They are usually more than 100 years old and exhibit characteristics of high quality red-cockaded woodpecker cavity trees: presence of red-heart fungus (rotor decay) at average cavity height, 14 inches DBH or larger, high ratios of heart wood to sap wood, clear and straight trunks and large, flat topped crowns with large limbs. Most of the red-cockaded woodpecker cavity trees are relicts.

REPLACEMENT STAND - A stand, at least 10 acres in size, identified within 1/2 mile of a colony site as replacement nesting habitat for the existing colony. The closer the replacement stand can be placed to the colony site (other factors being equal) the better, with the ideal being adjacent to the colony site. The number of replacement stands will equal the number of active and inactive colonies. Foraging habitat is not required for replacement stands because they are replacement nesting habitat for an existing colony with foraging habitat already assigned.

SEED-TREE - A cutting method within the even-aged silvicultural system, whereby the old stand is removed in one or several cuttings except for a small number of trees left singly, in small groups or narrow strips, as a source of seed for natural regeneration. The seed-trees may be removed after the stand has been successfully regenerated.

SHELTERWOOD - A cutting method within the even-aged silvicultural system designed to regenerate a new evenaged stand. The existing stand is removed in a series of two or more removal cuts. New regeneration is sheltered or protected by the residual overstory until regeneration is successfully established.

SPARSE STAND - A stand whose basal area of desirable growing stock per acre is less than shown in the table.

<i>Total Height</i>	<i>Minimum Basal Area</i>
36-65	30
66-95	40
95+	50

STAND - Trees that grow in the same location and which are fairly uniform in type, age and risk classes, vigor, stand-size class and stocking class. The similarity of these qualities distinguish the stand from adjacent stands that contain trees with different features.

SUITABLE HABITAT - The most appropriate habitat for a given species of plant or animal.

SUITABLE RCW HABITAT - Consider southern yellow pine (except sand pine) and southern yellow pine-hardwood types as potentially suitable RCW habitat. Suitable RCW foraging habitat is pine and pine-hardwood stands 30 years or greater in age, while suitable nesting is considered pine and pine-hardwood stands 60 years or greater in age or younger stands containing scattered or clumped potential cavity trees or relicts.

<i>Pine Types</i>	<i>Pine-Hardwood Types</i>
Longleaf pine	Shortleaf pine-oak
Slash pine	Loblolly pine-hardwood
Loblolly pine	Slash pine-hardwood
Shortleaf pine	Pitch pine-oak
Virginia pine	Virginia pine-oak
Pond pine	Pond pine-hardwood
Pitch pine	

THINNING - An intermediate cutting operation performed by removing excess trees from a stand and is designed to promote a growth response on the residual trees and to salvage mortality.

3/4 MILE ZONE - The National Forest lands around a colony site which will be managed under this policy. This zone is a 3/4 mile radius circle from the center point of the colony site and would include approximately 1,117 acres if all lands in this circle are National Forest. In practice, this zone might not be a perfect circle because of private lands or topographic features, vegetation types and administrative boundaries in which the zone boundary can be tied to facilitate on-the-ground administration of the policy. The 3/4 mile area is divided into two zones. These are within 1/4 mile of a colony center and between 1/4 and 3/4 mile of the center. Suitable foraging habitat within 1/4 mile of each colony is critical in sustaining that colony. Suitable nesting habitat within 3/4 mile of each colony is recommended by the Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R) and the RCW Recovery Plan to enhance colonization and provide for recruitment. Because RCW management objectives are different in each zone, they are identified separately and specific habitat management direction and mitigation measures are provided.

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