Executive Summary:
The red-cockaded woodpecker (RCW), and its nesting and foraging habitats, are present on Conecuh National Forest, and on portions of Conecuh National Forest affected by Hurricane Ivan. Recent gains to Conecuh NF’s recovering RCW population (In 1994 - 13 active clusters, in 2004 – 24 active clusters) remain jeopardized by potential wildland fires, fire suppression, insect and disease risk, and increased tree mortality following Hurricane Ivan. Hurricane timber damage, although significant and widespread, did not completely remove any RCW cluster sites or foraging areas. In all hurricane affected areas, minimal basal area requirements for foraging habitats were retained. Salvage of hurricane damaged trees, including downed, broken, and root-sprung/leaning saw timber, would not decrease RCW habitats below recovery plan thresholds. Instead, removal of damaged trees would reduce the risk of further, future losses of habitat due to insect and disease infestations and changes in fire regime necessitated by massive fuel loading.

Large, old pines are required by RCW as cavity trees. By their very nature, the old pine trees preferred for cavity excavation (often already infected with red-heart fungus) are very susceptible to insect infestation and disease. Large volumes of damaged timber create favorable habitats for bark beetle population explosions, which could expose nesting and foraging habitats to vast additional losses in quantity and quality.

Cavity trees must be in open stands with little or no hardwood midstory and few or no overstory hardwoods, and abundant native bunchgrass and forb groundcovers. Hardwood encroachment resulting from fire suppression is a well-known cause of habitat abandonment (pg X, Recovery Plan Executive Summary). Pre-colonial fire frequencies in the southeast have been estimated at 1-3 years for the Atlantic and lower Gulf coastal plains (pg 3, Recovery Plan). Frequent low-intensity, lightning and Native American ignited fires perpetuated optimal habitat abundance and distribution for RCW. Fuel loading has been drastically altered by Hurricane Ivan’s destruction. Both the amount and nature of fuels present in RCW nesting and foraging areas are changed. Broken and downed trees represent larger, heavier fuels. Often these large fuel loads are against the boles or under the canopies of the remaining standing trees, posing a substantial risk to healthy trees. Large fuels burn longer, sustaining root-killing temperatures over a healthy tree’s critical fine roots for longer periods of time. Large fuels increase the amount of smoke produced by a fire. Increased fine fuels, in the form of needles and twigs, are more likely to become ignited and carry wildland fires across landscapes. Massive fuel loading increases prescribe burning costs, smoke management concerns, and catastrophic fire risk. Removal of hurricane-damaged timber would decrease prescribed burning inhibitions and potential wildland fire losses in RCW habitats; thus short-term and long-term threats to RCW habitat would be lessened, while short-term and long-term benefits to RCW would be increased through removal of salvage materials, thinning of overstocked stands, and resumption of the Conecuh National Forest’s 1-3 year burning regime to achieve native grass and pyrophytic forb groundcovers.
Findings of Site Visits by Related Specialists:

**NFAL Forest Biologist:**

Visits were made to Conecuh National Forest following the devastation caused by Hurricane Ivan on September 16, 2004. Conecuh NF was visited on September 22, 2004, and on September 30 – October 1, 2004 by the Forest Biologist for National Forests in Alabama. During those visits, 8 of the 24 active cluster sites (22 Potential Breeding Groups) were visited and several replacement and recruitment sites were also evaluated.

On September 22, 2004, Active Cluster 5501 was visited as replacement inserts were being installed. This cluster lost a natural cavity tree, an artificial insert, and several large trees that had been suitable for cavity excavation. Most downed trees in this cluster site were blown over (not broken). The natural cavity tree was also uprooted by hurricane winds. Forest Service biologists and technicians installed 4 new artificial inserts in this cluster site to compensate for roosts lost, and removed 2-3 acres of light midstory encroachment by hand tools. Cluster 5501 is in a very open condition with good herbaceous ground covers near the edge of a young (< 20 years) stand. The remaining (standing trees) basal area is above 40BA and is expected to continue to be suitable-to-optimal RCW nesting and foraging habitat. Cluster 5802 was observed from the road during this visit, and it appeared to have only received light tree loss damage; it too remains as suitable RCW habitat.

On September 30, 2004 photographs of hurricane damaged areas, and of general conditions following hurricane passage, were taken in six cluster sites. These photos are considered to be representative of overall damage received from Hurricane Ivan and of general condition of RCW nesting and foraging habitats. Table 1 summarizes the conditions observed on September 30, 2004.

**Summary Comments:**

An overall evaluation of the RCW population status, growth history, and growth projection reveals a need to increase quality nesting and foraging habitat availability and connectivity. Over the last ten years the population has grown (from 13 active clusters in 1994 to 24 active clusters in 2004) at a rate averaging 6.5% per year. No translocations were made during the period from 1999 through pre-Ivan 2004. The growth level sustained during that period (11.4% average, 0%-28% per year) is believed to be a direct result of thinning, restoration and burning treatments.

As Conecuh's RCW population continues to expand, such thinned and burned areas must be consolidated to allow communication between its two population centers (in the southeastern and southwestern portions of the district). In between the two population centers a wide expanse of private lands will necessitate an arc to the north in the creation of suitable habitat. Immediate thinning and burning treatments should be aimed at areas of longleaf forest within ¼-3/4 miles from active cluster sites. Short-term treatments should focus on the creation of suitable nesting sites in the oldest stands and most favorable juxtaposition to capture young fledging males. Over the longer term (3-10 years) thinning and growing season burning treatments should be applied in areas anticipated to be travel corridors of suitable habitat and "connective tissue" between
population centers as they grow toward each other. At this level of population growth projection, younger plantations should be prepared by basal area reductions and herbaceous understory development treatments (growing season burning).

Several intermediate treatments and several stand entries may be necessary to achieve the “Good Quality Foraging Habitat” standard; therefore long-range planning is required. The Recovery Plan sets an objective for population growth rate of 5% (page 162, Recovery Plan) per year. It also sets a Recovery Standard for the provision of “Good Quality Foraging Habitat” at the rate of 120 acres per group (page 188, Recovery Plan). Of course it is recognized that the foraging habitats of clusters may overlap, but it is also recognized that RCW’s are territorial and defend their habitats. Therefore a very rough calculation of population growth at recovery plan recommended rates, coupled with an “average” habitat requirement per new cluster, provides a projection of habitat growth needed to support the recommended growth rate. It is conservatively estimated that between 840-1680 acres of “Good Quality Foraging Habitat,” adjacent or connected to existing suitable habitats will need to be created over the 10 years to accommodate Recovery Plan population growth rates. Concurrently, additional stands of young timber will need to be prepared though intermediate thinnings and burning to assume its role as connective habitat and/or nesting and foraging habitat. These treatments need to be done in all stands of suitable forest type, growing on native, suitable sites, to provide RCW nesting and foraging habitats in a sustainable manner across the Conecuh National Forest in order to meet Recovery Plan growth rates and ultimately to attain the Recovery Goal for Delisting when Conecuh/Blackwater reach 250 potential breeding groups (page 165, Recovery Plan.)

A spatial analysis tool is available to assist biologists in evaluating the habitat quality and habitat distribution needs for RCW. Red-cockaded woodpecker Foraging Analysis Technique (RCWFAT) was developed by Don Lipscomb and T. Williams of Clemson University. It uses GIS macros and forest inventory data to estimate available RCW habitat. It can also be used to project future habitat availability and thereby population expansion into suitable habitats. Forest Service Biologists will utilize this tool to project population growth and habitat needs at the Neighborhood-level (page 197, Recovery Plan) to determine specific needs annually. General habitat improvement needs, such as the need to reduce basal area to 40-80 BA in pine stands, thin in all young pine plantations, and burn to maintain herbaceous understories, are already known. Specific habitat improvements in close proximity (in time and space) to active RCW clusters are identified by neighborhood-level spatial analysis.

**NFAL Forest Biologist and USFWS Biologist:**

On October 1, 2004 Eric Spadgenske of USFWS toured most of these same sites. Spadgenske had been assigned by Larry Goldman of USFWS Ecological Services Office in Daphne, AL to assess hurricane damage to Conecuh’s RCW and Forest Service response. Spadgenske provided a Memorandum for Record report summarizing his findings, which is included in this project’s file. Overall, he found that although individual RCW’s, and cavity trees were lost, no nesting or foraging habitat was completely lost, and “there was no appreciable impacts on available foraging resources
for RCW's in the areas surveyed.” “In general” he observed, “areas adjacent to open
areas (e.g. clear-cut, lake) had much greater damage than contiguous stands of trees.”
His main suggestions relating to the salvage of damaged timber was to adhere to recovery
plan standards (Attachment 1), and exercise care during logging operations to minimize
groundcover disturbance (skid trails, loading areas, etc.) during log skidding and loading
in areas near RCW cluster sites. This concern was prompted by a concern for wiregrass,
ot the RCW. Several Forest Plan standards address and limit soil exposure and rutting
(They were summarized in a 1-page handout from Art Goddard given out during FLRMP
Rollout meetings); these standards will protect soil, water, and native bunchgrass
regeneration. He also emphasized that salvage operations be conducted prior to RCW
nesting season. Recovery Plan and Forest Plan Standards also reiterate this restriction to
operation timing within RCW clusters. Spadgenske and Forest Biologist observed the
two adult eagles utilizing habitat adjacent to Brook Hines Lake. [Forest Biologist -
Forest Plan Standard (FW-77) establishes a 1500-ft protection zone around nest and
communal roost trees and prohibits all management activities not associated with bald
eagle management and monitoring within that zone during periods of use. Nesting
season is October 1 to June 15; roost use periods are determined through site-specific
monitoring. Removal of trees impacting known eagle nesting or roosting trees would
protect the standing trees from damage. The situation for eagle trees is analogous to
RCW trees. Salvage operations and resumption of prescribed burning regimes represent
protection of existing habitat. District records document eagle use of roost site in extreme
southwest corner of Brook Hines Lake, near the dam.]

Forest Health Protection Specialists:
Forest Health Protection specialists visited three RCW cluster sites (Clusters 6605, 6606,
6702) on October 5-6 during their evaluation of Conecuh National Forest Health
following Hurricane Ivan. Hurricane damage in each of these cluster sites was evaluated
to be Low in Cluster 6606 (~8% of the stems damaged), Low-Moderate in Cluster 6605
(<30% of the stems damaged), and Severe in Cluster 6702 (66–75% of the stems
damaged). Cluster 6702 is an inactive recruitment stand and can be relocated in suitable
remaining habitat, or habitat created through thinning in an overstocked (>80 BA) stand.
Forest Health Protection Specialists also reported finding an attacking southern pine
engraver adult, *Ips avulus*, in at least one wind thrown pine top in RCW Cluster 6605.
Bark beetles were found in two of six transects (~33%) they conducted. These findings
reinforce the threats perceived to remaining RCW habitats. Forest Health Protection
Specialists also cited their experience in a similar scenario: Following Hurricane Hugo in
South Carolina in September 1989, most storm-damaged pines were infested with *Ips*
beetles by April 1990, but SPB activity did not increase until June, when population
levels were increasing though out the area. This experience should direct the time line
for treatments for this project.
<table>
<thead>
<tr>
<th>Cluster Number, Post-Hurricane Photo, Treatment Needs</th>
<th>Hurricane Effects</th>
<th>Rating of Present Condition</th>
<th>Potential Effects Of Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cluster 6104 – Active</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needs: Salvage, Thin/GSPburn</td>
<td><strong>RCW:</strong> Mortality of 2 birds (Breeding female and young female). Roost sites have been replaced. <strong>Trees:</strong> Moderate damage. Broken off/uprooted/leaning. Good natural cavity (30 ft – SSW) remains and being worked.</td>
<td>BA remains at the higher end of suitable for RCW’s (Ave 80-90; up to 110). Native grasses being suppressed by gallberry due to time since last burn. Marked timber sale thinning precluded recent pburns.</td>
<td>Number and size of stems on ground will cause heavy fuel loading during next 1-3 pburn rotations and may also increase risk of catastrophic fire.</td>
</tr>
<tr>
<td></td>
<td><strong>RCW:</strong> None observed. No known losses of birds. Heard 2 birds here. <strong>Trees:</strong> Light damage. Broken off/uprooted/leaning.</td>
<td>BA remains high for RCW’s (90+). Grasses suppressed by gallberry due to time since last burn. Marked timber sale thinning precluded recent pburns.</td>
<td>See above.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cluster Number, Post-Hurricane Photo, Treatment Needs</td>
<td>Hurricane Effects</td>
<td>Rating of Present Condition</td>
<td>Potential Effects Of Damage</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
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</tr>
<tr>
<td><strong>Cluster 6303 - Active</strong></td>
<td>RCW: Mortality of 1 juvenal male. <strong>Trees:</strong> Moderate damage. Broken off/uprooted/leaning. 2 new starts in old restrictor plated natural cavity tree.</td>
<td>BA remains at the higher end of suitable for RCW’s (Ave 80-90; up to 110). Native grasses being suppressed by gallberry due to time since last burn. Timber marked for thinning kept pburn out recently.</td>
<td>Number and size of stems on ground will cause heavy fuel loading during next 1-3 pburn rotations. Fuel loading will increase smoke production.</td>
</tr>
<tr>
<td>Needs: Salvage, Thin/GSPburn</td>
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<td></td>
</tr>
</tbody>
</table>

**Cluster 6507 – Inactive Recruitment**

RCW: Potential roost sites have been replaced. **Trees:** Moderate damage. Approximately 30% of all stems were broken off/uprooted/leaning. Consider establishing additional recruitment stand across road.

Remaining BA average remains as suitable for RCW’s foraging/nesting habitat. (≥ 40). Stand remains at risk to further windfall due to exposure from private young plantation.

Very high number and large size of stems on ground (approximately 20-30 BA) will cause heavy fuel loading during next 1-3 pburn rotations.
<table>
<thead>
<tr>
<th>Cluster Number, Post-Hurricane Photo, Treatment Needs</th>
<th>Hurricane Effects</th>
<th>Rating of Present Condition</th>
<th>Potential Effects Of Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster 6508 – Recruitment</td>
<td>RCW: Not Active Trees: Moderate damage. Most root sprung. A great number of tops impacted against and under canopies of remaining standing trees. Great risk of further damage from pburn/wildland fire reintroduction into stand due to nature and position of fuels.</td>
<td>BA remains at the higher end of suitable for RCW’s (Ave 70-90).</td>
<td>Number and size of stems on ground will cause heavy fuel loading during next 1-3 pburn rotations and may also increase risk of catastrophic fire.</td>
</tr>
<tr>
<td>Needs: Salvage, Resume Pburn regime</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cluster 6601- Active</td>
<td>RCW: No losses Trees: Light damage.</td>
<td>Remaining BA is suitable for RCW.</td>
<td>Increased large fuels.</td>
</tr>
<tr>
<td>No Photo Available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needs: Salvage, Resume Pburn regime</td>
<td></td>
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<td></td>
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<tr>
<td>Cluster 6605 - Active</td>
<td>RCW: Mortality of breeding female (Blackwater bird). Roost sites have been replaced. Trees: Moderate damage. 4 new inserts installed. Conserve remaining large trees. May be too many inserts. Replace old inserts in trees instead of using new trees in future.</td>
<td>BA is at low end of recovery plan standard. Native grasses (bluestems here, not wiregrass) in good shape. Fire being applied well.</td>
<td>Number and size of stems on ground will cause heavy fuel loading during next 1-3 pburn rotations and may increase risk of catastrophic fire if not salvaged.</td>
</tr>
<tr>
<td>Needs: Salvage, Resume Pburn regime</td>
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</tbody>
</table>
### Table 1(Cont.): Interpretation of Hurricane Damage, RCW Effects, and Potential Effects of Damage.

<table>
<thead>
<tr>
<th>Cluster Number, Post-Hurricane Photo, Treatment Needs</th>
<th>Hurricane Effects</th>
<th>Rating of Present Condition</th>
<th>Potential Effects Of Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster 6606 - Active</td>
<td>RCW: Mortality of breeding female. Roost sites have been replaced. <strong>Trees:</strong> Light damage. 4 new inserts installed. Already in use! Active Natural cavity tree and active artificial cavity tree with severe lean. Remove artificial cavity tree leaner and retain natural cavity tree leaner.</td>
<td>BA is at low end of recovery plan standard. Native grasses (bluestems here, not wiregrass) in good shape. Fire being applied well.</td>
<td>Number and size of stems on ground will cause heavy fuel loading during next 1-3 pburn rotations and may increase risk of catastrophic fire.</td>
</tr>
</tbody>
</table>

**Needs:** Salvage, Resume Pburn regime

**References and Sources:**


Attachment 1:  RCW Recovery Plan and FLRMP Required Mitigations

For Cluster Sites:
Cluster Sites defined as minimum convex polygon containing all cavity trees in use by a group of RCW and a 200 ft buffer of continuous forest around the minimum convex polygon. The cluster must contain a minimum of 10 acres (pg 178, Recovery Plan).

- **Protect existing cavity and artificial insert trees.** Mark cavity trees for easy identification and avoidance.
- **Protect cavity and artificial insert tree roots.** Prohibit the use of heavy machinery within 50 ft of cavity/insert trees.
- **Protect against southern pine beetle infestations** (pg 199, Recovery Plan). Thin dense stands to maintain adequate spacing (25 ft among canopy pines in mature stands) and minimize physical disturbance to soil and roots during management operations such as thinning, midstory reduction, and prescribed burning.
- **Reduce risk of damage from high winds.** Retain a 200 ft buffer around minimum convex polygon containing each group’s set of cavity trees as part of the cluster. Consider retaining additional buffers and minimize the establishment of new openings adjacent to a cluster.
- **Develop sufficient large and old pines to serve as cavity trees in the future.** Retain all potential cavity trees (pines > 60 years in age) within clusters, unless pine basal area is above 50 ft²/ac and all trees are above 60 years in age.
- **Control hardwood and pine midstory.** Burn every 1-5 years, preferably during the growing season. If necessary remove excessive stems by hand (chainsaw, brush hook, etc.), mechanical (brush-hogging, mulching, etc.), or chemical (one-time application of herbicides to live trees or stumps), or a combination of these methods. **Mechanized equipment for the purpose of hardwood control will not be used within the cluster when woodpeckers are nesting.** Broadcasting herbicides by hand within the cluster is permitted during nesting season (pg 180, Recovery Plan). Recently abandoned clusters should be managed with the same intensity as active clusters.
- **Foster native grasses and forbs.** Apply frequent growing season fire to promote this ground cover character.
- **Reduce excessive overstory hardwoods within the cluster.** Overstory hardwoods within the cluster should not total more than 10 ft²/ac basal area.
- **Retain dead and dying cavity trees and all other standing dead snags, unless they present a safety hazard.**
- **Reduce human disturbance within clusters as much as possible, especially during nesting season.** As a minimum follow these guidelines:
  1. Restrict vehicle use to existing roads. Avoid construction of new roads and trails (for motorized and non-motorized use) within clusters.
  2. Limit pine and hardwood silvicultural and cultural operations to daylight hours; avoid these activities within at least 1-2 hours of dawn and dusk.
  3. Use of mechanized equipment in a cluster is permitted during the non-breeding season for RCW management activities only (e.g., mechanical midstory reduction).
4. Habitat management activities other than prescribed burning (for example timber thinning and hardwood midstory control, are prohibited during the breeding season (April-July).

For Foraging Habitat (P/PH stands within ½-mile foraging partition of active cluster sites):

- In ecosystems with site index 60 or more, for the dominant pine species, provide each RCW group 120 acres of good quality foraging habitat.

- Good Quality foraging habitat is defined on page 188-189 of the RCW Revised Recovery Plan. It has all of the following characteristics:

  a) There are $\geq 18$ stems/ ac of pines that are $\geq 60$ years in age and $\geq 14''$ dbh. Minimum basal area for these pines is $20 \text{ ft}^2/\text{ac}$. Recommended minimum rotation ages (Longleaf/Shortleaf – 120 yrs, Loblolly/Slash – 100 yrs) apply to all land managed as foraging habitat.

  b) Basal area of pines 10”-14” dbh is between 0 and $40 \text{ ft}^2/\text{ac}$.

  c) Basal area of pines < 10” dbh is below $10 \text{ ft}^2/\text{ac}$, and below 20 stems/ ac.

  d) Basal area of all pines $\geq 10''$ dbh is at least $40 \text{ ft}^2/\text{ac}$. That is, the minimum basal area for pines in categories (a) and (b) above is $40 \text{ ft}^2/\text{ac}$.

  e) Groundcovers of native bunchgrass and/or other native, fire-tolerant, fire-dependent herbs total 40% or more of ground and midstory plants and are dense enough to carry growing season fire at least once every 5 years.

  f) No hardwood midstory exists, or if a hardwood midstory is present it is sparse and less than 7 ft in height.

  g) Canopy hardwoods are absent or less than 10% of the number of canopy trees in longleaf forests and less than 30% of the number of canopy trees in loblolly/shortleaf forests. Xeric and sub-xeric oak inclusions that are naturally existing and likely to have been present prior to fire suppression may be retained but are not counted in the total area dedicated to foraging habitat.

  h) All of this habitat is within 0.5 mi of the center of the cluster, and preferably, 50% or more is within 0.25 mi of the cluster center.

  i) Foraging habitat is not separated by more than 200 ft of non-foraging areas. Non-foraging areas include (1) any predominately hardwood forest, (2) pine stands less than 30 years in age, (3) cleared land such as agricultural lands or recently clear-cut area, (4) paved roadways, (5) utility rights of way, and (6) bodies of water.
Attachment 2: *The Healthy Forests Initiative and Healthy Forests Restoration Act: Interim Filed Guide* - Discussion of Relationship to Current Project

Threatened and Endangered Species

Section 102(a)(5) of the HFRA authorizes projects that will enhance protection from catastrophic wildland fire for threatened and endangered species or their habitats and that maintain and restore such habitats. Projects are authorized on NFS and BLM lands containing threatened and endangered species habitat where:

A—Natural fire regimes are identified as being important for, or wildland fire is identified as a threat to, a threatened or endangered species, or the habitat of a threatened or endangered species, in a:
- Species recovery plan prepared under Section 4 of the ESA (16 U.S.C. 1533), or a
- Notice published in the Federal Register determining a species to be endangered or threatened, or designating critical habitat.

AND

B—The authorized hazardous-fuel reduction project will provide enhanced protection from catastrophic wildland fire for the endangered species, threatened species, or the habitat of the threatened or endangered species

AND

C—The Secretary complies with any applicable guidelines specified in any management or recovery plan described in A.

*The red-cockaded woodpecker is an example of an endangered species that depends on frequent fires to maintain its habitat.*

**Determining the Threat of Fire and the Need for Enhanced Protection**

Many threatened and endangered species require fire to maintain their habitat. Disturbances, such as fire, provide the ecological basis for conservation management in many forest ecosystems. The endangered red-cockaded woodpecker is an example. Projects that return fire to the ecosystem in a manner that improves or maintains habitat effectiveness should be
considered important for such species. If such projects also provide enhanced protection from catastrophic wildland fire for threatened and endangered species or their habitat, they may be authorized under the HFRA. Some threatened and endangered species can be adversely affected by wildland fire. Whether a potential wildland fire may pose a risk to a species, and the degree of risk, depend on many factors, including the likelihood that a fire may occur, the fire’s size, intensity, and severity; fire frequency, the time of year of the fire; the availability of needed replacement habitat; and the species’ habitat requirements. These factors should be considered when determining the threat of wildland fire to species and habitats (figure 12). Fire regime condition class assessments also should be considered when determining whether a treatment or series of treatments would reduce the likelihood of an uncharacteristically severe wildland fire and benefit the species overall. Threatened and endangered species recovery plans, final listing rules, the Fire Effects Information System, the NatureServe Explorer, USDA Forest Service and DOI BLM resource management plans, and the scientific literature are important sources of information when determining whether hazardous fuel treatment will benefit threatened and endangered species or their habitat (see References). The expected effects of wildland fire on species limiting factors and the threats to a species are key considerations.

Many threatened and endangered species have approved recovery plans that identify specific tasks needed to recover species and ecosystems and the significance of fire (natural and prescribed) to the species. All final rules to list species under the ESA identify the factors that contributed to a need to list the species. These rules may include information on fire’s ecological importance for the species.

The potential beneficial and adverse effects to the species, over the short and long term, need to be identified when determining whether a project will produce a net positive benefit. Resource managers should refer to the 2002 HFI Net Benefits Guidance (see References) issued by the USFWS and NOAA Fisheries for a more thorough discussion.

Coordination among fuel and fire specialists, ecologists, biologists, and researchers—internal and external—is especially important. The design and evaluation of fuel treatments at project and landscape scales should be appropriate for the geographic ranges of any relevant threatened and endangered species.

Projects based on Section 102(a)(5) of the HFRA must comply with guidelines in approved threatened and endangered species recovery plans or final listing rules and with the management requirements they include. If such rules or plans do not identify the need to reduce the risk of wildland fire, resource managers should weigh the positive and adverse effects that fuel-reduction activities would have on the species, using the best available information (see References).

Documentation
The analysis and documentation for projects under Section 102(a)(4) of the HFRA are intended to be integrated with the analysis and documentation done under current NEPA guidance and other relevant guidance. This documentation should be included in the
NEPA documents normally prepared during project planning, the Decision Records or Records of Decision prepared before project implementation, or in the project file itself.

All projects implemented under this section of the HFRA should include documentation in the administrative record on the factors that were analyzed and the assumptions that were made when determining the net benefit to threatened and endangered species as provided for in the Judicial Review section.