# PROCESS FOR DETERMINATION OF RED TREE VOLE SITES AS NON-HIGH PRIORITY SITES WITHIN THE "PILOT" AREA

## Overview

The High Priority Site (HPS) team for the red tree vole (RTV) (*Arborimus longicaudus*) concluded that analysis for the determination of non-high priority sites should consider the likely abundance and distribution of the species at two spatial scales: 1) the watershed scale, and 2) survey polygon scale. The HPS team considered four specific watershed and survey area characteristics in order to programmatically identify non-high priority sites. The following four characteristics provide the basis for field level evaluation of RTV survey and site polygons and allows for final field unit designation of non-high priority status for sites within survey polygons. The four characteristics the team considered are: 1) amount of federal forest capable reserve land within each fifth-field watershed; 2) the quality of habitat the site occurs within; 3) the number of active vole nests detected within the survey area and 4) the total survey effort. Each of these characteristics and the rationale for their use is explained further in Appendix B.

The team divided the fifth-field watersheds within the pilot area into three categories (high, moderate, and low) based on the percentage of future federal forest capable land reserved. For the purposes of this watershed characteristic "federal forest capable" is defined as forested stands either currently providing or capable of growing into RTV habitat. Table 1 lists each of the watersheds in the pilot area based on this hierarchy.

The evaluation process presented in this document pertains only to the previously identified "pilot" area (see map, Attachment 2), and only to Matrix, Adaptive Management Area (AMA) Matrix/Riparian, or AMA/Riparian Land Use Allocations (LUA). To conduct the survey polygon scales assessment, field units will need to review their survey polygons using the criteria listed below.

## General Survey Polygon Evaluation Guidelines

Field units will evaluate survey polygons within the pilot area to determine if the RTV sites within the polygon may be identified as non-high priority sites. The following guidelines are to be used in that evaluation.

**Assessment Guideline Applicable to All Survey Polygons.**

The following assessment guideline applies to all survey polygons whether surveys have been completed to protocol or not.

- In cases where the survey polygon straddles the boundaries of two or more watersheds, apply the criteria for the watershed (Table 1) where the majority of survey polygon acres occur.

**Assessment Guidelines Applicable to Survey Polygons in Moderate and Low Reserve Watersheds**

The following assessment guideline applies to all survey polygons whether surveys have been completed to protocol or not.

- The acreage values for survey polygons located within 100 meters of each other, and of equivalent habitat condition (seral stage, stand origin, age, or structural complexity), should be combined and counted as a single survey polygon for the purposes of evaluating the survey area.
- For survey polygons in moderate watersheds containing habitat that meets both the survey protocol and non-survey protocol habitat definitions, the habitat type comprising the majority of the survey polygon should be used to determine which assessment rules listed below apply. Use only the majority habitat type when applying criterion 1, 2, 3 or 4 listed below.

## General Watershed Evaluation Guidelines

Field units will evaluate survey polygons within the pilot area based on the watershed conditions to determine if the RTV sites within the polygon may be identified as non-high priority sites. The following guidelines are to be used in that evaluation.

**Survey Polygons within High Reserve Watersheds**

Survey polygons located in 5th field watersheds listed as high in Table 1 require no further evaluation, regardless of whether surveys have been completed or not. All sites within the survey polygon can be identified as non-high priority sites and may be released for other management priorities. This direction applies to polygons in Matrix and AMA LUAs or a combination of AMA/matrix and Riparian Reserve. This change in site status must be documented in ISMS and in appropriate project-specific NEPA documents.

**Survey Polygons Within Moderate and Low Reserve Watersheds**

***Survey polygons with completed protocol surveys***

Survey polygons with a *completed protocol survey* may be evaluated using either Table 2 or the following section (Field Level Survey Polygon Evaluation Criteria) to determine whether the sites within the survey area polygon may be identified as non-high priority sites.

***Survey polygons without completed protocol surveys***

- The programmatic process described in this document cannot be applied to survey polygons without completed protocol surveys. Field units may decide to complete protocol surveys in survey polygons in order to apply this programmatic process. For these situations if the decision is made to conduct additional surveys the following guidelines apply:

    - The previously surveyed portion of the line transects within the survey polygon and any confirmed nest trees where the species and activity status were determined are considered current within the existing survey protocols five-year time frame. These areas do not need to be re-surveyed.
    - If you are completing the survey protocol by returning to nest trees with unknown species or activity status, check all previously identified nests, including those previously identified as active. If the nest(s) are no longer intact, check trees within

100m for new nest structures and determine the species use and activity status of any new nests to assure the voles have not moved between the original survey and the time you are completing this survey.

- Finish any additional line transect segments that may be needed to complete the standard protocol survey effort.
- Once all surveys are completed, the polygon can be evaluated using the criteria listed in the next section (Field Level Survey Polygon Evaluation Criteria and summarized in Table 2).

## Field Level Survey Polygon Evaluation Criteria

**Survey Polygons within High Reserve Watersheds**
As previously stated above under the section "Watershed Evaluation Guideline", survey polygons located in 5th field watersheds listed as high in Table 1 require no further evaluation, regardless of whether surveys have been completed or not.

**Survey polygons within Moderate and Low reserve watersheds listed in Table 1**
Survey polygons with completed protocol surveys, should be evaluated by the field unit using the 5 different criteria listed below. Sites within survey polygons that meet any of the criteria listed may be identified as non-high priority sites and released for other management needs. This direction applies to polygons in Matrix and AMA LUAs or a combination of AMA/matrix and Riparian Reserve. Changes in site status must be documented in ISMS and in appropriate project-specific NEPA documents. .

***Moderate Watersheds***

**Criterion 1:**

- If the survey polygon is comprised of non-survey protocol habitat;
- is < 30 acres in size; and
- has only 1 active nest, then the site within the polygon is considered a non-high priority site.

**Criterion 2:**

- If the survey polygon is comprised of non-survey protocol habitat;
- is ≥ 30 acres in size; and
- has <5 active nests then all sites within the polygon are considered non-high priority sites.

**Criterion 3:**

- If the survey polygon is comprised of survey protocol habitat;
- is ≥ 30 acres in size; and
- has only 1 active nest then the site within the polygon is considered a non-high priority site.

**Criterion 4:**

- If the survey polygon is comprised of survey protocol habitat;
- is ≥ 50 acres in size; and

- has 2-4 active nests then all sites within the polygon are considered non-high priority sites.

***Low Watersheds***

**Criterion 5:**

- If the survey polygon is $\geq$ 50 acres in size; and
- has only 1 active nest; then the site within the polygon is considered non-high priority site.

Survey polygons not meeting any of the above criteria, and all sites contained within the polygon, are not candidates for non-high priority site status under this programmatic process, and should continue to be managed as high-priority sites. Additional surveys may help to determine if the sites could, depending upon additional survey effort, be considered non-high priority. (For example, if the survey is within a low reserve watershed, and 1 active nest has been located after completing 48 acres of survey the site would need to be retained. However, if you completed an additional 2 acres of survey effort and found no additional active nests, the polygon would now meet the "release" criteria, and the site within that polygon would then be identified as non-high priority). Use Table 2 to help determine whether the additional survey may be warranted.

In moderate or low reserve watersheds, where a decision is made to conduct additional surveys, the habitat to be surveyed needs to be of equivalent stand age and structure as the habitat that was previously surveyed. If no additional equivalent habitat is available, then the programmatic process would not be appropriate, and the more site-specific 4-step process could be considered.

| Table 1. –Assignment of pilot area 5th Field Watersheds into High, Moderate, and Low future reserved habitat levels. For use in the assessment of tree vole survey polygons in designating non-high priority sites. | | |
|---|---|---|
| **High** | **Moderate** | **Low** |
| Lower Smith River | Middle North Umpqua River | Calapooya Creek |
| Lower Umpqua River | Middle Umpqua River | Lower MF Willamette River |
| Wolf Creek | Elk Creek (Umpqua River) | Little River |
| Fall Creek | Upper Smith River | Lower NF of MF Willamette River |
| Upper Umpqua River | Rock Creek (North Umpqua River) | Lower Coast Fork Willamette River |
| Mill Creek (Umpqua River) | Salmon Creek | Upper NF of MF Willamette River |
| Canton Creek | Woahink / Siltcoos River/ Tachkenitch | Salt Creek (Willamette River) |
| Lower Siuslaw River | Mosby Creek | Upper North Umpqua River |
| Upper Siuslaw River | Wildcat Creek | Fish Creek |
| Steamboat Creek | Hills Creek Reservoir | Lower Row River |
| Boulder Creek (North Umpqua River) | Layng Creek | Lower North Umpqua River |
| Middle Fork Willamette River/Lookout Point | Lake Creek | Upper MF Willamette River |
| Deadwood Creek | Winberry Creek | Clearwater Creek |
| North Fork Siuslaw River | Hills Creek | Diamond Lake |
| Little Fall Creek | Lost Creek | Lemolo Lake |
| Indian Creek Lake Creek | Upper Coast Fork Willamette River | |

## Table 2. Matrix of survey polygon evaluation criteria with outcome for polygon classes

| Relative amount of capable forest lands in reserve, by 5th field watershed (see Table 1) | Habitat Classification | Survey Polygon Size (in acres) | 1 Active Nest | 2 to 4 Active Nests | ≥ 5 Active Nests |
|---|---|---|---|---|---|
| HIGH | ***All*** Habitat Types | All | **Release** | **Release** | **Release** |
| MODERATE | ***Non-Survey*** Protocol Habitat (Criterion 1 and 2) | Less than 30 acres | **Release** | Retain | Retain |
| | | 30 to 49 | **Release** | **Release** | Retain |
| | | Greater than 50 acres | **Release** | **Release** | Retain |
| | ***Survey*** Protocol Habitat (Criterion 3 and 4) | Less than 30 acres | Retain | Retain | Retain |
| | | 30 to 49 | **Release** | Retain | Retain |
| | | Greater than 50 acres | **Release** | **Release** | Retain |
| LOW | ***All*** Habitat Types (Criterion 5) | Less than 50 acres | Retain | Retain | Retain |
| | | Greater than 50 acres | **Release** | Retain | Retain |

Release—The site is likely incidental, non-viable, or otherwise not important for meeting the overall species persistence objectives and no longer needs to be managed for the benefit of the red tree vole. The site can be managed for other resource needs.

Retain—The site does not meet the criteria for non-high priority site status under this programmatic process, and should continue to be managed as a High Priority site.

## Table 3 - Programmatic Step 3 Evaluation Form for the Identification of non-High Priority Sites for the Oregon Red Tree Vole

### WATERSHED INFORMATION

Administrative Unit: _____

Resource Area/Ranger District: _____

Contact Person: _____

Watershed Name: _____

Watershed Ranking (High, Moderate, Low): _____

### SURVEY POLYGON INFORMATION

| Survey Polygon ID | Project Name | Does the Habitat Meet the Trigger for Survey Protocol Habitat? (Y/N) | | | RTV Nest Activity Status (enter # of nests within the survey polygon) | | | Number of Active RTV *Sites* in the Survey Polygon | ISMS Entry Date (identifying these as non-HP) |
|---|---|---|---|---|---|---|---|---|---|
| | | N. Mesic | Mesic | Xeric | Active | Inactive | Unknown | | |
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## Appendix A-Guidance on the management of red tree vole sites found incidentally

This Appendix provides direction on whether or not to manage new sites found incidentally: either in projects not requiring pre-disturbance surveys (Category D areas); species occurrences incidentally detected outside projects by staff conducting other field work (Category C and D areas); or new sites found after pre-disturbance surveys (in Category C areas) have been completed. Options on management of the site are dependent upon when in the NEPA process the site is found, as well as whether the site is found in a high, moderate, or low category watershed.

**For new active red tree vole nest trees located incidentally and found prior to the NEPA decision date,** apply the following guidelines (summarized in Table 4):

- **High Reserve Watersheds** (those listed in Table 1, in Attachment 1)
  All incidental discoveries located in Matrix, AMA or a combination of Matrix/Riparian or AMA/Riparian land use allocations within high reserve watersheds are considered non-HPS and are therefore released for other management priorities. Identify the site as a non-HPS site in ISMS and in appropriate project-specific NEPA documents.

- **Moderate Reserve Watersheds** (those listed in Table 1, in Attachment 1)
  For incidental finds in moderate reserve watersheds, evaluate according to the type of habitat the site occurs within.

  **1. Non-survey protocol habitat:** Incidental discoveries within non-survey protocol habitat in the pilot area are considered non-HPS and are released for other management priorities. Identify the site as a non-HPS site in ISMS and in appropriate project-specific NEPA documents.

  **2. Survey protocol habitat:** Incidental discoveries in survey protocol habitat should be managed either as a known site or Table 4 (below) can be used to determine whether the site may have the potential to be released under this programmatic non-HPS guidance. To potentially release these sites, a protocol survey around the site must be completed. After a full protocol survey is completed, the site may be released, depending on the number of active nests and survey effort. Table 4 outlines various scenarios based on survey effort and numbers of active nests and should be used as a guide to determine the survey effort the field unit would conduct. This requirement applies to Category C and D areas.

- **Low Reserve watersheds** (those listed in Table 1, in Attachment 1)
  For all incidental discoveries of active nest trees located in low reserve watersheds, sites should be managed as known sites. The only exception to this requirement would be a site where the original incidental discovery was the only active nest tree detected after a protocol survey of at least 50 acres of

habitat around the original nest tree. In these situations, the site could be released.

**If active red tree vole nests are incidentally found after the NEPA date, but before the sale date,** site-specific analysis should be conducted to determine the level of concern for persistence of the species and the habitat in and adjacent to the activity area. The site under these circumstances could be recommended for retent ion based on the level of concern. This site guidance, for sites incidentally detected, follows verbatim the discussion under the Standards and Guidelines, page 22, of the 2001 Survey and Manage Record of Decision.

## Table 4 - Matrix for the management of incidental finds discovered prior to NEPA signing

| Relative amount of capable forest lands in reserve, by 5th field watershed (see Table 1) | Habitat Classification | Survey Polygon Size (in acres) | 1 Active Nest | 2 to 4 Active Nests | ≥ 5 Active Nests |
|---|---|---|---|---|---|
| **HIGH** | ***All*** Habitat Types | All survey areas | **No site protection needed** | **No site protection needed** | **No site protection needed** |
| **MODERATE** | ***Non-Survey*** Protocol Habitat | All surveys areas | **No site protection needed** | | |
| | ***Survey*** Protocol Habitat | Less than 30 acres | Retain | Retain | Retain |
| | | 30 to 49 | **No site protection needed** | Retain | Retain |
| | | Greater than 50 acres | **No site protection needed** | **No site protection needed** | Retain |
| **LOW** | ***All*** Habitat Types | 0 to 49 | Retain | Retain | Retain |
| | | Greater than 50 acres | **No site protection needed** | Retain | Retain |

**No site protection needed**—site does not need to be managed for benefit of the Red Tree vole. Site is released for other resource needs.

**Retain**—The site does not meet the criteria for designation as a non-high priority site under this programmatic evaluation. Site must be retained, and managed as a known site.

# Appendix B -Site characteristics and rationale used by the HPS Team in non-high priority site identification

## Overview

The HPS Team developed Attachment 1 as a process to designate some sites as non-high priority sites prior to the completion of a high priority site management recommendation. Initial assessment by the team indicates that characteristics of many known sites are such that they are likely non-viable, and unlikely to be needed to provide for a reasonable assurance of species persistence. In the HPS team's professional judgment, the decision to release these sites for other management priorities should result in a low risk to species persistence within the pilot area and provide for a reasonable assurance of species persistence.

The pilot area was selected for high priority site management recommendation development because of the relatively high amount of older forests remaining, the current and historical information available regarding the occurrence and distribution of the species, the elevation range (sea level to Cascade crest) traversed within the pilot area, and the variation in land ownership and reserve patterns across the landscape. The high proportion of older forests remaining in the Umpqua Basin, relative to other portions of the species range, suggests the species status is not immediately a concern within the basin.

Prior to developing this programmatic process for designation of non-high priority status, the HPS Team has developed habitat models and reviewed species abundance estimates both within the pilot area and range wide. In addition, the team has reviewed stand characteristics such as overstory size class, elevation, stand age, and other site parameters for all survey and site polygons recorded in the ISMS Red Tree Vole data module. Considerable discussions were conducted regarding what site characteristics were needed to permit normal biological function and species interactions, considering life history characteristics of the species. Given the species low reproductive rate and poor dispersal characteristics, the team identified minimum values for sufficient habitat quality, species abundance, and distribution to assure that high priority sites selected will meet the species persistence objectives under the NFP.

Sites not meeting minimum criteria for sufficient habitat quality, species abundance, or distribution characteristics were considered not likely to be candidates for high priority site selection and therefore could be designated as non-high priority sites. The exception to this philosophy would be in watersheds where even poor quality sites might need to be retained, in the short term, to maintain well-distributed vole populations. This occurs mainly in the 5$^{th}$-field watersheds listed in the "low" category in Table 1.

## Review of Evaluation Criteria

The following sections review the development and use of each criterion used in the assessment process for determining characteristics for non-high priority sites.

**Watershed Rankings**

The watershed scale was used to provide a larger context with which to evaluate whether habitat is well distributed and being maintained to support reproductive, interacting individuals. Watershed assessments are best conducted through habitat modeling where the amount and juxtaposition of persistence quality habitat can provide insight into the long-term persistence of the species within the watershed. The non-HPS assessment ranked all 5$^{th}$ field watersheds within the pilot area into three categories (high, moderate, and low) based upon the amount of federal forest capable land in reserves. Watershed rankings were developed based on the amount of future red tree vole habitat in reserves from predictions using the present natural vegetation (PNV) modeling approach developed by Jan Henderson. For the purposes of this process, "federal forest capable" is defined as stands either currently providing or capable of growing into red tree vole habitat. The amount of reserve land within the 5$^{th}$ field watershed was compiled using local GIS information provided in October 2001 by the six administrative units within the pilot area. Reserve types considered included; LSR's, the administrative unit's most current riparian reserve layer, 100 acre northern spotted owl cores, marbled murrelet reserves, Areas of Critical Environmental Concern, Research Natural Areas and other Forest and BLM district individual plan reserves. These additional reserves were considered as part of the overall reserve and habitat rating for the watershed. These additional reserves were considered if management guidelines for the reserve areas included development or retention of late successional forest and are providing or capable of growing into RTV habitat.

HIGH RESERVE WATERSHEDS

Fifth-field watersheds rated in the *"high"* category are dominated by large block Late Successional Reserves, with a smaller proportion of the reserve network in riparian reserves and other smaller withdrawn land allocations. These large block Late-Successional Reserves were originally designated in the Northwest Forest Plan because they contained a greater proportion of older forest conditions than the surrounding matrix lands. Therefore, because these *"high"* category watersheds contain a higher amount of reserved older forest habitat and habitats are better connected because of the large block LSRs, the HPS team concluded that there is less concern of not meeting species management objectives within these watersheds. This conclusion led to the recommendation that all RTV sites in Matrix and AMA LUAs within these watersheds may be considered non-high priority, and may be released for other management priorities.

While the non-HPS assessment process documented in Attachment 1 relies heavily on estimates of future habitat conditions, estimates of current "high-quality" habitat in the "high" category 5th-field watersheds also supports the conclusion that there is a greater amount of reserved habitat in these watersheds. On average, 48 percent of reserve lands in the high watersheds are comprised of high-quality vole habitat and the reserves captured an average of 93 percent (range 83-100 %) of the high quality habitat occurring in the watersheds. Due to the overall high percentage of the watershed in reserves, and the high percentage of current RTV habitat reserved, the team concluded the additional

protection measures offered by identification of high priority sites would not contribute appreciatively to meeting species persistence objectives within these high watersheds.

MODERATE AND LOW RESERVE WATERSHEDS

In fifth-field watersheds rated as *"moderate"* or *"low"* there is more uncertainty about whether the amount and distribution of habitat in reserves will be sufficient, in the long term, to meet persistence objectives of well-distributed and connected populations. In these moderate and low watersheds, the riparian reserve network and other smaller reserves contribute a greater proportion of the amount of acreage of federal forest capable land in reserves. In the low and moderate watersheds, a smaller proportion or no portions of the future forest capable habitat in reserves is contributed to by large block LSRs. Combined with checker-board federal ownership patterns, habitat in these lower reserve watersheds are less well connected and vole populations are less likely to remain well-distributed over the next 100 years. The HPS team concluded that there is sufficient uncertainty as to the role and significance of sites in Matrix and AMA LUAs in these low and moderate reserve watersheds to release them at this time. A better understanding of the spatial distribution and persistence of sites within these watersheds is needed to determine if some of these sites will be identified as high priority. These sites are retained as candidates for HPS designation and are not released for other management priorities through this programmatic process.

The current condition assessment provides insight into the species likely condition for short to moderate time frames while habitat is developing under the Northwest Forest Plan (NFP). Estimates of current habitat conditions in the "moderate" and "low" category watersheds also tends to support the conclusion that there is less current habitat in reserve land allocations and therefore more uncertainty in designating vole sites in matrix/AMA as non-high priority. Currently the reserve network in moderate and low reserve watersheds averages 36 and 27 percent "quality habitat" in reserves, respectively. Within moderate reserve watersheds, on average 69 percent (range 60-78%) of the high quality habitat is within reserves. In low reserve watersheds, on average 44% (range 39-53%) of the high quality habitat is within reserves.

The connectedness of quality habitat may be diminished because of the lower amount of quality habitat and the distribution of the habitat. While no assessment of the distance between current habitat blocks has been completed, conservation biology theory suggests that connectedness declines as the percent of habitat on the landscape declines. Low and moderate reserve watersheds are primarily the areas where concern for releasing sites under the programmatic non-HPS process occurs. The reserves in the low and moderate reserve watersheds either do not currently contain a high proportion of quality RTV habitat or do not reserve the quality tree vole habitat that currently exists. The overall low amount of quality habitat leads to some concern for maintaining the species from both a distributional and demographic perspective. Therefore, the low and moderate watersheds are where management activities may have the greatest impacts on the distribution and abundance of the species. In particular many low and moderate watersheds are located at higher elevations where the species' occurrence rates are lower and where maintaining the species historical distribution would be of higher concern.

**Habitat Quality**
The Standards and Guidelines direct that Survey Protocols should identify habitat conditions or locations where surveys are not needed for a reasonable assurance of persistence. Such habitat may include, but is not limited to, seral stages, stand age, stand complexity, or stand origin and where occupied sites are likely incidental, non-viable, or otherwise not important for meeting overall species persistence objectives. On October 23, 2002, a direction memo (BLM-Information Bulletin No. OR-2003-003) was issued describing changes to Survey Protocol, Version 2.0. The new sections of the Survey Protocol (Version 2.1) were developed to exclude habitats that are not anticipated to be capable of supporting long-term species persistence, at the site level. In addition ISMS data analyzed for Step 1 of the 2002 annual species review process indicates that 72% of locations where red tree voles were confirmed, and an overstory size class was reported, were in stands with an over story of 21 inches dbh or greater. Survey Protocol revisions were designed to locate sites in habitats and stand types that may be needed to help provide for a reasonable assurance of species persistence, and may be chosen as sites to maintain through the development of a "high-priority" site Management Recommendation. These protocol changes imply that sites located in habitats/stand types not meeting these triggers are not needed for maintenance of species persistence and therefore are not candidates for high priority site designation, unless watershed conditions indicate they may be needed in the short term to meet overall species objectives.

**Occurrence of the site in "protocol" versus "non-protocol" habitat**
Protocol quality habitat is habitat that meets the definition/trigger for surveys, as identified in the Survey Protocol Version 2.1 (OCT 2002). Protocol habitat is considered likely to provide a stable, complex canopy structure, and is more likely to provide for long-term site persistence. Non-survey protocol habitat may not provide the long-term stable, complex canopy structure needed for long-term site persistence. However, in watersheds with moderate and low amounts of federal forest capable land in reserves, some sites in poorer quality habitat may need to be retained as high priority site candidates because of their spatial distribution to meet short term species persistence needs. These sites in poorer quality habitat may need to be retained until better habitat develops, or until the species distribution and connectivity objectives can be determined through the HPS MR process. RTV sites were evaluated as to whether they were in protocol or non-protocol quality habitat.

**Number of active nest trees and Survey Sufficiency**
The High Priority Site working group has concluded that characteristics of many current vole sites, based on ISMS data and field visits, made them unlikely to persist for the duration of the Northwest Forest Plan (NFP). Characteristics such as low number of individuals per site, poor quality habitat, predation, and surrounding habitat modifications, predisposes many of these sites to loss. Some of these sites, while temporarily occupied, are likely associated with larger sites not determined due to survey design, non-viable, or are otherwise not important for meeting the overall species persistence objectives. Given these site characteristics the HPS team suggests that these sites are ephemeral and are not likely to be designated as high priority sites.

Approximately 35 percent of the site polygons identified in the ISMS Red Tree Vole Module (data accessed February 10, 2003) range-wide contain only a single active nest tree and many are less than one half acre in size. In addition, 1179 (46 %) of the site polygons registered in ISMS do not meet the "Known Site" definition for tree vole sites (see Red Tree Vole Management Recommendations version 2.0, page 15). These sites are not considered to be extant because they do not contain any active tree vole nests. These sites do not require known site management (including Habitat Area delineation) and therefore are also not candidates of HPS designation.

The *number of active nest* trees in the survey area is used as an indicator of site quality and the likelihood of normal biological function and species interactions at a given location. Site persistence requires the occurrence of sufficient numbers of individuals to interact with each other, reproduce and provide for a stable population at a site over time. The number of active nest trees and *survey polygon size* is used in Attachment 1 to identify those places on the landscape where larger patches of habitat were surveyed and the number of active nests was identified. This assessment assumes the original survey followed the protocol and the survey results accurately depict local abundance. Large survey polygons containing low numbers of active nests were judged not likely to provide for an interacting stable population, at the site, and therefore are not needed to help provide for a reasonable assurance of species persistence.