FISCAL YEARS 2006 AND 2007
MONITORING AND EVALUATION REPORT FOR THE LAND AND RESOURCE MANAGEMENT PLAN

OZARK- ST. FRANCIS NATIONAL FORESTS

Baxter, Benton, Conway, Crawford, Franklin, Johnson, Logan, Madison, Marion, Newton, Pope, Searcy, Stone, Van Buren, Washington, Yell, (Ozark National Forest) Lee, and Phillips (St. Francis National Forest) Counties in Arkansas

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
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Forest Supervisor's Certification

I have evaluated and endorse the monitoring results and recommendations presented in this Monitoring and Evaluation Report (M&E Report). This is the first M&E Report for the 2005 Revised Forest Plan (Forest Plan), effective September 2005. Monitoring and evaluation are important tools in determining if management direction contained in the 2005 Forest Plan is effective in achieving the desired conditions for the Ozark-St. Francis National Forests, if program priorities and objectives are being accomplished, and if the Plan standards (design criteria) adequately guide project implementation. This and future M&E Reports will contribute to Comprehensive Evaluation Reports to be issued every five years.

I have directed that the actions necessary to respond to the recommendations in this report be implemented. I have considered funding requirements necessary to implement these actions.

Ron Kroyeh (for)
JUDITH L. HENRY
Forest Supervisor

9/29/09
September 29, 2009

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OZARK-ST. FRANCIS NATIONAL FORESTS

Introduction

The 2005 Revised Land and Resource Management Plan (RLRMP) for the Ozark-St. Francis National Forests provides broad, strategic direction for managing the land and its resources. The Forest Plan direction provides a framework to guide future management decisions and actions. Over time it is necessary to assess progress toward achieving the desired conditions, meeting the objectives, and adhering to the design criteria in the Forest Plan. A cycle of adaptation is formed when management direction in the Forest Plan is implemented, reviewed, and then adjusted in response to knowledge gained through monitoring and evaluation. Monitoring is conducted by Forest Service resource specialists; Forest Service research scientists; universities; state, federal, and resource agencies; and other cooperators. Persons who contributed data, assisted in compilation of data, or helped to prepare this Monitoring and Evaluation Report (M&E Report) are listed in Appendix A.

Purpose of the Monitoring and Evaluation (M&E) Report

The 2005 Forest Plan was completed under the 1982 National Forest Management Act planning regulations (36 CFR 219). These regulations specify that forest plan "implementation shall be evaluated on a sample basis to determine how well objectives have been met and how closely management standards and guidelines have been applied. Based upon this evaluation, the interdisciplinary team shall recommend to the Forest Supervisor such changes in management direction, revisions, or amendments to the forest plan as are deemed necessary." Thus, the purpose of the M&E Report is to identify needed changes to management on the Ozark-St. Francis National Forests (OSFNFs) utilizing the results of monitoring and evaluation. The M&E Report combines the results of the evaluations that occur throughout the year into a summary document. Based on the data gathered during monitoring, trends can be established and management corrections made, as necessary. Monitoring helps to track progress toward achievement of Desired Conditions (Forest Plan, pages 1-18 through 1-49) and Plan Objectives (Forest Plan, pages 2-7 through 2-78); implementation of Design Criteria (Forest Plan, pages 3-1 through 3-38); and occurrence of environmental effects as predicted. Monitoring indicates whether OSFNFs management is addressing plan priorities. The evaluation of monitoring results allows the Forest Supervisor to initiate actions to improve compliance with management direction where needed, improve cost effectiveness, and determine if any amendments to the Forest Plan are needed to

improve resource management. About every five years, all of the information collected in the M&E reports is accumulated into a comprehensive evaluation report that results in periodic updates of the Forest Plan.

Organization of the Monitoring and Evaluation Report

The Monitoring and Evaluation Report is structured similarly to the Forest Plan because the M&E Report evaluates implementation and effectiveness of the Forest Plan. The Monitoring Report covers effectiveness in achieving desired future conditions of ecological communities and management areas.

The M&E Report also reports on progress toward achieving goals and objections within each resource area program on the Forests. Recommendations are made throughout the report to improve management as well as future monitoring methods.

This M&E Report reflects the first two years under a new Forest Management Plan. Much of the work on the Forests in these first two years reflects decisions made under the 1987 Forest Plan and may not reflect the objectives prescribed in the RLRMP. These are also transition years in which the Forests had to learn and adapt to the newly revised plan which necessitated changes in approaches to prescribing activities to meet new objectives and priorities.

It should also be pointed out that many of the Desired Future Conditions and the resultant objectives and priorities do not have time frames prescribed. This was done in order to have a Plan that reflected the reality of changing conditions such as budget, capacity, weather, etc. The Forests fully recognize that under current conditions it affects approximately 10% to 15% of the forest land base over a 10-year cycle. As a result of these conditions some of the monitoring results appear to be very short of the Desired Future Conditions for a particular community, management area, or program. However, as the Forests continue to implement the RLRMP those shortfalls should become less and the Desired Future Conditions should begin to become more abundant on the Forests.

Tracking Changes in Vegetation and Other Wildlife Habitat Parameters

Changes in vegetation and other wildlife habitat components are reported and monitored in two ways. The first reporting method shows changes by ecological community. This is done to evaluate health of the community and its ability to provide for plants and animals that are tied to the community. It is important to track these changes to asses potential affects on wildlife populations.

The other tracking method is to report progress by management area. Each management area contains an emphasis and desired future condition statement. Changes in conditions are monitored to evaluate progress toward the desired

results. Tracking these changes is important to help in planning strategies to address any deficiencies noted.

Major Forest Communities

DRY OAK FOREST AND WOODLAND - APPROXIMATELY 358,382 ACRES

In general, the Dry Oak Forest and Woodland Communities are overly dense and burned less often than normal. The goal is to restore this community to a more open condition dominated by oaks in the overstory with midstory that is sparse and a diverse understory made up of herbaceous and mood species.

Figure 1 is located on the Big Piney Ranger District and shows an example of a stand nearing desired future conditions for this dry oak woodland site.

Figure 1: Pilot Rock vicinity, Big Piney Ranger District - Example of a Stand Nearing Desired Future Conditions for this Dry Oak Woodland Site.

Prescribed Fire

In 2006 there were approximately 15,508 acres of the community type prescribe burned. Approximately 6,066 acres (39%) of the acres were burned during the growing season, April to October.

In 2007 there were approximately 20,572 acres of the community type prescribe burned. Approximately 8,817 acres (43%) of the acres were burned during the growing season, April to October.

This rate of burning averages 5% of the community annually. The desired rate is about 20 to 30% of the community. Figure 2 shows a prescribed burn in a dry oak woodland site.

Figure 2: Prescribed Burn in a Dry Oak Woodland Site.

Management Implications
The desired fire return interval in this community is 2 to 7 years. At current, most areas are treated every 8 to 10 years. By burning at this interval, many acres in this community will not be treated often enough to meet desired conditions. The volume of burning in this community should be increased.

Vegetation Management
Abundance of mature forest (>70 years) – There are 315,302 acres in these age classes that are unthinned. Mature forest comprises 88% of the community.

Management Implications
Management direction for this community is to maintain over half of the stand acres in mature age classes. This direction is being met. There is no need to change direction to meet mature forest conditions.

Abundance of mature woodland (>70 years) – There were approximately 197 acres thinned in 2006 and 855 acres thinned in 2007 to establish or maintain a mature woodland condition in Dry Oak Forest and Woodland Community. These treatments affected an average of less than 1/5 of 1% of the total acres within this vegetative community per year. Ten years of thinning at this level will result in less than 2% of the mature acres in this community being in woodland condition.

Management Implications
Plan direction is to maintain over half of the mature acres in this community in woodland condition. There needs to be more thinning done in mature stands for forest health and sustainability purposes.

Abundance of old growth condition (110+) – Age class distribution indicates there are 60,002 acres in age classes needed to qualify as old growth condition, comprising 17% of the community.

Management Implications
Plan direction is to maintain around 25% of this community in old growth conditions. With current age class structure and rates of regeneration the amount of stand acres of the age to qualify as old growth condition will be achieved in the near future. To achieve true old growth conditions the amount of thinning and prescribe fire will need to be increased.

Abundance of regenerating forest (0 - 10 years) – There were 186 acres in 2006 and 75 acres in 2007 of shelter wood harvest implemented, providing the chance to establish new regeneration in this community type The current amount of 1 - 10 year age class in this community type is 4,825 acres. If the current rate of regeneration is successful this will increase the area of regenerating forest by less than 1/10 of 1%. In ten years, it would result in less than 1% of this community type in a regenerating condition.

Abundance of regenerating and young forest combined (0 – 40 years) – Within the age class range 0 – 40 there are 17,071 acres, comprising 4% of the community.

Management Implications
The desired amount of regenerating and young forest in this community type is around 25% with 6% being in the 0 – 10 year age range. This shows that there has been a long term lack of regeneration cutting in this forest community. It will take many years of regenerating at the appropriate rates to fix this age class imbalance. An opportunity is presented for forest managers to start regenerating more stands in this community type.

Abundance of mid-aged and mature forest that is in open canopy condition (>40 years; 61 – 80 BA) – Based on thinning activities in FY06 and FY07 there are 607 acres and 1,094 respectively of forest in this community that were thinned.

There are 341,310 acres in age class >40. These thinning projects affected approximately 3/10 of 1% annually of the area within this community. This rate would result in 3% of this community type being in open canopy condition at the end of ten years.

Management Implications

There are opportunities for creating more regeneration areas and thinning within the community for restoration and forest health needs. The challenge in accomplishing the restoration is a result of markets and timber prices fluctuating and, therefore, demands fluctuating over time.

SHORTLEAF PINE-OAK FOREST AND WOODLAND - APPROXIMATELY 297,409 ACRES

The difference in Pine-Oak Forest and Pine-Oak Woodland is the density of the trees. Pine-Oak Forest has a high density of trees with canopy closures of 80 - 100%. Pine woodland has tree densities with canopy closure of less than 80%. Forests tend to grow on sites with more productive soil and more moisture available than woodlands. Figure 3 is located on the Mt. Magazine Ranger District and shows an example of a stand nearing desired future conditions for this pine-oak woodland site.

Figure 3: Gum Tree Vicinity, Mt. Magazine Ranger District - Example of a Stand Nearing Desired Future Conditions for this Pine-Oak Woodland Site.

Shortleaf Pine Oak Forest

Prescribed Fire

In 2006, there were approximately 498 acres of the community type prescribe burned. Approximately 162 acres (33%) of the acres were burned during the growing season, April to October.

In 2007, there were approximately 1,133 acres of the community type prescribe burned. Approximately 291 acres (26%) of the acres were burned during the growing season, April to October.

Management Implications

The desired fire return interval in this community is 2 to 5 years. At current burning rates, very few acres in this community would be treated often enough to meet desired conditions. The volume of burning in this community should be increased as budgets allow. The ratio of growing season burning should be continued.

Shortleaf Pine Oak Woodland

Prescribed Fire

In 2006, there were approximately 12,849 acres of the community type prescribe burned. Approximately 2,185 acres (17%) of the acres were burned during the growing season, April to October.

In 2007, there were approximately 17,052 acres of the community type prescribe burned. Approximately 2,651 acres (16%) of the acres were burned during the growing season.

This averages to 5% of the acres being burned annually with about 17% of the burn acres being burned in the growing season. With increased thinning, there should be KV funds available to burn the thinned acres.

Management Implications

The desired fire return interval in this community is 2 to 5 years. At the current fire interval very few acres in this community would be treated often enough to meet desired conditions. The volume of prescribed burning in this community should be increased as funding allows.

Vegetation Management

Abundance of mature forest (>70 years) – If no thinning took place, it is assumed that the acres are in a forest condition; with a basal area (BA) greater than 81 BA, amounting to 114,970 acres based on age class distribution. Mature forest comprises 39% of the community.

Management Implications
The desired amount of mature forest in this community is greater than 40%. The current level of 39% is very close to that level. The Forests should continue to monitor trends to make sure they are headed in the right direction.

Abundance of mature woodland (>70 years) – There were approximately 634 acres thinned in 2006 and 828 acres thinned in 2007 to establish or maintain a mature woodland condition in this community type. These treatments affected less than 7/10 of 1% of the total acres annually within this vegetative community. Ten years of treatment at this rate would result in 7% of mature stand acres being at woodland densities.

Management Implications
Seven percent of acres in woodland condition are well below the Forest Plan desired level of more than 40%. Additional thinning needs to be prescribed to create needed amounts of woodland condition for forest health and sustanability.

Abundance of old growth condition (110+) – Age class distribution indicates there are 13,793 acres in age classes needed to qualify as old growth condition, comprising 5% of the community.

Management Implications
The desired amount of stand acres of ages over 109 years old is about 15% of this community type. Currently 5% is in this condition. This is well below desired levels. Current levels of regeneration should allow for enough older conditions to develop to satisfy old growth needs in this community type.

Abundance of regenerating forest (0 - 10 years) – The current age class for 1 – 10 years is 16,224 acres or about 5.5% of community acres. In 2006 there were 271 acres and in 2007 there were 645 of shelterwood harvest implemented, providing the chance to establish new regeneration in this community type. If the regeneration is successful this will increase the area of regenerating forest by about 1/5 of 1% within this community type on an annual basis. This would produce about 2% of the community acres in regeneration at the end of 10 years.

Management Implications
Desired levels or regeneration in this community type is around 8%. It appears that regeneration levels in this community have been close to desired levels over the past ten years but lagged behind in 2006 and 2007. The Forests should resume regeneration levels around the 8% level.

Abundance of regenerating and young forest combined (0 – 40 years) – Within the age class range 0 – 40 there are 98,457 acres, comprising 33% of the community.

Management Implications
Desired level of 0-40 year age class is between 30-35%. The current level of 33% is right on target. No change in management is needed.

Abundance of mid-aged and mature forest that is in open canopy condition (>40 years; 61 – 80 BA) – Based on thinning activities in FY06 and FY07, there were 2,387 acres and 1,913 of forest in an open canopy condition in this community type. There are 198,954 acres in age class >40. These thinning projects affected approximately 1/5 of 1% of the area within this community annually. Ten years of thinning at this rate would result in 2% community being in a thinned condition.

Management Implications
Desired condition is that most stand acres 40 years old or older in this community type are in a thinned condition. Current rates of thinning fall far below desired levels. Managers should start thinning more acres it this age-class and community type.

DRY-MESIC OAK FOREST - APPROXIMATELY 444,518 ACRES

Prescribed Fire
In 2006 there were approximately 22,388 acres (5%) of the community type prescribe burned. Approximately 8,280 acres (37%) of the acres were burned during the growing season, April to October.

In 2007 there were approximately 28,699 acres (6.5%) of the community type prescribe burned. Approximately 12,739 acres (44%) of the acres were burned during the growing season, April to October.

This averages 6% of the acres being burned annually with about 40.5% of the acres being burned in the growing season.

Management Implications
The desired fire return interval in this community is 2 to 7 years. At the current fire interval, a small percentage of acres in this community would be treated often enough to meet desired conditions. The volume of prescribed burning in this community should be increased as budget allows. It appears that the amount of growing season burns is high, which is desirable considering past burn history.

Vegetation Management
Abundance of mature forest (>70 years) – If no thinning took place, it is assumed that the acres are in a forest condition (rather than woodland) with a BA greater than 81 BA. There are 390,643 acres in mature condition. This represents 88% of the community type acres. This is well within the goal of at least half of the community being in mature condition

Management Implications
Mature forest habitat type is in ample supply. There is no concern that it will be in short supply any time soon. No change in direction is needed to address the need for this habitat type.

Abundance of mature woodland (>70 years) – There were approximately 835 acres thinned in 2006 and 1,015 acres thinned in 2007 to establish or maintain a mature woodland condition in this community type.

These treatments affected about 1/5 of 1% of the total acres within this vegetative community each year. If this rate of treatment is repeated over the life of the plan it will sustain 2% of this community type in mature woodland condition. This assumes affects of thinning treatments in this habitat type last about 10 years.

Management Implications
The RLRMP lists a desired condition for this community type with most of the mature stands in a thinned (woodland) condition. The current rate of thinning is falling way short of levels to sustain stands in a woodland condition. More thinning needs to be done in this community type for forest health and sustainability.

Abundance of old growth condition (110+) – In this community type, there are 90,783 acres in age classes needed to qualify as old growth condition. These acres comprise about 20% of the total community type.

Management Implications
The desired amount of old growth condition for this community type is 20%. Considering current stand ages and the limited amount of regeneration planned for this community, the amount of forest over 110 years old should increase significantly over the life of the RLRMP. Older forest should increase but the amount that is thinned and burned to create true old growth condition may be limited well below the 20% desired level.

Abundance of regenerating forest (0 - 10 years) – We implemented 288 acres of shelterwood harvest in 2006 and 38 acres in 2007, which provided the chance to establish new regeneration in this community type. The age class for 1–10 years is 6,724 acres. If the regeneration is successful this will increase the area of regenerating forest by less than 1/10 of 1% within this community type on an annual basis.

Management Implications
This level of regeneration, less than 1% in a 10-year period, is far below the (at least 6%) desired for this community type. There should be more regeneration cutting in this community in the future to sustain healthy conditions within the Dry-Mesic Forest and Woodland Community.

Abundance of regenerating and young forest combined (0 – 40 years) – Within the age class range 0 – 40, there are 32,195 acres, comprising about 8% of the community type. This is below desired level of around 25%.

Management Implications
Current regeneration levels in this community are well below levels that would increase younger age classes needed improve health and sustainability of this important community on Ozark National Forest. More regeneration cutting should be planned in this community type.

Abundance of mid-aged and mature forest that is in open canopy condition (>40 years; 61 – 80 BA) – Based on thinning activities in 2006, there were 930 acres thinned to create an open canopy condition and 1,037 acres in 2007. There are 412,323 acres in age class >40. These thinning projects affect approximately 1/5 of 1% of the area within this community. At this rate about 2% of the mid-aged and mature stand acres will have been thinned in 10 years, which is the length of time these treatment are effective.

Management Implications
Plan direction is to maintain "most" of the mid-aged and mature acres of Dry-Mesic Oak Forest Community in a thinned condition. There is a need for increase of more thinning in this community for forest health and sustainability purposes. More thinning should be planned in this community to maintain community health.

MESIC HARDWOOD FOREST - 7,000 ACRES

Total abundance of the Mesic Hardwood Forest - This forest community occurs on less than 1% of the Forests. Monitoring set up in the RLRMP calls for monitoring changes in community acres.

The RLRMP states that we should monitor trends in total community acres for this community. It occurs at the following amounts by age class. Current age class structure on the Forests for Mesic Hardwood Forest community is reported in Table 1.

Table 1: Age Class of Mesic Hardwood Forest Community on the Ozark-St. Francis NFs.

Age Class of Mesic Hardwood Forest Community		
Age Class (Years)	**Acres**	**Percentage**
1 to 10	35	0
11 to 40	345	5
41 to 70	185	3
71 to 100	1,212	17
101+	5,268	75

Management Implications
There are no known management implications that can be derived from this item.

Recommendation
Since the acres in this community type are static, it is recommended that this monitoring item be dropped.

RIPARIAN FOREST – APPROXIMATELY 11,484 ACRES

No new acres have been identified to add to this community.

Management Implications
Identify any stands that qualify for moving to this community as they are found.

LOESS SLOPE FOREST COMMUNITY - APPROXIMATELY 16,484 ACRES

Vegetation Management
Abundance of mature forest (>70 years) – There are 11,307 acres greater than 70 years old in this community type. Mature forest comprises 69% of the community.

Management Implications
The desired level of mature forest in this community is around 60%. This indicates there is more than enough of this forest condition. It indicates that it would be desirable to begin regenerating some of the mature forest.

Abundance of old growth condition (110+) – Age class distribution indicates there are 758 acres in age classes needed to qualify as old growth condition, comprising 5% of the community.

Management Implications
The desired level of old growth condition for this community type is 15%. Considering current age classes and the rate of projected regeneration, the Forests are on track to achieve this goal.

Abundance of regenerating forest (0 - 10 years) – In FY06 and 07, there were no regeneration harvests implemented in this community. The age class for 1 – 10 years is 53 acres.

Management Implications
The lack or regeneration cutting in this community over the last 10 years is problematic and should be addressed as soon as possible. Regeneration cuts should be scheduled in this community.

Abundance of regenerating and young forest combined (0 – 40 years) – Within the age class range 0 – 40, there are 4,716 acres, comprising 28% of the community.

Management Implications
The desired level of regenerating and young forest is 20%. Looking at the young age classes on Crowley's Ridge shows a history of either over or under cutting. There should be an attempt to implement a more steady flow of regenerating in this community.

Abundance of mid-aged and mature forest that is in open canopy condition (>40 years; 61 – 80 BA) – In FY06 and FY07, there were no thinning projects within this community, so it is assumed that the Forests are in a closed canopy condition. There are 11,768 acres in age class >40, comprising 72% of the total community type.

Management Implications
Thinning is important to promote growth of overstory and understory as well as to promote oak regeneration. Forest managers should provide thinned conditions on a continuous basis in this community.

Prescribed Fire
All prescribed burns in this community type were completed during dormant season.

In 2006, there were 1,902 acres prescribe burned. In 2007, there were 1,144 acres prescribe burned.

The desired fire return intervals for the loess slope forest average 5 to 10 years with every third burn being implemented during the growing season.

This burning rate falls short of minimum amounts needed to burn on a 5 to 10 year interval. Higher rates of prescribed burning should be implemented in this forest community type.

BOTTOMLAND AND FLOODPLAIN FOREST - APPROXIMATELY 2,563 ACRES

Vegetation Management
Abundance of mature forest (>70 years) – Mature forest is found on 1,228 acres based on age class distribution. Mature forest comprises 48% of the community.

Management Implications
Desired condition is to have approximately 65% of this community in mature condition. With low regeneration rates in this type, this goal should be achieved in the future.

Abundance of regenerating forest (0 - 10 years) – Currently, there is no acreage in the age class for 1 – 10 years.

Management Implications
A careful plan of regeneration should be implemented. Regeneration possibilities should be considered as evaluations of this community are made. Through time, areas of young regeneration may be established because of natural disturbance from wind, tornados, or ice storms.

Abundance of old growth condition (110+) – In this community type, there are no acres in age classes needed to qualify as old growth condition.

Management Implications
It will take time to achieve the growth condition goals in this community type. Low regeneration levels will allow this goal to be achieved.

Abundance of regenerating and young forest combined (0 – 40 years) – Within the age class range 0 – 40, there are 577 acres, comprising 23% of the community.

Management Implications
Desired condition in regeneration and young forest for this community type is approximately 20%. Current levels are close to desired levels.

LOBLOLLY PINE FOREST - APPROXIMATELY 11,229 ACRES

Monitoring is done to follow progress of this forest community. Since this community is outside its natural range on OSFNFs, mature stands are to be converted to the appropriate native forest type for the site. Current age class structure on the Forests is reported in Table 2.

Table 2: Age Class of Loblolly Pine Forest Community on the Ozark-St. Francis NFs.

Age Class of Loblolly Pine Forest Community		
Age Class (Years)	**Acres**	**Percentage**
1 to 10	0	0
11 to 40	9,630	86
41 to 70	368	3
71 to 100	179	2
101+	1,053	9

Management Implications
Older age classes of loblolly pine should be converted to native species the next time the compartment they are in is treated.

Rare and Special Communities

GLADES AND BARRENS

The ranger districts are keeping hard copy maps of glades and barrens. When the database is developed the following items will be tracked:

- Number of occurrences and acreage of this community type.
- Percent of occurrences or acreage at desired conditions.
- Treatments accomplished
- Acres added to GIS layer for this community

Management Implications
An electronic database would make analyzing and managing and tracking glades much easier. A database should be developed as funds allow.

MONTANE OAK FOREST

This community type is located on the top of Mt. Magazine. Approximately ¾ of the community acres are in burn units and ¼ located in a special use area devoted to communications towers.

The portion in burn units is progressing toward desired condition with the areas nearest firelines at desired condition. No burning was done in 2006. The north half of the burn unit was burned in 2007.

Management Implications
This area is progressing nicely. Some thinning may be needed to speed up recovery. Current burning rates appear to be appropriate for restoration and maintenance of this community.

Development of the Rare Communities Database would also benefit tracking this community.

SINKHOLE AND DEPRESSION PONDS

No new occurrences of this community type were added in 2006 or 2007. All areas of the community are being protected at this time. No special treatments are prescribed for this community type.

Development of the Rare Communities Database would also benefit tracking this community.

Management Implications
An electronic database would make tracking depression ponds much easier. A database should be developed as funds allow.

SEEPS AND FENS

No new occurrences of this community type were added in 2006 or 2007. All areas of the community are being protected at this time. No special treatments are prescribed for this community type.

Management Implications
Development of the Rare Communities Database would also benefit tracking this community.

CANEBRAKES

The ranger districts are keeping hard copy maps of canebreaks. In 2006, six acres of cane restoration was accomplished. Eight acres were restored in 2007.

When the database is developed the following items will be tracked:

- Number of occurrences and acreage of this community type.
- Percent of occurrences or acreage at desired conditions.
- Treatments accomplished
- Acres added to GIS layer for this community

Management Implications
Development of the Rare Communities Database would benefit tracking this community.

CAVES, MINES, AND KARST

The Forest has been keeping a database on caves since the 80's. One new cave gate to protect endangered bats was installed on the Wedington Unit in 2006. In 2007, a cave gate was installed on Deer Buster Cave on the Big Piney District.

Management Implications
No change in direction is needed.

EMERGENT WETLANDS

No database is being kept on emergent wetlands. A ponds database is kept and ponds are managed in a way to protect emergent wetlands.

Management Implications
The Forest Fisheries Biologist should evaluate if a special database is needed for this community of if management of ponds and riparian zones covers this special community.

NATIVE GRASSLANDS

This element tracks pastures and large wildlife openings restored to native grasslands.

In 2006, the Forests treated 786 acres for restoration to native grasslands. In 2007, 800 acres were treated.

Management Implications
The Forests have been aggressive in converting fescue pastures to native warm season grasslands. This trend should be continued as opportunities are found.

BOTTOMLAND DEPRESSION

No new occurrences of this community type were added in 2006 or 2007. All areas of the community are being protected at this time. No special treatments are prescribed for this community type.

Management Implications
Development of the Rare Communities Database would also benefit tracking this community.

Commodity Products

In the process of managing communities and management areas for their desired future condition, there are products produced that benefit the public. One of the main products is wood used by industry for a variety of reasons.

Total timber volume harvested in 2006 was 108,177 ccf. In 2007, there was 103,710 ccf harvested. Table 3 gives the approximate breakdown in harvest for the two-year period.

Table 3: Volume of Timber Harvested in ccf in 2006 and 2007.

Volume of Timber Harvested in ccf		
Harvest type	**2006**	**2007**
Hardwood sawtimber	16,226	15,556
Hardwood small round wood	6,490	6,222
Pine sawtimber	68,151	65,337
Pine pulpwood	17,308	16,593

MANAGEMENT AREAS (MA)

3A – PINE WOODLAND MA - APPROXIMATELY 97,629 ACRES

Vegetation Management
Abundance of mature forest (>70 years) - There are about 49,347 acres in mature condition, representing approximately 50% of the management area based on age class distribution.

Abundance of mature woodland (>70 years) – There were approximately 161 acres in 2006 and 576 acres in 2007 thinned to establish or maintain a mature woodland condition. This is a rate of thinning of 368 acres annually. These treatments affected about 7/10 of 1% of the total mature acres within this management area annually. If this rate of treatment is repeated over the life of the Plan it will sustain 7% of the MA in a mature woodland condition. This assumes affects of thinning treatments in this MA last about 10 years.

Management Implications
Desired conditions for this MA are to manage about 60% of the woodland community acres in pine woodland condition. Current rates of thinning will not sustain woodland condition anywhere near the desired rate. A much higher rate of thinning will need to be implemented in this MA to achieve the desired condition.

Proportion of the woodland community in the MA burned at desired intervals and seasons. In this MA, 6,914 acres of woodland were burned in 2006 and 6,645 acres of woodland were burned in 2007. This is an annual average of 6,779 acres of woodland community burned. This is an average of less than 7% annually.

Management Implications
The desired level of burning is to sustain a 2 - 5 year burning cycle for the woodland community types in the MA. On average, every third burn should be during the growing season. The current level of burning is below desired levels. More woodland burning should be prescribed in the MA.

3B – OAK WOODLAND MA - APPROXIMATELY 154,704 ACRES

Vegetation Management
Abundance of mature forest (>70 years) - There are about 119,234 acres in mature condition, representing approximately 77% of the MA based on age class distribution.

Abundance of mature woodland (>70 years) – There were no acres thinned in 2006 and 449 acres in 2007 to establish or maintain a mature woodland condition in this MA. This is an average of 224 acres thinned annually. This is less than 1/5 of 1% of the mature timber being thinned to create woodland densities annually. In 10 years, this would only produce 2% of the mature forest in woodland condition.

Management Implications
Desired conditions for this MA are to manage about 60% of the woodland community acres in oak woodland condition. Current rates of thinning will not sustain woodland condition near the desired rate. A much higher rate of thinning will need to be done in this MA to achieve the desired condition.

Proportions of the woodland community in the MA were burned at desired intervals and seasons.

In this MA, 2,542 acres of woodland were burned in 2006 and 7,495 acres were burned in 2007. This is an average of 5,018 acres of woodland community burned annually in the MA.

3C – MIXED FOREST MA - APPROXIMATELY 360,401 ACRES

Vegetation Management
Abundance of mature forest (>70 years) – There are about 238,862 acres in mature condition, representing approximately 66% of the MA based on age class distribution.

Abundance of thinned mature forest (>70 years) – There were approximately 657 acres in 2006 and 567 acres in 2007 thinned to improve health and sustainability of the mature mixed forest. This equates to 612 acres annually. These treatments affected about 1/5 of 1% of the total mature acres within this MA annually. If this rate of treatment is repeated over the life of the plan it will sustain 2% of the MA in a thinned condition. This assumes affects of thinning treatments in this MA last about 10 years.

Management Implications
This rate of thinning does not meet the desired condition of maintaining well thinned stands to reduce stress on trees. A more aggressive thinning regime should be implemented.

Abundance of regenerating forest (0 - 10 years) – In 2006, there were 451 acres and in 2007 there were 663 acres of shelterwood harvest implemented in this MA. This is an annual regeneration rate of 557 acres. If the regeneration is successful, this will increase the area of regenerating forest by less than 1/5 of 1% within this MA on an annual basis. In a 10 year period less than 2% would be regenerated.

Management Implications
This level of regeneration cutting would not lead to most trees being regenerated at an appropriate rotation age. Increased regenerating cutting should be implemented in this MA.

3D – Oak Decline Restoration - Approximately 67,691 acres

Vegetation Management
Abundance of mature forest (>70 years) - There are about 50,958 acres in mature condition, representing approximately 75% of the MA based on age class distribution.

Abundance of thinned mature stands(>70 years) – There were approximately 52 acres in 2006 and 273 acres thinned in 2007 to restore oak forest or woodland condition. This averages about 162 acres thinned annually. Individually, these treatments affected less than 1/50 of 1% of the total mature aged acres within this MA. If this rate of treatment is repeated over the life of the Plan it will sustain 2% of the MA in a thinned condition.

Management Implications
The amount of thinning needed in this MA must be evaluated stand by stand. The need for thinning is dependent on the stand age, species composition, stand density, and regeneration present in the stand as well as the expected response from prescribed burning.

Abundance of regenerating forest (0 - 10 years) – In 2006, there were 115 acres and no acres in 2007 of shelterwood harvest implemented, providing the chance to establish new regeneration in this MA. This level of regeneration cutting is insignificant. If the regeneration is successful it will have almost no effect on regeneration percentages for the MA. Managers are also evaluating if suitable regeneration is present due to oak decline and the effect of prescribed fire.

Management Implications
This rate of treatment falls short of desired goals of restoring this community to productive forest or woodland habitat. Hopefully much of the MA will be restored or regenerated by fire. If not, the rate of thinning and regeneration cutting should be increased appropriately in the near future.

3E – High Quality Forest - Approximately 214,358 acres

Abundance of mature forest (>70 years) - There are about 147,357 acres in mature condition, representing approximately 69% of the MA based on age class distribution.

Abundance of mature thinned forest (>70 years) – There were approximately 796 acres thinned in 2006 and 734 acres thinned in 2007 to establish or maintain mature stand vigor and growth rates. This averages about 765 acres thinned annually. These treatments affected less than 2/5 of 1% of the total acres within this MA annually. If this rate of treatment is repeated over the life of the Plan it will sustain approximately 6% of the mature stands in the MA in a thinned condition. This assumes affects of thinning treatments in this MA last about 10 years.

Management Implications
This rate of thinning will not sustain growth and vigor in the MA. This is the primary purpose in the MA. An active thinning regime should be implemented for the rest of the planning cycle.

Abundance of old growth condition (110+) – In this MA, there are 30,781 acres in age classes needed to qualify as old growth condition. These acres comprise about 14% of the total MA.

Management Implications
This MA has a short rotation age assigned. Maximum length of rotation is listed as 110 years old. It will take many entries to return overaged stands to young fast growing stands. Increased regeneration cutting should be implemented in the MA.

Abundance of regenerating forest (0 - 10 years) – In 2006 and 2007, there was a total of 6 acres of shelterwood harvest implemented in this MA. This is an average of 0% within this MA on an annual basis.

Management Implications
The goal of maintaining vigor and growth in stands will not be maintained by letting timber stands get old and decadent. A serious plan for regeneration should be followed in this MA if any progress toward a high quality forest products area is to be realized.

3F – OLD GROWTH MA - APPROXIMATELY 5,062 ACRES

Table 4 shows the following age class distribution present on designated Old Growth MAs on the Ozark-St. Francis National Forests.

Table 4: Age Class for Old Growth Management Areas on the Ozark-St. Francis NFs.

Age Class of Old Growth Management Areas		
Age Class (Years)	**Acres**	**Percentage**
1 to 10	132	2
11 to 40	355	6
41 to 70	1,481	26
71 to 100	2,944	52
101+	725	13

Management Implications
There appears to be good mix of age classes present. If similar regeneration rates are implemented over the next 30 years, around 60% of the MA will be in old growth age classes. If appropriate thinning and burning regimes are implemented, old growth conditions will be met.

In FY06 and FY 07, there were no thinning treatments applied to this MA.

Management Implications
Thinning should be prescribed the next time these compartments are entered.

3G – Crowley's Ridge Upland Hardwood MA - Approximately 11,443 acres

For monitoring of this MA, see monitoring for the Loess Slope Community (Page 11). They are the same area.

3H – Mississippi River Bottomland Hardwood MA- Approximately 3,573 acres

For monitoring of this MA, see monitoring for the Bottomland and Floodplain Forest (Page 12). They are the same area.

3I – Riparian Corridors MA - Approximately 11,484 acres

The age class distribution for riparian corridors is shown in Table 5.

Table 5: Age Class for Riparian Corridors MA on the Ozark-St. Francis NFs.

Age Class of Riparian Corridors Management Area		
Age Class (Years)	**Acres**	**Percentage**
1 to 10	316	2
11 to 40	705	6
41 to 70	1,783	14
71 to 100	7,493	58
101+	2,513	20

There were no acres thinned or regenerated in this MA in 2006 or 2007.

Management Implications
Riparian zones should be evaluated for thinning. Thinning should be done in a responsible manner if it enhances riparian values.

2E – WEDINGTON UNIT URBAN RECREATION AREA MA - APPROXIMATELY 10,467 ACRES

Table 6 shows class distribution for the Wedington Unit Urban Recreation Area.

Table 6: Age Class for Wedington Unit Urban MA on the Ozark-St. Francis NFs.

Wedington Unit Urban Recreation Area Management Area		
Age Class (Years)	**Acres**	**Percentage**
1 to 10	0	0
11 to 40	1,786	15
41 to 70	2,641	23
71 to 100	4,545	39
101+	2,720	23

There were no acres thinned or regenerated in this MA in 2006 or 2007.

Management Implications

Wedington is to be managed under a woodlands prescription. It is important to thin stands to create or sustain woodland conditions.

Management Indicator Species (MIS)

MIS were selected "because their population changes are believed to indicate the effects of management activities and are used for planning purposes to help compare effects of alternatives, and as a focus for monitoring.

Table 7 lists the Management Indicator Species for the OSFNFs and indicates the reasons each was chosen. Following Table 7, each species is discussed individually with monitoring results for each.

Table 7: Management Indicator Species Selected and Reason(s) For Selection.

Common Name	Ozark	St. Francis	Selection Criteria Indicators
Northern Bobwhite	X		Restoration of pine and oak woodland and native grasslands
Whitetail Deer	X	X	Meeting hunting demand for this species
Black Bear	X		Meeting hunting demand for this species
Wild Turkey	X	X	Meeting hunting demand for this species
Prairie Warbler	X		Regenerating forest communities on the Ozark NF
Yellow-breasted Chat		X	Regenerating forest communities on the St. Francis NF
Brown-headed Nuthatch	X		Open pine forest and woodland
Northern Parula	X	X	Communities associated with forests in riparian areas
Rufous-crowned Sparrow	X		Maintaining viability of this species through active maintenance of glades along bluff lines on Mt. Magazine
Cerulean Warbler	X	X	Communities associated with mature hardwood forest with complex canopy structures and Dry-Mesic Oak Forest communities on the Ozark NF
Ovenbird	X		Dry-Mesic Oak Forests
Red-headed Woodpecker	X		Oak woodland overstories
Pileated Woodpecker	X	X	Large snags and snag-dependent wildlife on both forests
Scarlet Tanager	X		Forest interior bird communities and mature Dry-Mesic Oak Forest communities on the Ozark NF
Acadian Flycatcher	X	X	Forest interior bird communities on the St. Francis NF, and on mature mesic hardwood forest communities on both forests.
Smallmouth Bass	X		Meeting fishing demand for this species, and on cool-water stream communities
Largemouth Bass	X	X	Meeting fishing demand for this species

TERRESTRIAL MANAGEMENT INDICATOR SPECIES

Terrestrial Management Indicator Species (TMIS) have been selected help monitor the effects of management practices on all species across the forest. They are representative of species that require similar habitats to occupy. These species are monitored so that the entire range of species does not have to be monitored. Table 8 is a summary of the TMIS monitoring. An accompanying document provides some additional information and contains a much more detailed analysis and monitoring of these species.

Table 8: Monitoring Methods and Trends for Terrestrial Management Indicator Species.

Common Name	Ozark	St. Francis	Trend Evaluation Method	Trend
Northern Bobwhite	X		Woodland, early seral forest type, and age class distribution	Prescribed fire, WSI, openings, pond construction and wildlife opening conversion to warm grass have increased in 2006 and 2007
Prairie Warbler	X		North American Breeding Bird Survey & Habitat Capability data	Population trend is downward but habitat capability on the Forests still remains good
Yellow-breasted Chat		X	North American Breeding Bird Survey & Habitat Capability data	Species population trend is increasing slightly; seral habitat capability on the St. Francis NF will continue to be monitored
Brown-headed Nuthatch	X		North American Breeding Bird Survey & Habitat Capability data	Currently poor quality habitat, however, Revised Plan implementation should improve this species habitat
Northern Parula	X	X	North American Breeding Bird Survey & Habitat Capability data	Population trend and habitat are increasing slightly
Acadian Flycatcher	X	X	North American Breeding Bird Survey & Habitat Capability data	Population trend is increasing slightly
Rufous-crowned Sparrow	X		North American Breeding Bird Survey & Habitat Capability data	Habitat for this species has been improved over much of the top of Mt. Magazine
Cerulean Warbler	X	X	North American Breeding Bird Survey & Habitat Capability data	Slight increase in the population trend

Table 8 (Continued): Management Indicator Species Monitoring Methods and Trends.

Common Name	Ozark	St. Francis	Trend Evaluation Method	Trend
Ovenbird	X		Local searches & Habitat Capability data	Slight decrease in the population trend while habitat is steady to increasing
Red-headed Woodpecker	X		North American Breeding Bird Survey & Habitat Capability data	Population trends continue to reflect no change or a very slight increase. Habitat is rare and increasing slowly
Scarlet Tanager	X		North American Breeding Bird Survey & Habitat Capability data	Population trends continue to reflect a steady to increasing population. Habitat changing little
Pileated Woodpecker	X	X	North American Breeding Bird Survey & Habitat Capability data	Population trends continue to reflect little change. Habitat quality changing little
Whitetail Deer	X	X	Habitat capability to support an average of 11.7 deer per square mile after 10 years (hunter checks and spotlight surveys)	Habitat capability still remains above the Plan projection
Black Bear	X		Hunter checks and bait station surveys	Habitat capability still remains above the Plan projection
Wild Turkey	X	X	Annual Wild Turkey Brood Survey	Brood indicates population decline, but Habitat capability on the forest still remains good

Species Requiring Early Seral or Early Successional Habitats

Some species were chosen as MIS species because their habitat requirements help indicate effects of management on restoration of pine and oak woodland and native grasslands. These species include the northern bobwhite, the prairie warbler and the yellow breasted chat. Expected trends in these habitats are evaluated in terms of tracking the amount of early seral forest type and age class distribution, the silvicultural treatments used (including prescribed fire), wildlife stand improvement, and the conversion from non-native cool season grasses such as fescue or the dominance of Bermuda grass to native warm season grasses and forbs. Table 9 shows the types of treatments completed in 2006 and 2007 that would benefit these species.

Table 9: Early seral habitat improvements (Bobwhite, Turkey, Prairie Warbler, Yellow Breasted Chat,

Treatment	2006	2007
Prescribed burning (non-KV)	37,002 acres	68,248 acres
Prescribed burning (KV funded)	4,663 acres	3,366 acres
Wildlife Stand Improvement	709 acres	1,427 acres
Native grass establishment	786 acres	800 acres
Wildlife opening construction and maintenance	1,620 acres	1,891 acres
Pond construction/reconstruction	8 ponds	24 ponds

NORTHERN BOBWHITE

Historically, quail thrived on lands that are now OSFNFs due to the significant amount of oak savanna, oak woodland, and glade habitat that was maintained by periodic fire.

Management Implications

Habitat needs for bobwhite quail will be met over time. This species requires quality early seral habitat of which there is little currently provided forest-wide. Increases in thinning, regeneration timber harvest, and prescribed burning will improve habitat on a much larger scale.

PRAIRIE WARBLER

Prairie warbler was chosen as a MIS to help indicate the effects of management on the early successional component of forest communities. As a Neotropical migrant, the prairie warbler is an international species of concern. This species uses early successional habitats such as regenerating old fields, pastures, and young forest stands. The vegetation selected may be deciduous, conifer, or mixed types. Habitats with scattered saplings, scrubby thickets, cutover or burned over woods, woodland margins, open brushy lands, mixed pine and hardwood, and scrub oak woodlands are most often selected. Optimal habitat conditions for this species are even-aged regenerating forests of stand size or larger. Monitoring in the Ozark-Ouachita physiographic province shows a declining trend for this species.

Data Sources: The North American Breeding Bird Survey (Sauer et al. 2007) indicating trend results for the Ozark - Ouachita Plateau, Forest Landbird point data (1997 – 2006), and the Habitat Capability data are sources for evaluating Prairie Warbler population trends.

The Landbird point data indicates a slight declining trend for the Forests and is also noted in the Breeding Bird Survey data.

Based on the data available, the prairie warbler is in a downward trend. These data are in agreement with the Breeding Bird Survey data for the Ozark-Ouachita Plateau and the same downward trend that is indicated throughout the prairie warblers' range nationwide.

Management Implications
Actions need to be taken to reverse the decline in habitat so population trend will continue. Prairie warbler population trends are troubling but implementation of the RLRMP, which calls for the creation of early seral habitats across the Forests over the next 10 years, should improve habitat for the species and hopefully improve the downward population trend at the forest level. Habitat capability on the Forests still remains good and there are no indications of a need for adjustments in the Plan or its direction.

YELLOW-BREASTED CHAT

Yellow-breasted chat was selected to represent species needing early seral habitat conditions on the St .Francis National Forest. It occupies regenerating forest in small and large patch sizes. Potential populations will be evaluated by tracking the amount of early seral habitat maintained on the St. Francis NF as well as monitoring population trends on the Forest for this unique avian species. Figure 4 shows the habitat in the 1-10 year class on the St. Francis NF.

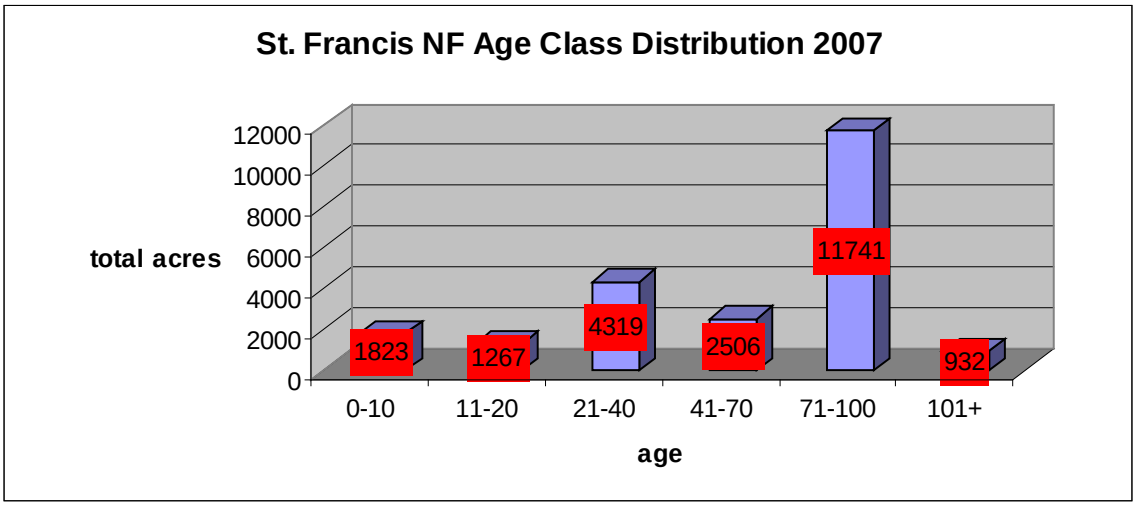

Figure 4: Yellow-breasted chat habitat in the 0-10 year age class is less than 5% of the forested acres on the St. Francis National Forest per 2007.

The St. Francis National Forest has not had much timber management activity in the past 10 years but is starting to implement the RLRMP (2005). As of 2007, the St. Francis national forest age class distribution shows early seral habitat is available on approximately 8% of national forest lands on the St. Francis. Early seral habitat distribution is not particularly good at the present time.

Forest wide, yellow-breasted chat appears to be doing well with a slight increase in the population trend as shown in the Landbird point data for the Forests.

Based on the data available, the yellow-breasted chat in Arkansas has shown an increasing population trend since 1992 in the Breeding Bird Survey.

Management Implications
Yellow-breasted chat is relatively abundant in parts of the Forests and monitoring of this species suggests that the species population trend is increasing slightly. Early seral habitat capability on the St. Francis NF will continue to be monitored but habitat improvement through implementation of the RLRMP will help this species. No change is warranted at this time.

Species Requiring Pine Woodland Habitats

BROWN-HEADED NUTHATCH

Brown-headed nuthatch was chosen to represent species needing pine woodland condition. Potential populations will be evaluated by tracking the amount of pine woodland condition on the Forests. This species is currently rare on the Forests.

Data Sources: Forest Landbird point data (1997 – 2006) and population trend will be used to address changes in their condition. Since the RLRMP encourages pine and oak woodland and work has been done on several districts to increase the number of acres where the woodland condition is the goal, the population trend for this species should continue to increase.

Based on the data available, the brown-headed nuthatch in Arkansas has shown a stable population trend in the Breeding Bird Survey since 1966.

Management Implications
The brown-headed nuthatch is a fairly rare bird species on the Forests in part due to poor habitat quality but implementation of the RLRMP should help increase the available acres in quality woodland habitat for this species. No change is warranted at this time.

Species Requiring Riparian Forest Habitats

NORTHERN PARULA

Northern Parula was chosen to represent species needing riparian forest condition. They are common summer residents along the Forests' wooded rivers and streams. Potential populations will be evaluated by tracking mature riparian habitat on the Forests.

Data Sources: Forest Landbird point data (1997 – 2006) and population trend will be used to address changes in their condition. Population trends continue to remain good for this species and this should continue with the full implementation of the RLRMP.

Based on the data available, the northern parula in Arkansas has shown a stable to declining population trend in the Breeding Bird Survey since 1966. This is in contradiction to the Landbird points which continue to show an increase population trend on the forest since 1997.

Management Implications
Northern parula is relatively abundant in parts of the Forests where suitable habitat occurs and monitoring of this species suggests that the species population trend is increasing slightly. Habitat for this avian species will continue to be monitored. No change is warranted at this time.

Species Requiring Mid-Aged to Mature Forest Habitats

ACADIAN FLYCATCHER

Acadian flycatcher was chosen to represent species needing mid-aged to mature forest stages of Loess Slope Forest found on Crowley's Ridge of St. Francis NF.

Data Sources: Forest Landbird point data (1997 – 2006) and population trend will be used to address changes in their condition. Population trends continue to remain good for this species.

Management Implications
Acadian flycatcher population trends are increasing. Habitat for this avian species will continue to be monitored. No change is warranted at this time.

Species Requiring Glade Habitats

RUFOUS-CROWNED SPARROW

Affected Environment
Rufous-crowned sparrow is a common resident in the desert southwest but is very rare in Arkansas. It was chosen as an MIS to track habitat conditions for this species that require maintained glades along bluff lines. Glades containing Rufous-crowned sparrows will be tracked as maintained or not. The species is currently only known to reside on the Ozark NF at Mt. Magazine.

Based on the data available, the Rufous-crowned sparrow in the central U.S. has shown a declining population trend since 1966 in the Breeding Bird Survey.

Management Implications
This rarely seen bird has been documented on Mt. Magazine on a regular basis at one time but numbers of this bird fluctuate to such a degree that it is hard to say whether the population is up or down. Habitat for this species has been improved over much of the top of the mountain by the use of prescribed fire and selective thinning of competing red cedar. This work will hopefully continue with the support of the new state park. Habitat for this avian species will continue to be monitored. No change is warranted at this time.

Species Requiring Mature and Over-Mature Forest Habitats

CERULEAN WARBLER

Cerulean warbler was chosen as an MIS to represent species needing mature and over-mature forest with a complex canopy structure on highly productive sites.

The cerulean warbler is a species of concern that merits a special evaluation. Its habitat needs are unique and still being evaluated. Breeding cerulean warblers prefer, and are most common in, large contiguous forested tracts (Hamel 1992). In general, their habitat is mature or over-mature, high site, hardwood forest with a complex canopy structure. Large trees protruding above the rest of the canopy are favored. A developed understory also appears to be important (*Personal Communication.* C. Kelner.). The OSFNFs are on the edge of this species range and they only use a percentage of the stands meeting the above criteria. It is not known if the population is a source or sink population (*Personal Communication.* C. Kelner).

This Neotropical migrant bird (NTMB) winters in evergreen forests of the eastern slope of the Andean Foothills (Evans and Fischer. 1997). Tropical deforestation may threaten the cerulean more than any Neotropical migrant because of its dependence on this limited habitat type (Flaspohler. 1993). Habitat loss in this area has been extensive in the past 10 to 15 years, and the area is reported to be one of the most intensively developed (e.g., logged, cultivated) regions in the Neotropics (Robbins et al. 1992).

The cerulean warbler population on Ozark NF has been documented by several sources. Dr. Chris Kelner of Arkansas Tech University is currently doing extensive research on the species and its breeding habitat on the Forests.

Although mature forest with a canopy is clearly a requirement, several sources indicate that birds tolerate or respond positively to canopy gaps. Noting several sources, Hamel (2000 and references therein) indicated, "gaps in the canopy or openings are important to the distribution of birds." In the Missouri Ozarks, birds similarly use taller trees, group selection cuts, and breaks in the canopy next to rivers. All appear to create structurally similar gaps or microhabitat "edges" that result in use by cerulean warblers (Burhans et al. 2002). Several forests reported

use of small openings, canopy gaps, and areas with a history of logging and disturbance (Burhans et. al. 2002).

Data Sources: Forest Landbird point data (1997 – 2006) and population trend will be used to address changes in their condition. Population trends continue to show a decline in the number of birds and this is also noted at the regional and national level as well. This information is illustrated in Figure 5.

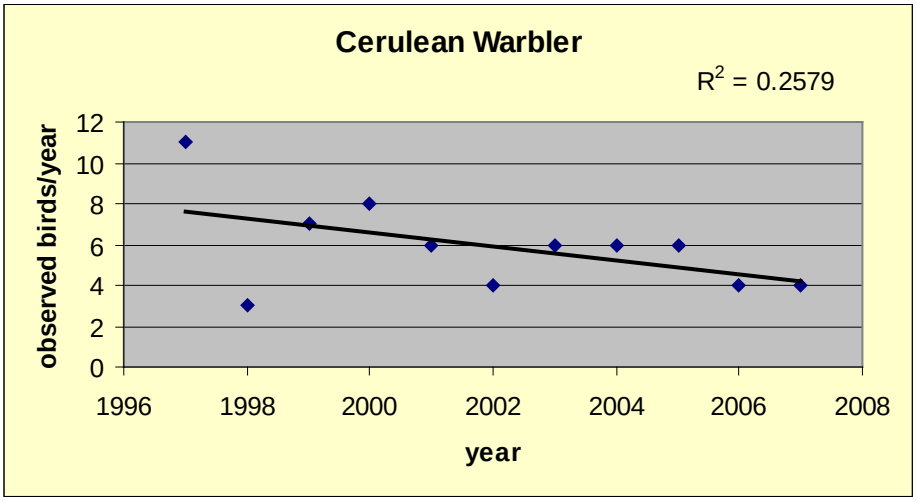

Figure 5: Cerulean Warbler Detected on Ozark-St. Francis NFs 1997 – 2007

Breeding Bird Survey: Based on the data available, the cerulean warbler in Arkansas has shown a slight increase in the population trend since 1966 in the Breeding Bird Survey (Figure 6).

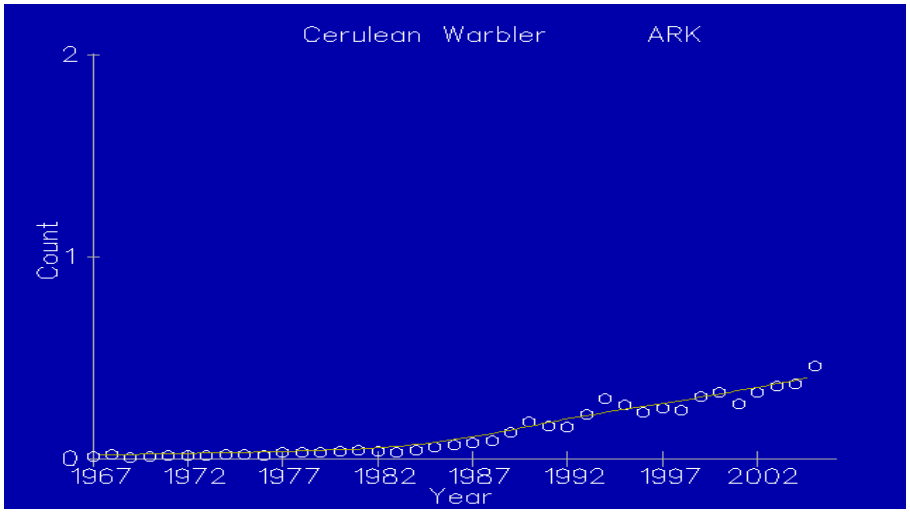

Figure 6: Cerulean Warbler Breeding Bird Survey Population Trend for Ozark-Ouachita Plateau for 1966 - 2006.

Management Implications
This bird has been documented on the Forests and prefers a specific habitat condition. Limited timber management is probably not going to impact this species but the creation of large gaps in the canopy would likely be detrimental. In addition, the use of prescribed fire in these stands also reduces or eliminates their use by cerulean warbler. Recent studies suggest that burning in these stands alters the complex canopy structure that this bird species prefers. The Forests will continue to monitor habitat and bird populations and, where necessary, alter management prescriptions to exclude fire when no other option is available. No change is warranted at this time.

Species Requiring Dry-Oak and Dry-Mesic Oak Habitats

OVENBIRD

Oven bird was selected to represent ground nesting birds in dry-oak and dry-mesic oak forests.

Data Sources: Forest Landbird point data (1997 – 2006) and population trend will be used to address changes in their condition. Population trends continue to reflect no change since 1997 on the Forests.

Breeding Bird Survey: Based on the data available, the ovenbird in Arkansas has shown a slight decrease in the population trend since 1966 in the Breeding Bird Survey.

Management Implications
The Forests will continue to monitor habitat and bird populations and, where necessary, alter management prescriptions to maintain or improve habitat for this avian species. No change is warranted at this time.

RED-HEADED WOODPECKER

Red-headed woodpecker was selected to represent species requiring oak woodlands. This species is uncommon on the Forests at present.

Data Sources: Forest Landbird point data (1997 – 2006) and population trend will be used to address changes in their condition. Population trends continue to reflect no change or a very slight increase since 1997 on the Forests.

Breeding Bird Survey: Based on the data available, the red-headed woodpecker in Arkansas has shown a slight decrease in the population trend since 1966 in the Breeding Bird Survey.

Management Implications
The Forests will continue to monitor habitat and bird populations and, where necessary, alter management prescriptions to maintain or improve habitat for this avian species. No change is warranted at this time.

SCARLET TANAGER

Data Sources: Forest Landbird point data (1997 – 2006) and population trend will be used to address changes in their condition. Population trends continue to reflect a steady to increasing population on the Forest.

Breeding Bird Survey: Based on the data available, the scarlet tanager in Arkansas has shown a slight decrease in the population trend since 1966 in the Breeding Bird Survey.

Management Implications
The Forests will continue to monitor habitat and bird populations and, where necessary, alter management prescriptions to maintain or improve habitat for this species. No change is warranted at this time.

Species Requiring Snag and Older Forest Habitats

PILEATED WOODPECKER

This species was selected as a MIS to represent snag-dependent species and species requiring older forests. Breeding bird surveys in the Ozark-Ouachita physiographic province suggest that populations of the pileated woodpecker trended downward from the 1960s until the mid-1980s and have stabilized since then. The recent episode of oak decline may provide a temporary spike in habitat for this species.

Data Sources: Forest Landbird point data (1997 – 2006) and population trend will be used to address changes in their condition. Population trends continue to reflect little change since 1997 on the Forests.

Breeding Bird Survey: Based on the data available, the pileated woodpecker in Arkansas has shown a decrease in the population trend since 1966 in the Breeding Bird Survey.

Management Implications
The Forests will continue to monitor habitat and bird populations and, where necessary, alter management prescriptions to maintain or improve habitat for this avian species. No change is warranted at this time.

Game Species

WHITETAIL DEER

Whitetail deer was chosen as a MIS because of its popularity as a hunted game species. Monitoring of this species has been done by using the annual harvest data for the species along with deer spotlight surveys each of which have been conducted for many years and help to track population trends over time.

This report summarizes the OSFNFs Deer Harvest Data and Spotlight Survey data for the M&E Report for FY-2006 and FY-2007. Data for this report has been provided by districts as well as the Arkansas Game and Fish Commission.

Statewide, Arkansas hunters checked 132,415 deer during the 2005-2006 deer season. This is a 0.5% increase from the previous year's harvest. On the OSFNFs, deer harvest totaled 841 deer, which was down from the previous year (record year) by 3,086 deer.

Deer harvest levels rebounded in the 2006-2007 season to 1,412 deer or a 68% increase from 2005-2006 but is still well below the level taken in 2004-2005 season. Deer harvest levels have remained stable and trend slightly higher but in recent years has been down and this may be attributed to a combination of factors such as a poor hard mast crop as well as continued drought conditions throughout much of the reporting period.

The USFS along with the AGFC has conducted spotlight surveys across the Forests with coverage from the St. Francis National Forest across to the Wedington and Lee Creek units along the west side of the Forests.

The Final Environmental Impact Statement for the 2005 Forest Plan (September 2005) indicates in Table 3-9 (page 3-273), a desired terrestrial habitat capability to support an average of 11.7 deer per square mile after 10 years. Based on deer spotlight survey monitoring results, this goal is being achieved.

Management Implications
Deer are widespread, abundant, and the habitat capability still remains above the Plan projection. There are no indications of a need for adjustments in current management practices.

BLACK BEAR

Black bear was chosen as a MIS due to its popularity as a hunted game species. Monitoring has been done by using the annual harvest data for the species along with bear bait station surveys each of which have been conducted for many years and help to track population trends over time.

On the Ozark National Forest, bear populations continue to remain high and harvest by hunters is the primary means of controlling their numbers. In 2006, 81 bears were harvested from the Ozark National Forest. Thirty-one (31) bears were harvested in 2007 from the Ozark National Forest with an additional 42 bears harvested on private inholdings within the forest boundary.

The AGFC along with the Ozark National Forest have conducted bear bait station surveys for many years beginning in 1985. Bear populations continue to climb.

Management Implications
Black bear are widespread, abundant, and the habitat capability still remains above the Plan projection. There are no indications of a need for adjustments in current management practices.

WILD TURKEY

Wild turkey was chosen as a MIS because of its popularity as a hunted game species and its need for a diverse mix of habitat types. Wild turkey was historically abundant on the Forests. Habitat destruction and over-hunting decimated populations in the early 1900s. Restocking efforts and habitat improvement have lead to increasing populations for the last 30 years. Open areas with high insect populations are critical as brood rearing areas. Historically, glades pine-bluestem, and oak savanna areas provided this habitat.

Monitoring has been done by using the annual harvest data provided by the AGFC. According to AGFC, statewide 11,069 turkeys were checked in 2007, down from 13,598 in 2006. The 2007 harvest was 44.5 percent lower than the record harvest of spring 2003.

Statewide spring turkey harvest declined as predicted in 2007. The reduced season length is responsible for about 1/3 of the decline. The decline was expected primarily because turkeys have not reproduced well in most areas of Arkansas since 2001. One or two bad hatches usually do not impact turkey numbers or turkey harvest drastically, but five years in a row can be devastating. The 2005 turkey hatch was particularly poor, translating into very few 2-year-old gobblers during 2007. The average spur length of harvested gobblers rose in 2007. This reflects the low amount of 2-year-old birds in the overall harvest. Because 2-year-old turkeys usually have spurs about ¾-inch long, the rise in spur length indicates that older birds made up a larger percentage of the harvest than in recent years. Liberal seasons in place from 2001 through 2006 (up to 39 days of hunting) also likely played a part in the rapid decline in spring gobbler harvest. Data collected by the AGFC suggests gobbler survival declined rapidly after 2001, when seasons were lengthened and opened earlier.

Turkey Brood Summary

The AGFC has conducted the Annual Wild Turkey Brood Survey since 1982 and throughout its history the survey has helped in evaluating turkey stocking success, examining spread and growth of existing populations and determining trends in turkey numbers. The survey has also proven to be highly correlated to turkey harvests in subsequent fall and spring seasons.

2006 Summary
Reproduction was better in 2006 than it was in 2005, but still remains below average on a statewide basis. Statewide, 1,693 hens were observed with 3,056 poults in 577 broods during 2006. Two thousand six (2006) marks the first year that more than 3,000 poults have been reported since 2001, however, around 4,000-5,000 poults were reported during the above-average reproduction years of the late 1990s and early 2000s.

2007 Summary
Brood survey indices suggest that reproduction was slightly poorer in 2007 than it was in 2006, but that it was better than the record low indices of 2005. The summer of 2007 represents the 6th year in a row of below-average reproduction on a statewide basis. Statewide, 1,558 hens were observed with 2,769 poults in 557 broods during 2007. In 2006, slightly more than 3,000 poults were observed on this survey. However, around 4,000-5,000 poults were reported during the above-average reproduction years of the late 1990s and early 2000s.

Management Implications
Turkey is a widespread species and although once abundant, relatively, recent declines in the population are troubling. Habitat capability on the Forests still remains good and there are no indications of a need for adjustments in current management practices.

Aquatic Management Indicator Species (MIS)

Within the Forest Plan, largemouth bass were included as a MIS for the sole purpose of monitoring conditions of lakes and ponds on the Forests. Smallmouth bass were chosen as a MIS species to monitor the effect of management activities on a stream-dwelling species. Table 10 is a summary of the TMIS monitoring. An accompanying document provides some additional information and contains a much more detailed analysis and monitoring of these species.

Table 10: Monitoring Methods and Trends for Aquatic Management Indicator Species.

Common Name	Ozark	St. Francis	Trend Evaluation Method	Trend
Smallmouth Bass	X		Proportional Stock Density & Relative Stock Density	Stable
Largemouth Bass	X	X	Relative abundance in stream	Normal

LARGEMOUTH BASS

An ideal largemouth bass population within the lakes would be balanced with the available food source.

Relative weights are a measure of the weight of an individual captured versus the weight of an ideal fish at that same length multiplied times 100. Relative weights for all size classes would be at a minimum greater than 85 but no greater than 105 (Kohler and Hubert 1993). Proportional Stock Density (PSD) and Relative Stock Density (RSD) are a measure of the balance of multiple size classes within a population. PSD are the number of quality length fish (>300 mm) versus the number of stock length fish (>200 mm) multiplied times 100 and RSD is the number of preferred length fish (>380 mm) versus the number of stock length fish (>200mm) multiplied times 100. The PSD for largemouth bass should range from 40-70 where as RSD should range from 10-40 (Murphy and Willis 1996).

For lakes on the Forests, the overall relative weights, PSD, and RSD for largemouth bass stayed fairly stable from 2005 to 2007 (Figures 7 and 8). They also show that mean values for all the lakes on the Forests don't get over the values expected in an ideal largemouth bass fishery. The Forests completed 493 acres of lake habitat improvement in 2006 and 527 acres in 2007. This consisted of the following types of projects: spawning bed development, fertilization, liming, road closures causing sedimentation in the lake, structural additions (cedar trees, Christmas trees, tree hinging along the shore, etc.), and addition of bait fish to the food biomass for predators like largemouth bass. Figure 9 shows a largemouth bass that was shocked in Lake Wedington in 2006.

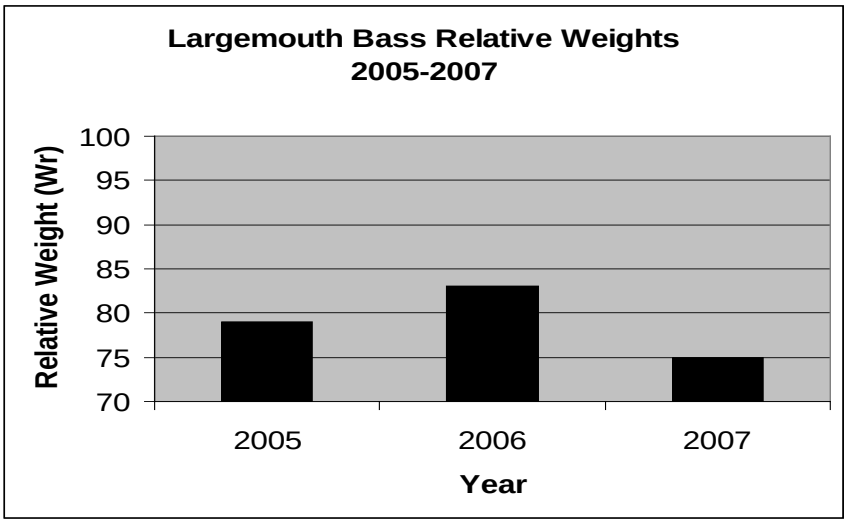

Figure 7: Largemouth Bass Mean Relative Weights for Lakes on the Forest from 2005 – 2007.

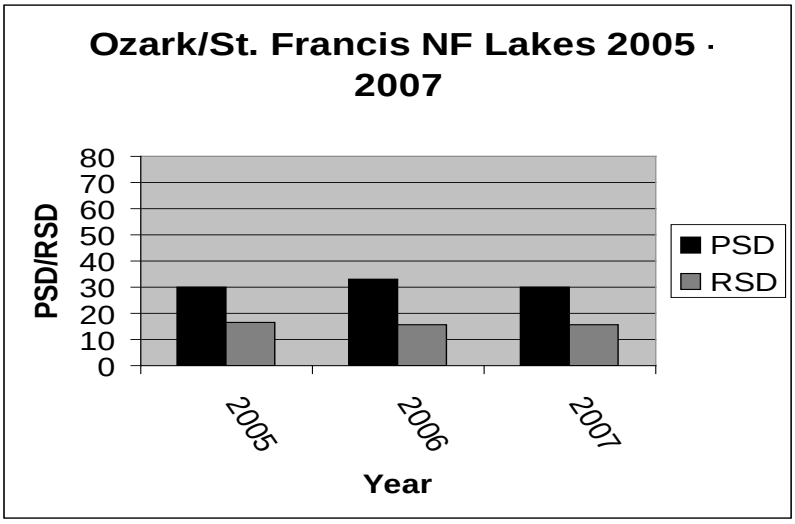

Figure 8: Largemouth Bass Proportional Stock Density (PSD) and Relative Stock Density for Preferred Size Fish (RSD) on the Ozark/St. Francis NFs from 2005 - 2007 Sampling.

Figure 9: Photo of 10 ½ lb. Largemouth Bass Shocked in Lake Wedington in 2006.

SMALLMOUTH BASS

Smallmouth bass were chosen as a MIS species to monitor the effect of management activities on a stream-dwelling game species. In all the watersheds sampled on each district in 2006 and 2007, smallmouth bass were found in at least one stream except the Upper Mulberry River Watersheds on the Pleasant Hill Ranger District in 2006 and the Short Mountain/Reville Creek Watersheds on the Mt. Magazine Ranger District in 2007. Smallmouth bass relative abundance in streams where it was found made up less than 1% of the overall fish abundance. This is normal for a species that is usually the top predator in these systems. In surveys conducted by the USGS in streams in the Ozarks 2001 to 2002, smallmouth bass relative abundance ranged from 0-4 with a majority of sampling sites having relative abundance less than one (Petersen, 2004).

The Forests completed 16 miles of stream habitat improvement in 2006 and 33 miles in 2007. These projects consisted of a project that funded large woody debris (LWD) placement in streams, stream bank stabilization to decrease sediment inputs, and trash cleanups in riparian areas along streams. All this work will help to improve habitat and stream quality within the OSFNFs for all stream fish species including smallmouth bass. Figure 10 shows smallmouth bass caught during a study on the Illinois Bayou.

Figure 10: Smallmouth Bass Caught as part of the Study on the Illinois Bayou.

Figure 11: Smallmouth Bass having Passive Integrated Transponder (PIT) Tag Implanted.

The Forests also funded a master's thesis project at Arkansas Tech University in 2006 and 2007, which looked at the effect of summer stream drying on smallmouth bass populations and movement in the Illinois Bayou Watersheds. The study found that streams that had high public access as well as stream drying experienced higher than normal rates of smallmouth bass mortality (Hafs 2007). Figure 11 shows the passive integrated transponder tag being implanted in a smallmouth bass as part of a study. This information will help guide the Forests in making recommendation to the AGFC on fishing regulations for streams on the Forests.

Endangered, Threatened, and Sensitive Species

Vascular Plants

OUACHITA FALSE INDIGO (*AMORPHA OUACHITENSIS*) - REGIONAL FORESTER'S SENSITIVE

The usual habitat for the Ouachita leadplant seems to be on rocky, open, and sunlit areas having reliable soil moisture. It occurs on glades, on roadside banks, in roadside ditches, and along ephemeral drainages. Further south into the Ouachita Mountains, this species appears to prefer the edges of small streams and drainages.

This plant is known from several locations on Mt. Magazine (Tucker, 1989). This endemic is found elsewhere in Arkansas and Oklahoma. It has been noted in Conway, Franklin, Johnson, Logan, Madison, and Van Buren Counties as well as in southern Arkansas in Clark, Garland, Montgomery, Perry, Polk, Saline, Scott, and Yell Counties.

Habitat on the Forests is limited to streamside zones and a few roadside ditches where ground disturbance has occurred.

Populations appear to be stable. Typically, areas where this plant occurs will receive little to no resource management other than roadside mowing.

Management Implications
This plant is known to occur on the Mt. Magazine, Boston Mountain, and Pleasant Hill Ranger Districts. Because this plant prefers and is found along streamside zones or roadside ditches where disturbance regularly occurs, there is little likelihood that the viability of this species will be compromised. The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

BUSH'S POPPYMALLOW (*CALLIRHOE BUSHI*) -REGIONAL FORESTER'S SENSITIVE

The usual habitat for this plant is rocky open woods, wooded valleys, ravine bottoms, and borders of glades. This plant ranges from extreme southwestern Missouri to northwest Arkansas and northeastern Oklahoma. In Arkansas, it has been noted in Benton, Boone, Carroll, Conway, Logan, Marion, Searcy, and Washington Counties.

This species has often been noted in Benton and Washington Counties on roadsides and is easily viewed from several county roads. This species is known from several locations on the Wedington Unit of the Boston Mountain Ranger District.

Threats to this species include collection by plant enthusiasts and herbicide application along roadside areas where it occurs.

Management Implications
This plant is still found occasionally on the Forests in fields and along roadside ditches where regular disturbance occurs. Collection by the public along easily accessed roads will likely continue but hasn't been a particular problem yet. The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

OZARK CHINQUAPIN (*CASTANEA PUMILA VAR. OZARKENSIS*) - REGIONAL FORESTER'S SENSITIVE

Until the introduction into this country of the chestnut blight (*Endothia parasitica*) and its subsequent spread, the Ozark chinquapin had been considered a locally abundant and widespread tree species in the Interior Highland Region. As a result of the spread of this parasite, few mature trees of this species still exist although sprouting from stumps is quite common (Tucker, 1980). This plant is fairly common and is found on all forest districts except the St. Francis.

Data Sources: Forest monitoring for this species has been done since 2001. Population trends reflect a decreasing population trend on the Forests. This information should be tempered by the fact that we still have lots of chinquapin and the blight is the main cause for decline. The Ozark National Forest has been working informally with outside organizations and agencies to develop a seed orchard where this plant could be grown to help produce a blight-resistant strain with the resulting seeds being used for planting around the Forests.

Management Implications
This species is likely to hold its own despite its infection with chestnut blight, which is the biggest threat to this species. Monitoring of the plant has shown that as plants mature, clonal groups die-off but are soon replaced with other clones. This species seems to do best where sites are disturbed and the overstory competition is reduced.

The Ozark National Forest will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

SOUTHERN LADY'S SLIPPER (*CYPRIPEDIUM KENTUCKIENSE*) - REGIONAL FORESTER'S SENSITIVE

Habitat for this plant consists of moist floodplains along creeks and on rich, moist slopes. It is a large plant, can grow to a height of three feet, and has a pale, deep lip that barely extends past its opening. The collection for commercial sale and the digging for replanting in wildflower gardens pose the biggest threat to the plant.

The plant appears to be able to tolerate certain timber management activities with some treatments, such as thinning, beneficial.

This species is known to occur in 12 Arkansas counties and possibly others (Smith, 1988). Southern lady's slipper occurs in a relatively narrow range from northeastern Texas and southeastern Oklahoma east to Georgia (although very few sightings) and north to Kentucky. There are very few, if any, protected sites. Threats include highway construction and possible exploitation through plant collecting. On the Forests, one real threat is from feral hogs that root out the plant. One site has already been destroyed by feral hogs.

This species is found in the western 1/3 of the Forests and is confined to riparian areas, moist floodplains, or rich moist slopes.

Management Implications
Because this plant is found scattered over a large geographical area with several new populations found each year on the Forests, some may be adversely impacted by forest management but the large number of known sites makes it almost impossible to impact this species to the point where viability would be a concern. The greatest threat to this species is likely from collection by flower enthusiasts on both public and private lands and the growing feral hog population.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database. The Forests are also trying to take an active role in reducing the feral hog population.

MOORE'S DELPHINIUM (*DELPHINIUM NEWTONIANUM*) - REGIONAL FORESTER'S SENSITIVE

Moore's delphinium is endemic to and locally abundant in two separate regions of the Interior Highlands regions of Arkansas, but it is unknown from either Missouri or Oklahoma. Preliminary biological data indicates it is of widespread occurrence within a relatively small area in the Ozark National Forest, where it occurs in both mature and successional vegetation types.

Field observations have shown that Moore’s delphinium can tolerate at least light fire during the cool season. Because it typically occurs in mesic habitats, there is probably little potential for fire to pass through suitable habitat with more than low to moderate intensity. These mesic sites are naturally buffered from fire impacts except in extreme circumstances where the fire removes large amounts of surface organic material or excessively dries out the surface soils.

Management Implications
Because this plant is found scattered over a fairly small geographical areas, some may be adversely impacted by forest management but because these sites are found in habitat conditions that don’t offer much from a resource management

standpoint, the likely hood of adversely affecting the majority of sites is slim to none and the Forests will continue to check these sites to make sure habitat and numbers of plants are not being adversely impacted by resource management. The greatest threat to this species is likely from collection by flower enthusiasts on both public and private lands.
The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

GLADE LARKSPUR (*DELPHINIUM TRELEASEI*) - REGIONAL FORESTER'S SENSITIVE

According to Smith (1989), this species is endemic to southwestern Missouri and northwest Arkansas. It occurs on limestone glades and bald knobs in the White River region and on rocky open limestone exposures and glades elsewhere.

This plant is known to occur only in Missouri and in counties in north and northwest Arkansas and is relatively common within its limited range, having approximately 80 occurrences. It is no longer tracked in Missouri.

Populations seem to be stable over the Ozark National Forest as continued work on cedar encroachment and reintroduction of fire has had a positive effect.

Management Implications

Because this plant is found scattered over a fairly large geographical, some may be adversely impacted by certain forest management activities such as herbicide application but because this plant is typically found in habitat conditions where little management is likely to occur, the likely hood of adversely affecting this species to the point of losing viability is very remote.

The Ozark National Forest will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

FRENCH'S SHOOTING STAR (*DODECATHEON FRENCHII*) - REGIONAL FORESTER'S SENSITIVE

Affected Environment

At most locations, French's shooting star grows in microhabitats (i.e., beneath sandstone overhangs) within forest communities that have been managed for timber harvest in the past. Some of the largest populations are located in forested areas that have been high-graded for commercial timber harvest in the past (probably on multiple occasions). Observations made at known sites have demonstrated that the species typically is associated with heavy shade conditions for most of the day. Forest-wide standards limit all disturbance activities above and below bluffs. Talus sites are protected as well.

Field observations that provide solid information on this species' resistance to fire are lacking. Because it typically occurs in isolated and protected habitats such as

beneath bluff shelters, overhangs, and natural bridges where there is little available fuel, there is probably limited potential for fire to pass through suitable habitat with more than low to moderate intensity. Because these sites are naturally buffered from fire effects, the impacts of fire may be insignificant except in extreme circumstances where the fire removes large amounts of surface organic material or excessively dries out the surface soils. Aerial parts of the French's shooting star plant are somewhat fleshy and probably would be easily damaged by fire; its fleshy thickened roots, however, probably can withstand at least light fire with little or no damage during the cool season.

Management Implications
Activities associated with the implementation of the RLRMP were addressed and may impact individual plants but cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Gulf Pipewort (*Eriocaulon koernickianum*) - Regional Forester's Sensitive

Affected Environment

In the western part of its range (Arkansas, Oklahoma, and Texas), it's found in or near permanently moist to wet seepage areas (particularly upland sandstone glade seeps), bogs, and prairie stream banks. Gulf pipewort is intolerant of shade and is probably an early-successional species (Nature Serve 2002).

This species is reported in Benton, Conway, Franklin, Logan, Johnson, Madison, Pope, and Van Buren Counties in Arkansas.

Field studies indicate gulf pipewort is an early successional and often times long persistent species. There is limited habitat on the Forests for this rare plant species.

Habitat for this species would likely benefit from glade restoration and most timber harvest treatments and prescribed burning, which open the forest floor to sunlight.

Management Implications: Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Large Witchalder (*Fothergilla major*) - Regional Forester's Sensitive

Affected Environment

Large witchalder occurs in mesic-dry to dry habitats of the uplands (rich mountain woods) and its most characteristic habitats are disturbed areas on dry ridges of southeastern highlands. It grows in hill areas, often along streams.

In Arkansas, this species is found only in Searcy County. This plant is rare throughout its range of five southeastern states and is disjunct in Arkansas. This plant has not been found on the Forests.

Management Implications: Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Butternut (*Juglans cinerea*) - Regional Forester's Sensitive

Affected Environment

Butternut occurs in rich woods along the base of slopes or bluffs, and along streams. Butternut is found on the Sylamore Ranger District in north central Arkansas, and in most counties along Crowley's Ridge on the St. Francis National Forest. There have been reports from Benton and Marion Counties in northwestern Arkansas. One report of butternut on the Wedington Unit has remained unconfirmed despite numerous surveys attempting to locate it there.

Butternut has experienced a serious decline over the past 25 years over its entire range due in part to the butternut canker, caused by a fungus. The butternut canker is believed to be an introduced disease, and was first isolated in the 1960s. In the north central states, there has been a 70 percent reduction in live trees over a 15- to 20-year period, particularly in regeneration since butternut does not sprout.

Management Implications: Timber harvest activities will follow Forest Service guidelines and policy for management. Butternut will be left uncut unless they are dead or pose a risk to public safety. Intermediate timber treatments in stands containing butternut could be beneficial to this species.

Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Alabama Snow-Wreath (*Neviusia alabamensis*) - Regional Forester's Sensitive

Affected Environment

Most populations are found on steep, rocky, wooded sites; however, this is not always true as one Arkansas population is found on a steep riverbank near the Buffalo River. One new site on the Forests has been documented and the site will be excluded from management.

Population monitoring has been done since 2001 and an increase in population numbers has been noted.

Data Sources: Ozark National Forest data (2001 – 2008) and population trend information will be used to address changes in their condition. Population trends continue to reflect a very slight increase since 2001 on the Forests (see Figure xx).

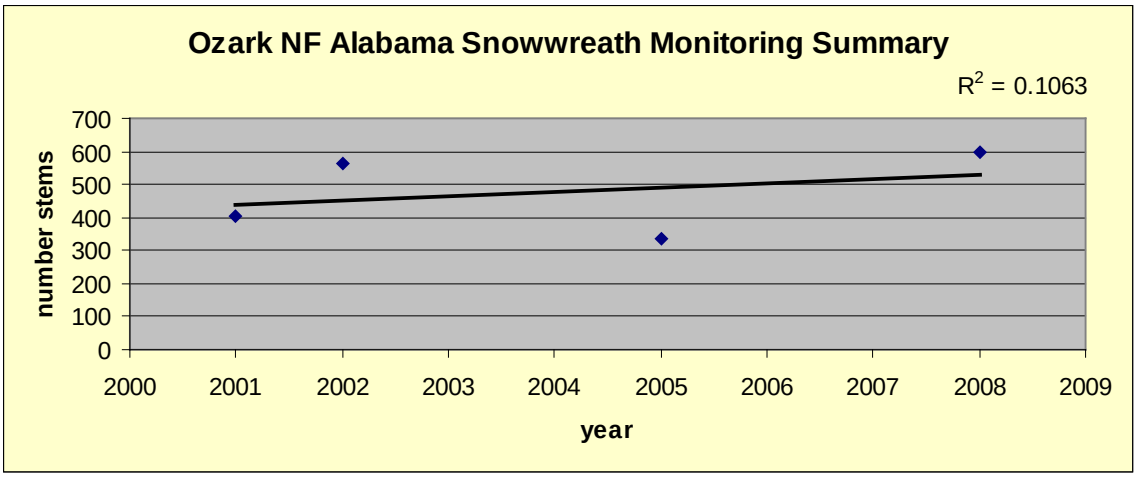

Figure xx: Monitoring Summary of the Alabama Snow-wreath on the Ozark NF.

Management Implications: Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Maple-Leaf Oak (*Quercus acerifolia*) - Regional Forester's Sensitive

Affected Environment

This small tree species occurs in open woods, ledges and cliff edges, and the rocky edges of plateaus. It is endemic to Mt. Magazine and the Ouachita Mountains in Arkansas with six total occurrences and a few hundred individuals.

This plant could possibly occur on similar sites on the Mt. Magazine Ranger District but because of the limited available habitat, there is likely less than 30 acres of available habitat on the OSFNFs.

Management Implications: Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forestswill continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Bay Starvine (*Schisandra glabra*) - Regional Forester's Sensitive

Affected Environment

Bay starvine or climbing magnolia is a vine that occurs in the Atlantic and Gulf Coastal plains from North Carolina south to northern Florida, west to Louisiana and up the Mississippi Embayment into western Tennessee and eastern Arkansas. In Arkansas, it is known only on the St. Francis National Forest from Crowley's Ridge where it appears to be restricted to four counties (Cross, Lee, Phillips, and St. Francis). Within a year (1990-1991), at least 50 new sites were discovered on the St. Francis NF. Based on continuing survey and inventory, it is expected that this species will be considered very common on the St. Francis NF.

Climbing magnolia has a widespread range but with only a small number of known secure populations. It is highly threatened by competition from non-native invasives, (particularly Japanese honeysuckle), land-use conversion, and habitat fragmentation (conversion to pine plantations in Piedmont has eliminated many populations).

Management Implications

Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but cumulatively, these actions would not cause a trend to federal listing or a loss of viability.

The forest will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Blue Ridge Catchfly (*Silene ovata*) - Regional Forester's Sensitive

Affected Environment

The range for this species is from Virginia south and west to Georgia, Alabama, Mississippi, and northern Arkansas. In Arkansas, this species is found in Baxter, Benton, Cleburne, Newton, Pope, Stone, and Van Buren Counties.

Favorable habitat would include talus slopes beneath a sandstone bluff lines. This type of habitat is limited on the Forests.

Management Implications: Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Royal Catchfly (*Silene regia*) - Regional Forester's Sensitive

Affected Environment

This Midwestern endemic of tall grass prairie habitats with relatively few, scattered populations are most abundant in Missouri; extirpated from Kansas and Tennessee, and considered quite rare in all other states in its range. Many remaining population remnants are along roadsides where vulnerable to construction or to changes in management of roadside vegetation.

This species is known from Benton, Boone, Bradley, Hot Springs, Newton, Searcy, Sharp, Stone, and Washington Counties in Arkansas. There are very few known locations for this plant on the Forests.

The major threat to this species is habitat destruction through agricultural practices. Prairies are no longer extensive in the Midwest and this plant species is now found principally along roadsides where prairie vegetation still occurs. Other right-of-way maintenance activities such as herbicide application (used to maintain railroad and power line rights-of-way and roadsides) and untimely mowing are additional threats.

Management Implications: Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forestswill continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Ozark Spiderwort (*Tradescantia ozarkana*) - Regional Forester's Sensitive

Affected Environment

This once considered rare plant is endemic to the Ozark Mountains of Missouri, Oklahoma, and Arkansas and the Ouachita Mountains of western Arkansas and southeastern Oklahoma. There are 15 extant populations in Missouri, more than that in Arkansas, and a few in Oklahoma. The species is considered relatively secure despite some documented declines due to construction of dams/impoundments.

Ozark spiderwort does not appear to be highly habitat- specific (Foti 1994). Throughout its range, it has been recorded from rich, diverse, mainly deciduous woodlands.

There are numerous sites on the western side of the Forests where this species is found.

Management Implications: Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forestswill continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Ozark Least Trillium (*Trillium pusillum var. ozarkanum*) - Regional Forester's Sensitive

Affected Environment

This species occurs in acid cherty-flinty soils of shallow draws of oak-hickory, oak-pine, or oak-chestnut woodland in the Ozark region. This species is not known to occur on the Forests.

Because this plant is found scattered over a fairly large geographical area with many more sites, it is considered to be relatively secure. More serious threats to this species occur off-forest where human population increases in Northwest Arkansas are leading to increased housing developments and road construction which are removing available habitat.

Management Implications: Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Ozark Cornsalad (*Valerianella ozarkana*) - Regional Forester's Sensitive

Affected Environment

This plant is found in Benton, Carroll, Conway, Madison, Searcy, and Stone Counties in Arkansas. The Boston Mountain (Wedington Unit), Pleasant Hill, and the Sylamore Ranger Districts have limited habitat along stream bottoms in mixed hardwood stands.

Management Implications: Activities associated with the implementation of the Revised Forest Plan were addressed and may impact individual plants but

cumulatively these actions would not cause a trend to federal listing or a loss of viability.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences in the ANHC database.

Snails

MAGAZINE MOUNTAIN SHAGREEN (*MESODON MAGAZINENSIS*) - THREATENED

This species is known to occur in a very limited area along the north-facing slopes of Mt. Magazine. Habitat is steep talus sites in rich mesic hardwood forest. This snail prefers a cool, moist climate; it moves deeper into rock crevasses during warm, dry weather.

The restricted range of the Magazine Mountain shagreen makes it vulnerable to any land use change or activity that would have an adverse effect on the talus slopes where it is found.

The species is located inside the protected Magazine Mountain Special Interest Area (SIA). Other similar habitat areas are covered by forest-wide standards that prohibit timber harvest, road construction, or recreational development on talus slopes.

Mount Magazine shagreen (MMS) population numbers have been studied since the species discovery in 1989. The population has been checked since 1996 when ten permanent survey stations were established. Weather patterns leading up to survey dates have been quite variable in years surveyed and may have affected the numbers of MMS located as much as actual population numbers. It is speculated that in low rainfall years, snails may stay further below the surface level seeking a more desired moisture regime. This would affect numbers encountered per hour of searching. Even though soil conditions on the sampling dates were moist, drought conditions from a 4-year drought were still persistent.

Data Sources: Numbers of MMS found during sampling declined from 1996 through 1999. Surveys were not conducted in 2000. A rebound occurred in 2001 and 2002; however the 2003 survey dropped back to the 1999 level. In 2004, eight live snails were found. The 2004 numbers were equal to the previous record high number found in 1996. In 2005, a record 13 live snails were observed. In 2006 and 2007, a total of 6 live snails were found.

Management Implications
This species is found in a special interest area and monitoring of populations will continue. Implementation of the RLRMP with its forest-wide standards will continue to provide protection and, where necessary, habitat improvement if applicable.

Insects/Isopods

AMERICAN BURYING BEETLE (*NICROPHORUS AMERICANUS*) - ENDANGERED

On the Ozark NF, ABBs have been found within a mixture of vegetation types from oak-hickory and coniferous forests on lowlands, slopes, and ridgetops to deciduous riparian corridors and pasturelands in the valleys (Service 1991). Most ABB captures occur in soils that are well drained and include sandy and silt loams with a clay component. Soil conditions must be conducive to ABB excavation for reproduction. Level topography and well formed detritus layer at the ground surface are common.

Regional Population Data: USFWS (2008) summarizes regional population data for the ABB as follows:

At the time of listing, only two ABB populations were known, one on Block Island, Rhode Island, and one in Latimer County, Oklahoma. When the recovery plan was completed in 1991, the ABB also was known to occur in Sequoyah, Cherokee, and Muskogee Counties, Oklahoma. Between 1992 and 2006, numerous presence/absence surveys for the ABB were conducted in Oklahoma, resulting in the rediscovery of ABB in 19 other counties in the state.

Since 1991, field surveys have discovered additional occurrences in the following states: Arkansas (Figure 12), Kansas, Nebraska and South Dakota. From 2003 to 2005, the ABB was also discovered in two discrete locations in northeastern Texas: Lamar County and a nearby site in Red River County (Godwin and Minich 2005).

The ABB has been found in very small numbers on the western side of the Mt. Magazine Ranger District in Logan County, Arkansas. ABB captures at these locations typically fluctuate on an annual basis, but in general ABB numbers appear low but stable. (H. Dikeman, USFWS, pers. comm.).

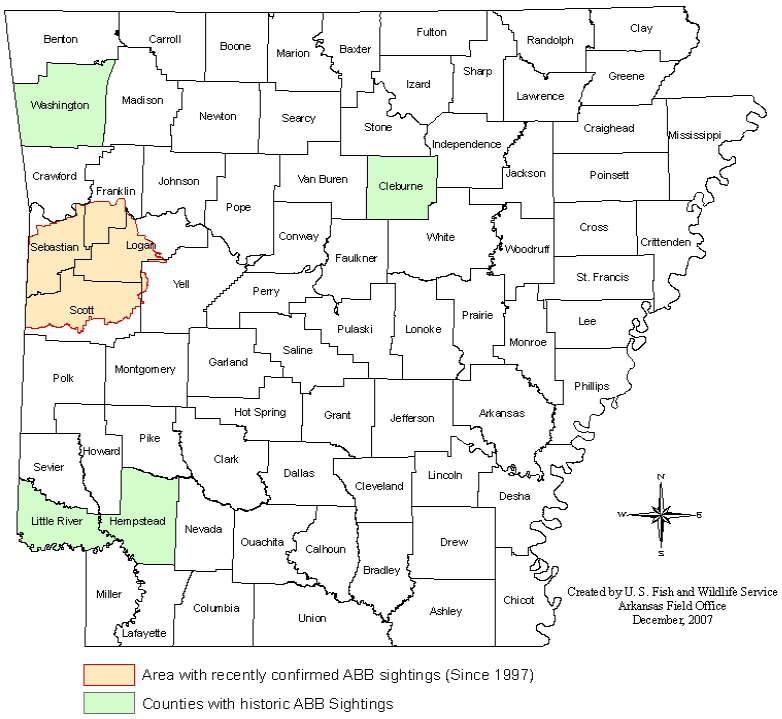

Figure 12: American Burying Beetle Has Been Found in these Arkansas Counties (USFWS 2008).

The Ozark National Forest is working with the Ouachita National Forest and the USFWS Field Office in Conway to develop a Conservation Plan that will incorporate various habitat improvements designed to help prey species needed by the American burying beetle (ABB). In addition, this document will call for reasonable and prudent measures and other mitigations as appropriate to protect and or allow for the enhancement of habitat for this species.

Management Implications

This species has been found on the OSFNFs only on the Mt. Magazine Ranger District. The Forests will continue to follow guidance provided by the USFWS in the Biological Opinion dated September 22, 2005, as well as the forest-wide standards found in the RLRMP for the OSFNFs.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences and provide information to the USFWS as it becomes available.

NEOARCTIC PADUNEILLIAN CADDISFLY (REGIONAL FORESTER'S SENSITIVE)

No new data was collected for Neoarctic Paduneillian caddisfly on the Forests in 2006 or 2007. A study with the University of Arkansas is being proposed to review the current knowledge about this species as well as surveys of potential habitat on the Forests to better understand its distribution. This species is being protected during management activities by following of state BMPs and standards in the Revised Forest Plan. Populations are assumed to be stable.

LIRCEUS BICUSPIDATUS (REGIONAL FORESTER'S SENSITIVE)

No new data was collected for *Lirceus bicuspidatus* on the Forests in 2006 or 2007. An analysis with The Nature Conservancy is being proposed for 2008 to study the current knowledge about this species as well as surveys of potential spring and seep habitat on the Forests to better understand its distribution. This species is being protected during management activities by following of state BMPs and standards in the Revised Forest Plan. Populations are assumed to be stable.

Mussels

NEOSHO MUCKET (REGIONAL FORESTER'S SENSITIVE)

No new data were collected for Neosho mucket on the Forests in 2006 or 2007. The species has been found in the Illinois River along the Wedington Unit. A Neosho mucket survey is being planned by the USFWS for 2008. Populations are assumed to be stable.

Fish

PALLID STURGEON (ENDANGERED)

No new data was collected for pallid sturgeon on the Forests in 2006 or 2007. The species is currently known only on the Forests from the St. Francis River. Population trends in the St. Francis River are unknown.

OZARK SHINER (REGIONAL FORESTER'S SENSITIVE)

No new data was collected for Ozark shiner on the Forests in 2006 or 2007. The stream surveys reported above did not find any Ozark shiner. Populations are assumed to be stable.

LONGNOSE DARTER (REGIONAL FORESTER'S SENSITIVE)

No new data was collected for longnose darter on the Forests in 2006 or 2007. The stream surveys reported above did not find any longnose darter. Populations are assumed to be stable.

Amphibians

OKLAHOMA SALAMANDER (REGIONAL FORESTER'S SENSITIVE)

No new data were collected for Oklahoma salamander on the Forests in 2006 or 2007. The known range of the Okalahoma salamander on the Forests is strictly within the Wedington Unit. Recent publications have questioned the validity of this species and some states like Missouri no longer recognize it as a valid taxon. This species is being protected during management activities by following state BMPs and standards in the Revised Forest Plan. Populations on the Wedington Unit are assumed to be stable.

Reptiles

AMERICAN ALLIGATOR (THREATENED)

AGFC records show an increase in American alligator populations in the state. The population has grown so much that the state had their first open hunting season for alligator in 2007. The population on the St. Francis is stable to growing.

Birds

INTERIOR LEAST TERN (*STERNA ANTILLARUM ATHALASSOS*) - ENDANGERED

This bird species builds nests mainly on riverine sandbars or salt flats that become exposed during periods of low water. Because of vegetational succession and/or erosion, preferred nesting habitat typically is ephemeral.

Although a widespread species, it is only found in Arkansas along the Mississippi River and Arkansas River systems where it nests on sandbars. This species is distributed over a relatively large area and on the Forests is found only on the St. Francis National Forest.

Breeding Bird Survey: Based on the data available, the interior least tern in Arkansas has shown an increase in the population trend since 1966 in the Breeding Bird Survey.

Management Implications

Because this bird species is found over a fairly large geographical area and habitat is very limited on the Forests to the St. Francis, there is little likely hood that any adverse impacts from management with the current forest-wide standards that protect riparian habitat as well as streamside zones.

The Forests will continue to survey for this species in suitable habitat and will document those occurrences and provide information to the USFWS as it becomes available.

BALD EAGLE (*HALIAEETUS LEUCOCEPHALUS*) – REGIONAL FORESTER'S SENSITIVE

The bald eagle is listed as a Regional Forester's sensitive species and is typically transitory in this area of Arkansas. There is one known active nest site on the Forests, but there are three other active nests that are within the boundary of the Forests but are on private tracts that are very close to forest service land. The AGFC and USFS check the nests annually. Wintering populations within the state have steadily increased to over 1,000 birds according to the annual eagle survey conducted by the AGFC in cooperation with the USFWS, U. S. Army Corps of Engineers, National Wildlife Federation (NWF), and USFS.

Several roost sites occur scattered over the Forests and are usually associated with lakes or rivers. Being shot by poachers is the most important recognizable threat to the bald eagle in Arkansas at this time, although there is concern of avian diseases with past die-offs occurring on Lake Ouachita and Lake DeGray.

Because the Forests will implement forest-wide standards for the protection of eagle nesting and communal roost sites as well as the protection of riparian areas, there is only a remote possibility that proposed management will adversely affect this species. There is, however, still the possibility that the species could be disturbed by noise or recreational use around lakes and streams on the Forests.

Management Implications
Because this bird species is found over a fairly large geographical area and numbers continue to increase rangewide, there is little likely hood that any adverse impacts from management with the current forest-wide standards that protect riparian habitat. The Forests will continue to monitor wintering populations as in the past and use adaptive management in areas where the eagles gather to roost.

The Forests will continue to survey for this species as well as many other bird species in suitable habitat and will document those occurrences and provide information to the AGFC as it becomes available.

BACHMAN'S SPARROW (*AIMOPHILA AESTIVALIS*) - REGIONAL FORESTER'S SENSITIVE

Historically, this species has been found in mature to old growth southern pine woodland that has been subjected to frequent growing-season fires. It is a fugitive species, breeding wherever fires created suitable conditions. This species requires a well-developed grass and herb layer with limited shrub and hardwood midstory components. Ideal habitat was originally the extensive longleaf pine woodlands of the south. It was able to colonize clearcuts and early seral stages of old field succession but such habitat remained suitable only for a short time.

In Arkansas, this species ranges across the southern half of the state up to the southern one-half of the Forests. This species historically has been found in Baxter, Conway, Franklin, Johnson, Logan, Newton Pope, and Van Buren

Counties in Arkansas. Good or ideal habitat is limited on the Forests to areas where timber management has taken place in the recent past.

Breeding Bird Survey: Based on the data available, the Bachman's sparrow in the Central U.S. has shown a decrease in the population trend since 1966 in the Breeding Bird Survey.

Management Implications
The Forests will continue to survey for this species in suitable habitat and will document those occurrences and provide information to the USFWS as it becomes available. Plan implementation should provide additional suitable habitat for this species on the Forests.

Bats

GRAY BAT (*MYOTIS GRISESCENS*) - ENDANGERED

The USFWS prepared a Recovery Plan for the bat (USFWS 1982) and it described the habitat components as:

> "…perhaps the most restricted to cave habitats of any U.S. mammal. With rare exception it roosts in caves year around. Most winter caves are deep and vertical; all provide large volume below the lowest entrance and act as cold air traps. In summer, maternity colonies prefer caves that act as warm air traps. Summer caves, especially those used by maternity colonies, are nearly always located within a kilometer (0.6 mi) of rivers or reservoirs (rarely more than 4 km [3 mi]). Except for brief periods of inclement weather in early spring and possibly late fall, adult gray bats feed almost exclusively over water along river or reservoir edges. Detailed observations over an east Tennessee reservoir indicated that most foraging was restricted to within 5 m (16 ft) of the water surface near shore, but gray bats in Missouri have been seen foraging in forest canopy along river edges in addition to low over-water. Newly volant young gray bats often feed and take shelter in forest surrounding cave entrances. Also, whenever possible, gray bats of all ages fly in the protection of forest canopy between caves and feeding areas."

Transient groups, consisting of male bats and non-breeding females roost in separate caves from the maternity colonies. Transient bats usually do not show strong ties with the caves that they utilize and may change roost locations.

Clark *et al.* (1993) studied foraging activity of the bats and found that edge habitat (between forest and open areas) was the preferred foraging habitat. They felt this was due to the habitat providing cover from predation (for the bats) and allowing for easier access to the prey species.

There are nine caves on the Forests that contain, or have been known to contain, gray bats.

Habitat Trend: Many of the habitat trends for gray bat are similar to those for Indiana bat. Although gray bats are not dependent on roost trees, timber management levels that are imposed to protect Indiana bats are likely to favor gray bats as well. Gray bats forage along or over streams, lakes and ponds. These areas are usually buffered from most Forest management activities and, therefore, are protected. Cave protection strategies for Indiana bat serve gray bats as well. As a result, habitat conditions for this species are relatively stable.

Population Trend: Based on the summary of surveys on eight known hibernacula it appears there has been a stable trend in the number of gray bats on the Forests (Figure 13). Surveys are conducted every other year, however, not all caves are always surveyed each year.

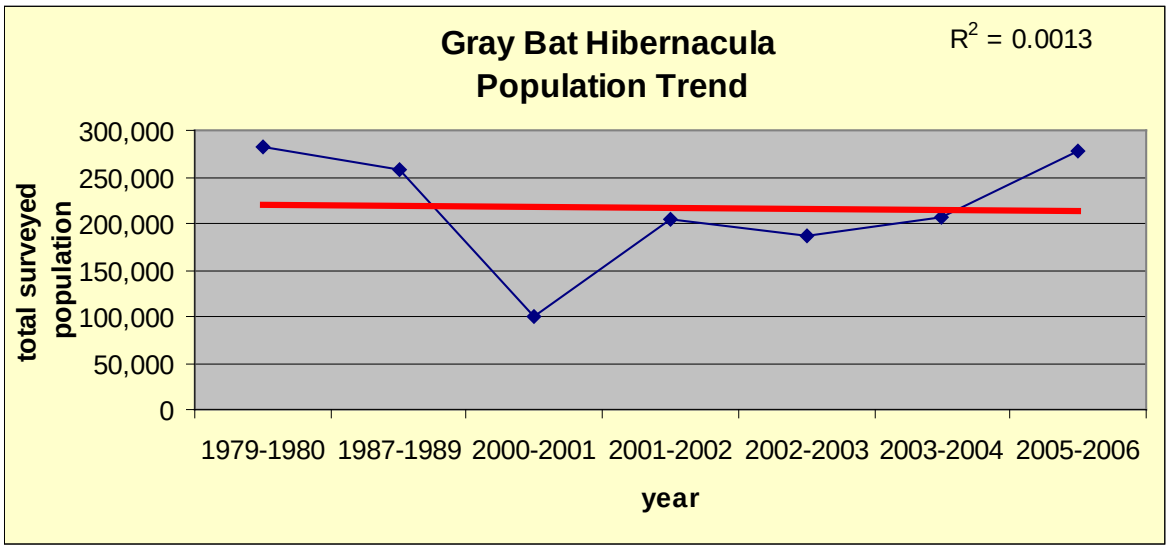

Figure 13: Population Trend for the Gray Bat Hibernacula on the OSFNFs.

The bats are extremely susceptible to vandalism and disturbance during hibernation, either by "waking" the bats causing them to use up there critical fat reserves needed to survive the winter or by direct killing. Another major threat to bats is improper cave gates and structures. The cave entrance is blocked to bats or causes a change in the airflow and temperature of the cave. The bats tend to congregate in large numbers in a few caves. This congregation of such a large proportion of the known population into so few caves constitutes the real threat to this species. Additional threats to this species are pesticides, either by bioaccumulation or by depleting their aquatic insect food source; deforestation of areas near the cave entrances and between caves and foraging areas; impoundments of waterways; and natural cave flooding.

Management Implications
The viability of the gray bat on the Forests appears as secure as can be expected for a federally-listed endangered species. The Forest's adherence to the identified direction in the Recovery Plan helps to avoid and/or minimize potential impacts. The stable or slightly increasing populations in most forest caves and increasing numbers of bats in caves just off the forest boundary suggest that the bat is likely to persist on and near the Forests for the foreseeable future.

Caves where this species occurs are to be protected on the Forests. Riparian vegetative conditions will be maintained based on standards associated with the Management Area 3.I. Insect populations (especially mayflies and other aquatic insects) will continue to be maintained so foraging will not be affected.

The Forests will continue to survey for and monitor populations of this species in suitable habitat and will document those occurrences and provide information to the USFWS as it becomes available.

INDIANA MYOTIS (*MYOTIS SODALIST*) - ENDANGERED

The Indiana bat was listed as endangered under provisions of the Endangered Species Act (ESA) on March 11, 1967. The USFWS developed a Recovery Plan dated October 14, 1983. This range-wide recovery plan outlines distributional and life history information along with management recommendations and recovery objectives. In April 2007, the Indiana Bat Recovery Team released a Technical Draft Indiana Bat Recovery Plan, with a final revised plan due any time.

The Indiana bat currently ranges from several Midwestern states to the mid-Appalachians. It formerly extended north to the New England states of New York, Vermont, and Massachusetts. Its greatest population concentration occurs in Indiana, Kentucky, and Missouri. In Arkansas, approximately 2,200 Indiana bats are found in 10 caves scattered over the north and western part of the state. This species has been recorded in Franklin, Izard, Newton, Stone, and Washington Counties in Arkansas. The USFWS identify no critical habitat in Arkansas.

Less than one percent of the caves and mines within the range of the species offer suitable hibernating conditions. Indiana bats hibernate in characteristically dense clusters in particular sections of certain caves and usually return annually to the same places in the same caves. They emerge in late March to early April and disperse to summer habitat.

Available information on summer habitats suggest they disperse to roost, forage, and bear young in riparian as well as upland sites. It is likely that female Indiana bats from Arkansas hibernacula migrate northward to maternity roost sites located to the north of the Ozark Mountains.

On the Forests, eight known caves serve, or have served historically, as hibernacula for Indiana bats. The entire Ozark National Forest provides potential suitable habitat.

Habitat Trend: Habitat within the secondary zone around Indiana bat hibernacula is important as this is the core area where they forage and roost during much of the year during warmer months.

Population Trend: Indiana bat population trend range-wide are shown in Figure 14. Most of the increase seen in the species populations has come in the core of its home range (Indiana, Illinois, and Missouri).

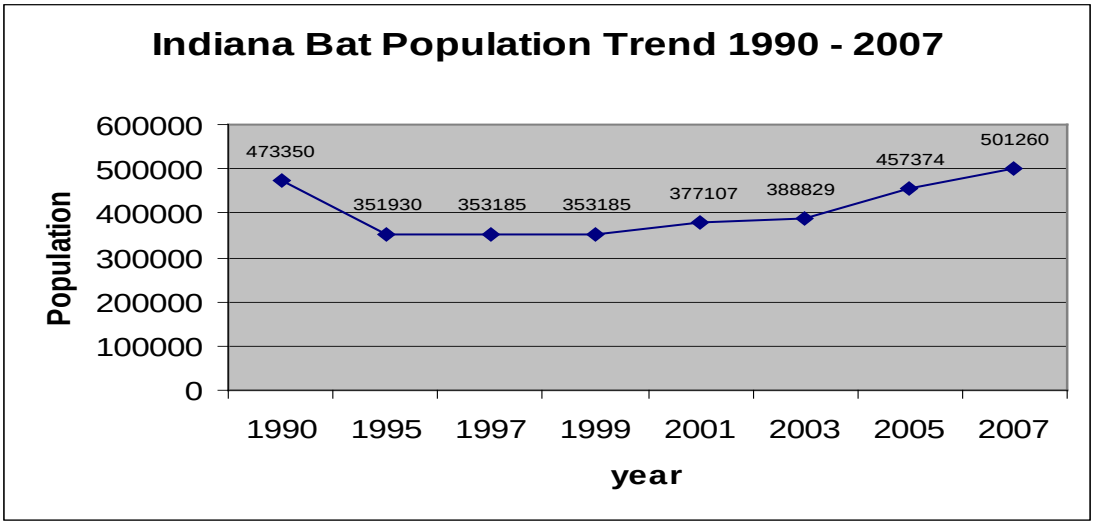

Figure 14: Population Trend of the Indiana Bat on the Ozark-St. Francis NFs from 1990 – 2007.

Based on the summary of surveys on eight known hibernacula, it appears there has been a stable to slightly declining trend in the number of Indiana bats on the Forest (Figure 15). Surveys are conducted every other year, however, not all caves are always surveyed each year.

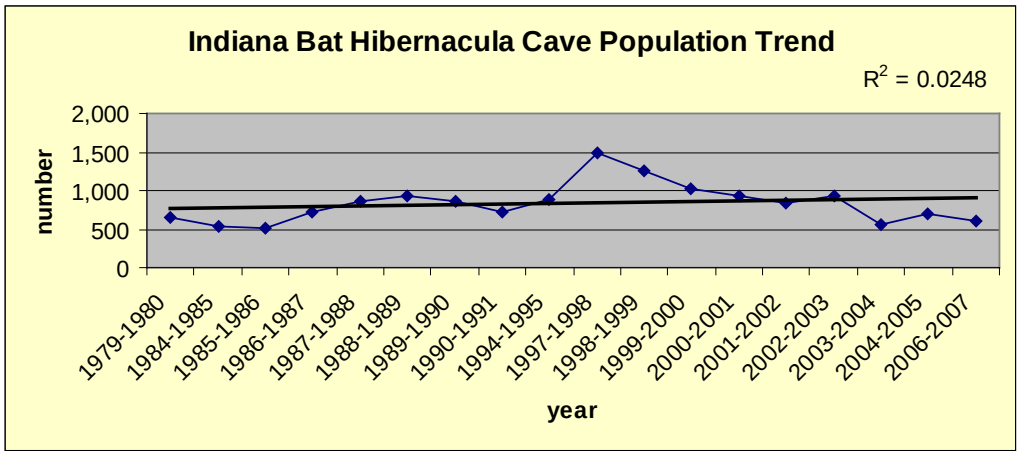

Figure 15: Indiana Bat Trends on Ozark St. Francis NF 1978-2007.

Management Implications

Under full implementation of the RLRMP, the Forests will maintain an abundant supply of snags, live potential roost trees, upland water sources, and other habitat features across the landscape to allow for the maintenance and to promote the recovery of Indiana bat populations.

The Forests will continue to survey for and monitor populations of this species in suitable habitat and will document those occurrences and provide information to the USFWS as it becomes available.

OZARK BIG-EARED BAT (*CORYNORHINUS TOWNSENDII INGENS*) - ENDANGERED

The Ozark big-eared bat is generally associated with caves, cliffs, and rock ledges in well-drained, oak-hickory forests. Maternity caves and hibernacula occur in a number of different surroundings ranging from large continuous blocks of forest to smaller forest tracts interspersed with open areas. Clark (1993) found that adult female Ozark big-eared bats from maternity colonies preferred to forage along woodland edges. By foraging along woodland edges, the bat benefits from a less cluttered environment with cover nearby and prey densities high.

The Ozark big-eared bat is now found in western and north central Arkansas as well as eastern Oklahoma. The total population of this species is estimated to be from 1,300 to 2,000 individuals with most found in Oklahoma. Only six caves in Arkansas are presently known to be regularly inhabited by colonies of Ozark big-eared bats: a hibernation cave and two nearby maternity caves in north central Arkansas, and a hibernation cave and two maternity caves and in the northwestern part of the state. Based on summer estimates, the Arkansas population is approximately 550 individuals (AGFC Annual Report 2002-2003). This species has been reported from the Boston Mountain Ranger District in several locations and potentially may be found on other districts as well. It is found in Crawford, Franklin, Marion, and Washington Counties in Arkansas.

Population Trend: Looking at the trend of Ozark big-eared bat population, there is a slight increase at maternity sites. The trend of one known maternity site on the Forests is shown in Figure 16.

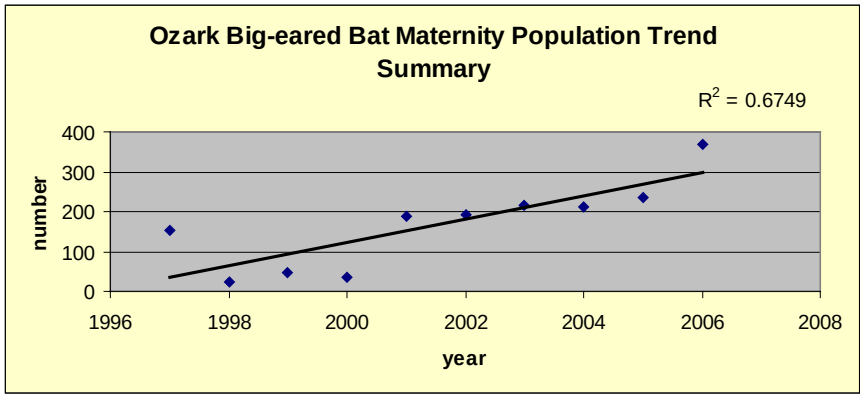

Figure 16: Summary of the Ozark-Big-Eared Bat Maternity Population Trend on the Ozark-St. Francis NFs.

Based on the summary of surveys on three known hibernacula, there appears to be a slight reduction in trend in the number of Ozark big-eared bats on the Forests (Figure 17) but as stated above, there is a slight increase in bats at maternity sites. Surveys are conducted every third year, however, not all caves are always surveyed each year.

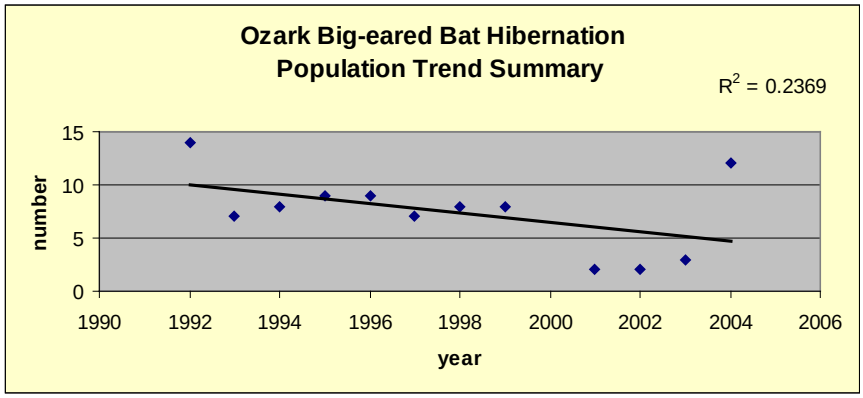

Figure 17: Summary of the Ozark-Big-Eared Bat Hibernation Population Trend on the Ozark-St. Francis NFs.

Management Implications

Full implementation of the RLRMP will continue to protect unique bat habitats this species uses and, when necessary, gates or other exclusion devices will be used to protect bat habitat.

The Forests will continue to survey for and monitor populations of this species in suitable habitat and will document those occurrences and provide information to the USFWS as it becomes available.

EASTERN SMALL-FOOTED BAT (*MYOTIS LEIBII*) - REGIONAL FORESTER'S SENSITIVE

Affected Environment

This species ranges from eastern Canada, south to Georgia, and west to Oklahoma. Hibernating in caves or mines, they are the "hardiest" of U.S. cave bats. In Arkansas, it is known in small numbers from only a few caves in the Ozarks. It has been in Newton and Stone Counties, and more recently during surveys conducted in Franklin County. They are one of the last to enter caves in autumn and often hibernate near cave or mine entrances where temperatures drop below freezing and where humidity is relatively low.

This bat species is occasionally found on the Forests during mist net surveys and records documenting there presence made. This species is rarely captured but occasionally, many can be caught in a single spot.

Management Implications

Under full implementation of the RLRMP, the Forests will maintain an abundant supply of snags, live potential roost trees, upland water sources, and other habitat features across the landscape to allow for the maintenance and to promote the recovery of Indiana bat populations.

The Forests will continue to survey for and monitor populations of this species in suitable habitat and will document those occurrences and provide information to the USFWS as it becomes available.

Over time as human populations increase on both public and private lands, negative impacts to this species and its habitat are likely to occur. Implementation of forest-wide standards will help to reduce these negative impacts on this species.

TES Species with Potential/Not Occurring on Forest

Table 11 lists TES species that have the potential to occur on the Forests but have not been found. Surveys are currently being done for these species. If they are found on the Forests, they will be added to future monitoring reports.

Table 11: TES Species with Potential to Occur but not Currently on Ozark-St. Francis NFs.

TES Species with Potential to Occur but are not Currently Found on the Ozark-St. Francis National Forests		
Scientific Name	**Common Name**	**Status**
Lesquerella filiformis	Missouri Bladderpod	Threatened
Lindera mellissifolia	Pondberry	Endangered
Geocarpon minimum	Geocarpon	Threatened
Potamilus capax	Fat Pocketbook	Threatened
Lampsilis abrupta	Pink Mucket	Endangered
Leptodea leptodon	Scaleshell Mussel	Endangered
Lampsilis streckeri	Speckled Pocketbook Mussel	Endangered
Cambarus aculabrum	Cave Crayfish	Endangered
Cambarus zophonastes	Hell Creek Cave Crayfish	Endangered
Amblyopsis rosae	Ozark Cavefish	Threatened
Campephilus principalus	Ivory-billed Woodpecker	Endangered
Typhlichthys subterraneus	Southern cavefish	Sensitive
Orconectes williamsi	William's crayfish	Sensitive
Draba aprica	Open-ground draba	Sensitive
Solidago ouachitensis	Ouachita Mountain goldenrod	Sensitive
Valerianella nuttallii	Nuttall's cornsalad	Sensitive

Fishing Communities, Streams, and Lakes

An aquatic habitat and water quality inventory and monitoring plan was completed and signed by the Forest Supervisor in January of 2006. Lake management plans were completed for Storm Creek Lake and Bear Creek Lake on the St. Francis NF in April of 2007. Lake management plans are planned to be completed for all lakes and ponds greater than 2 acres over the next 10 years on both Forests.

The Forests completed 493 acres of lake habitat improvement in 2006 and 527 acres in 2007. This consisted of the following types of projects: spawning bed development, fertilization, liming (Figure 18), road closures causing sedimentation in the lake, structural additions (cedar trees, Christmas trees, tree hinging along the shore, etc.), and addition of bait fish to the food biomass for predators like largemouth bass.

Figure 18: Liming of Cove Lake in 2007.

The Forest Plan also stated that looking at fish communities in streams would be a way of monitoring the conditions of streams on the Forests. This method is to include working with other agencies to develop Index of Biotic Integrity (IBI) for looking at the overall health of each aquatic system in a particular eco-region. An IBI is a numerical measure of the biological completeness of a system. An IBI allows for easy comparison between communities and systems, because it gives each stream a numerical score.

The Arkansas Department of Environmental Quality (ADEQ) had already developed IBIs for all the eco-regions in Arkansas for their analysis of water quality

in the state and they have shared their IBIs with the Forest (Jim Wise, personnel communication). The IBIs developed by the ADEQ were classified by the eco-region in which the stream exists. The Table 12 shows the list of metrics used in the IBIs developed by the ADEQ by eco-region.

Table 12: Individual metrics used in the IBIs developed by the Arkansas Department of Environmental Quality for eco-regions in Arkansas that contain Ozark-St. Francis NF lands. The X shows which metrics were used for each eco-region.

Metric	Arkansas Eco-Regions			
	Arkansas River Valley	Boston Mountain	Ozark Highlands	Delta Least Disturbed Streams
% Sensitive Species	X	X	X	X
% Minnow Species	X	X	X	X
% Catfish Species	X	X	X	X
% Sunfish Species	X	X	X	X
% Darter Species	X	X	X	X
% Primary Feeders (algae eaters)	X	X	X	X
% Key Individuals in each eco-region	X	X	X	X
Diversity (using Shannon-Weiner Diversity Index)	X	X	X	X
Number of species			X	

For each metric in an IBI, the stream is given a score of 0-5 based on the value of the metric. The scores for each of the metrics are then summed to give a total score for each stream. The final score is then compared to a range of scores from streams that were sampled in that particular eco-region in the past to determine the overall quality of that stream. Table 13 gives the fish species composition of streams sampled in the summers of 2006 and 2007 as well as the IBI scores and ratings for each stream. The IBI score and rating for each stream are based on the IBIs developed by Arkansas Department of Environmental Quality (ADEQ). Streams that rated out in the poor and fair category are either on small streams or ones with large amounts of private and USFS mixed ownership. In 2008, streams surveys will be completed on the Middle Fork Illinois Bayou Watershed – Big Piney Ranger District, Horsehead Creek Watershed – Pleasant Hill Ranger District, and the St. Francis National Forest.

Table 13: Fish Species Composition of Streams Sampled in the Summers of 2006 and 2007 with IBI Scores and Ratings for Each Stream.

District	Watershed	Stream	IBI Score	IBI Rating
Big Piney	Richland Creek	Richland Creek	24	Good
		Falling Water Creek	14	Fair
		Bobtail Creek	8	Poor
	South Fork of the Little Red River	SF Little Red River	28	Excellent
		Brushy Fork	24	Good
		West Prong of Brush Fork	12	Fair
Pleasant Hill	Upper Mulberry River	Lewis Prong	18	Good
		Panther Creek	16	Fair
		Turner Hollow	12	Fair
		Bear Branch	18	Good
		Washita Creek	8	Poor
Sylamore	Whiter River/Livingston Creek	Tributary of West Livingston Creek	18	Fair
		Tributary of East Livingston Creek	24	Fair
		Tributary of West Livingston Creek (spring)	13	Fair
		Bearhead Branch	16	Fair
		Coldwater Creek	28	Good
		Farris Creek	22	Fair
		Goose Creek	13	Fair
		East Livingston Creek	37	Excellent
		Livingston Creek	33	Good
		Perry Creek	39	Excellent
		Sneeds Creek	23	Fair
		Sugarloaf Creek	11	Poor
		Sycamore Creek	27	Good
		Twin Creek	16	Fair
		Walker Creek	25	Good

Table 13 (Continued): Fish Species Composition of Streams Sampled in the Summer of 2006 and 2007 with IBI Scores and Ratings for Each Stream.

District	Watershed	Stream	IBI Score	IBI Rating
Boston Mountain	Lee Creek	Falls Creek	20	Good
		Lee Creek	24	Good
		Mountain Fork	26	Excellent
		West Cedar Creek	8	Poor
		Whitzen Hollow	16	Fair
		Buckhorn Creek	14	Fair
		Range Hollow	8	Poor
Mt. Magazine	Short Mountain Creek/ Reville Creek	Lower Cove Creek	6	Poor
		Upper Cove Creek	14	Fair
		Gum Creek	4	Poor
		Gutter Rock Creek	10	Fair
		Reville Creek	6	Poor
		Short Mountain Creek	16	Fair
		South Wicked Creek	12	Fair

Proportional Stock Density (PSD) and Relative Stock Density (RSD) are a measure of the balance of multiple size classes within a population. PSD are the number of quality length fish (>300 mm) versus the number of stock length fish (>200 mm) multiplied times 100 and RSD is the number of preferred length fish (>380 mm) versus the number of stock length fish (>200mm) multiplied times 100. The PSD for largemouth bass should range from 40 – 70 whereas RSD should range from 10 – 40 (Murphy and Willis, 1996).

Figures 19-27 show the PSD and RSD values for all lakes on the Forests where sampling was done from 2005 to 2007.

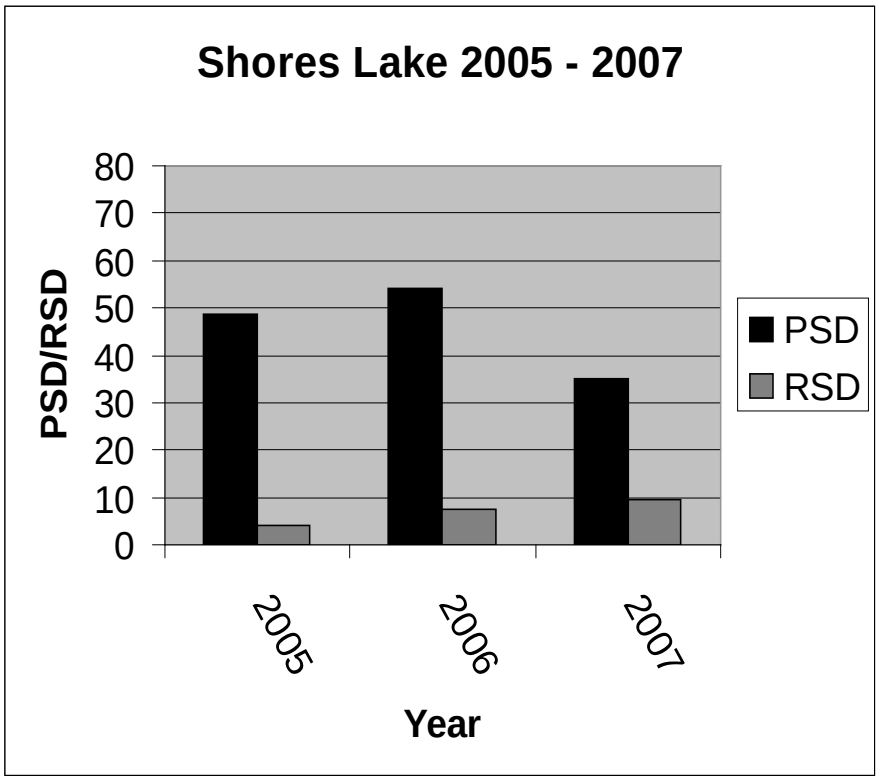

Figure 19: PSD and RSD values for Shores Lake.

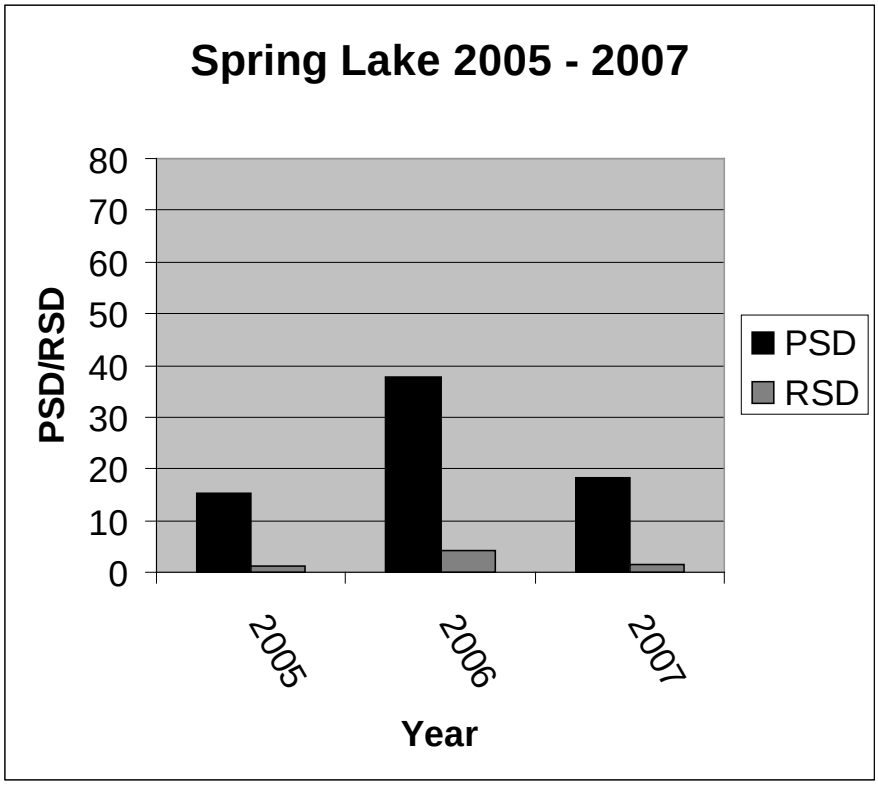

Figure 20: PSD and RSD values for Spring Lake.

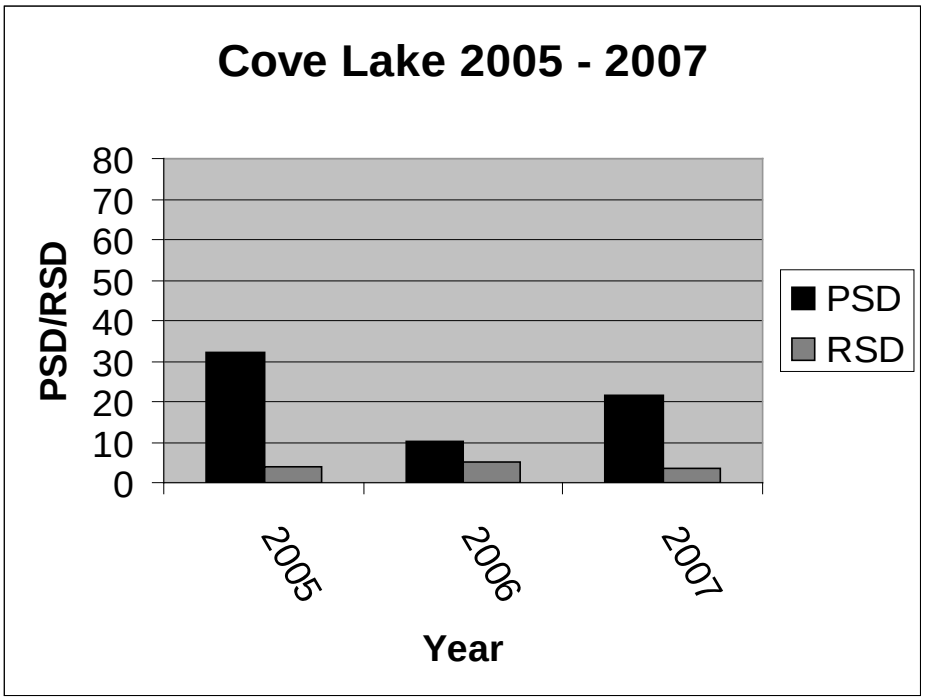

Figure 21: PSD and RSD values for Cove Lake.

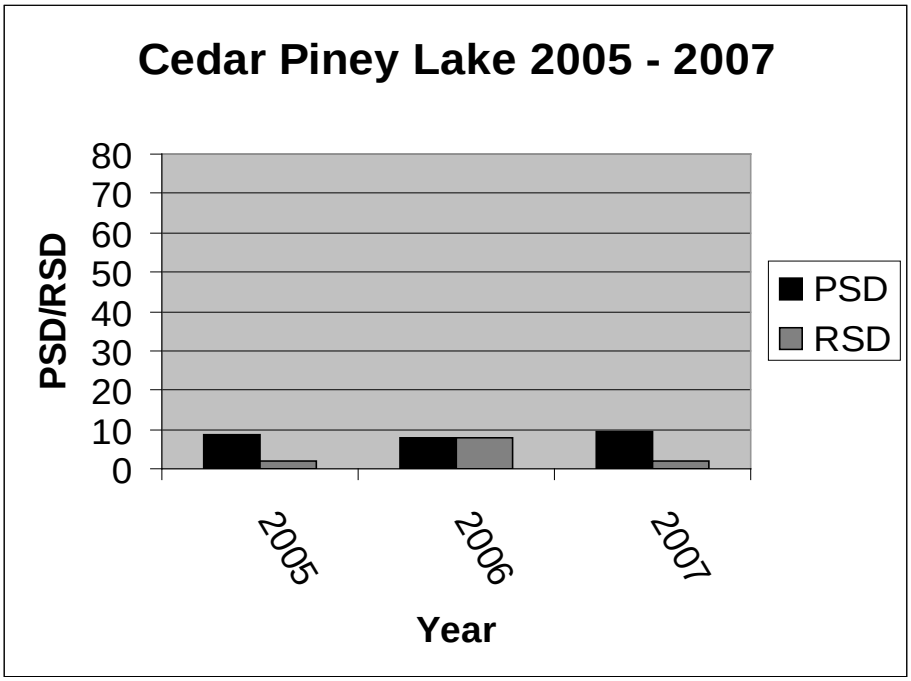

Figure 22: PSD and RSD values for Cedar Piney Lake.

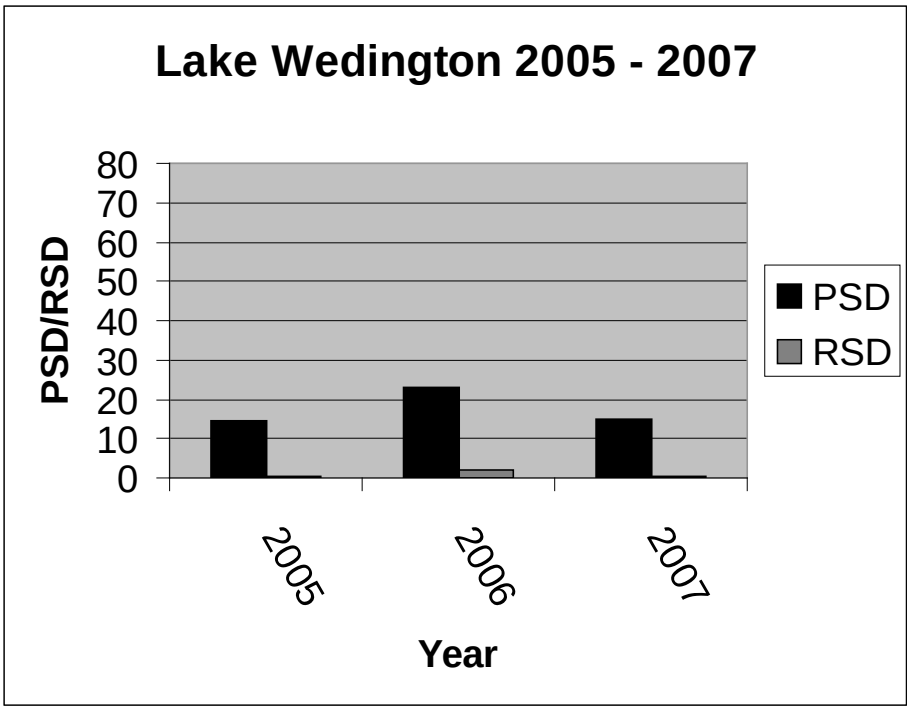

Figure 23: PSD and RSD values for Lake Wedington.

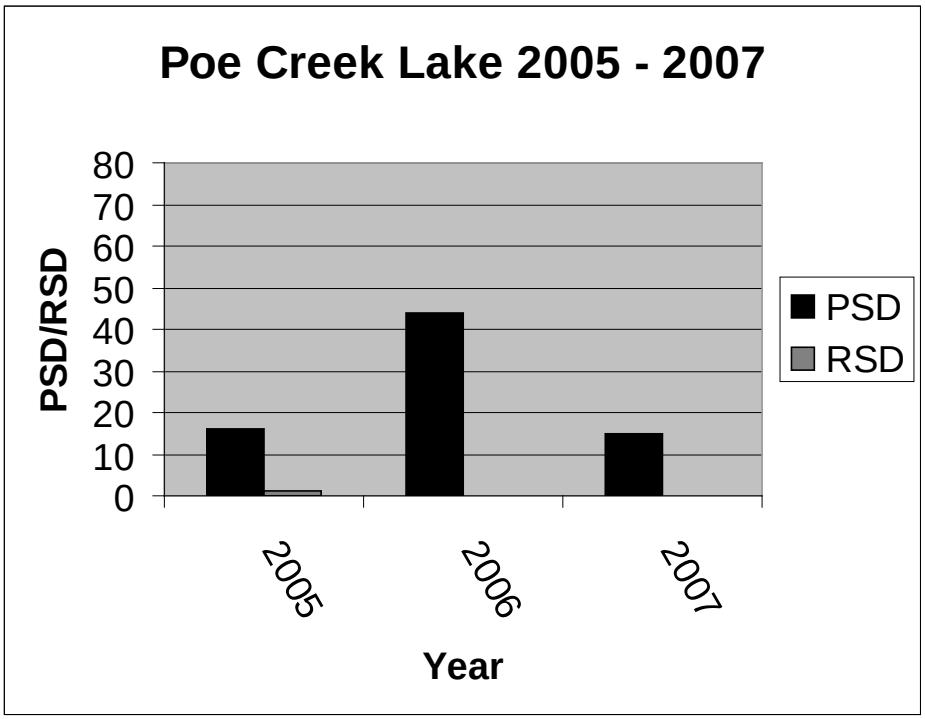

Figure 24: PSD and RSD values for Poe Creek Lake.

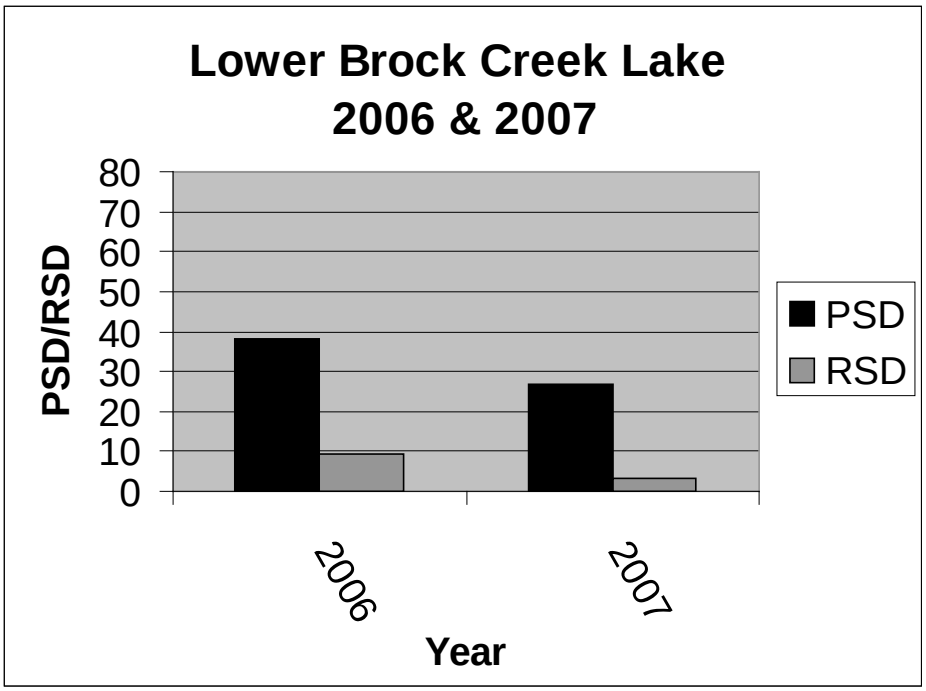

Figure 25: PSD and RSD values for Lower Brock Creek Lake.

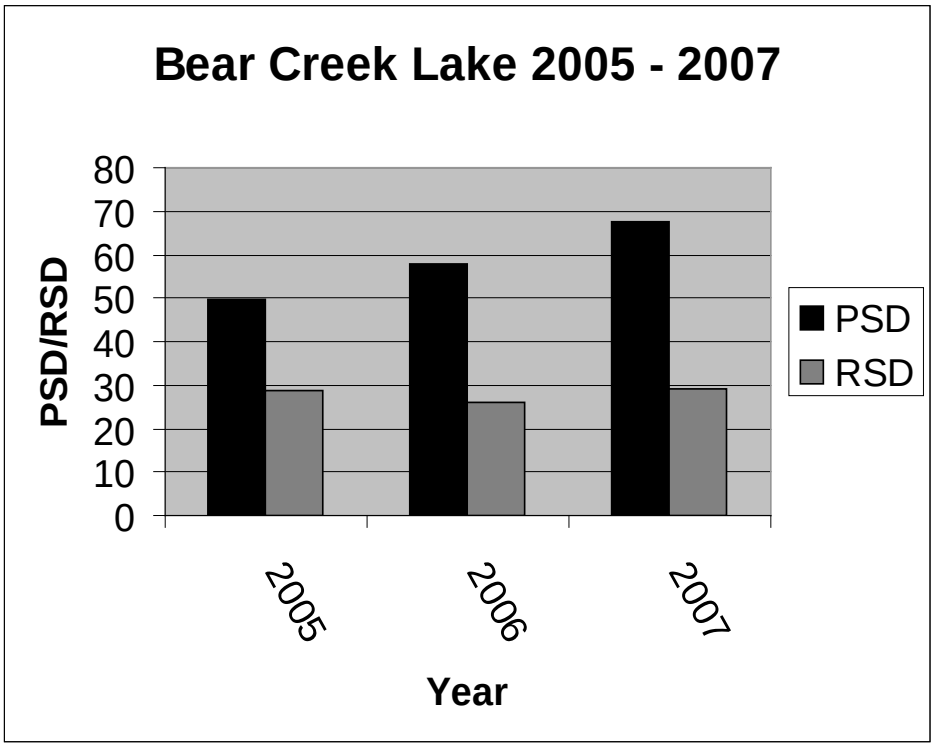

Figure 26: PSD and RSD values for Bear Creek Lake.

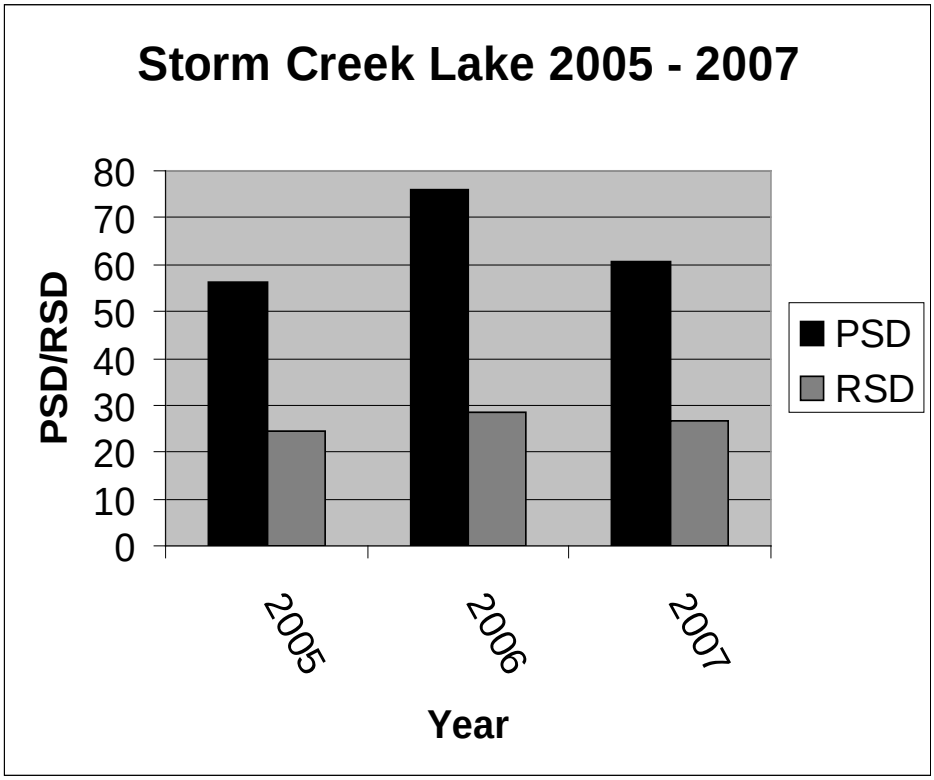

Figure 27: PSD and RSD values for Storm Creek Lake.

SOIL, WATER, AND AIR

In fiscal year 2006, the Forests accomplished 34 acres of watershed improvement, which consisted of cane restoration in a riparian area, stream bank stabilization, gully stabilization, and stream cleanup.

In fiscal year 2007, the Forests accomplished 139 acres of watershed improvement, which consisted of improving riparian area condition by closing illegal stream crossings and trails, erosion control and decommissioning of illegal trails, seeding grass and planting trees on eroding areas, gully stabilization, and stream bank restoration.

The RLRMP provided three objectives for improved stream conditions on the OSFNFs:

- OBJ. 21 - Maintain or restore between 30 to 70 percent of the total perennial stream/river surface area if the National Hydrography Dataset (NHD) reaches as pool habitat in the first decade.
- OBJ. 22 - Maintain or restore large woody debris (LWD) levels in perennial streams/rivers at 75 to 200 pieces/mile for all LWD larger than 3.3 feet long and 3.9 inches in diameter in the first decade.

- OBJ. 23 - Maintain or restore LWD levels in perennial streams/rivers at 8 to 20 pieces/mile for all LWD larger than 16.4 feet long and 19.7 inches in diameter in the first decade.

Table 14 gives results of streams surveys conducted in 2006 and 2007 on the Forests for each of these objectives and the miles of streams where LWD was added to improve pool habitat conditions and LWD levels in the stream. Figure 28 shows a site of LWD additions on the Sylamore Ranger District.

Table 14: Stream miles surveyed during the summers of 2006 and 2007, amounts of pool habitat and LWD levels found during the surveys, and miles of stream were LWD was added in 2006 and 2007.

Year	Miles of stream habitat inventoried	Miles meeting 30 – 70% Pool Habitat: Obj. 21	Miles meeting LWD 75 – 200 pieces larger 3.3 feet long and 3.9 inches in diameter: Obj. 22	Miles meeting LWD 8 – 20 pieces larger 16.4 feet long and 19.7 inches in diameter: Obj. 23	Miles of stream where LWD was added to meet Obj. 22 and Obj. 23
2006	76	35 (46%)	0 (0%)	0 (0%)	0
2007	72	47 (65%)	10 (14%)	0 (0%)	10

Figure 28: Site of Large Woody Debris additions on the North Sylamore Creek near Barkshed Campground on the Sylamore Ranger District.

One of the other main focus areas of the RLRMP was the improvement of native cane breaks within riparian areas on the Forests. Native cane breaks are a rare community on the Forests where they provide bank stabilization and flood control as well as an important niche habitat for certain wildlife species.

In fiscal year 2006, the Forests accomplished six acres of cane restoration, which consisted of expanding the area covered by cane in a riparian area that was converted to pasture. In fiscal year 2007, the Forests accomplished eight acres of cane restoration, which consisted of increasing the stem density in previously planted areas and expanding the size of the area in cane.

Another main focus of the RLRMP was on improving road/stream crossings to improve fish/aquatic organism passage. Funding was used in 2005 and 2007 to complete inventories on the Forests to determine locations where problems existed. Table 15 supplies information about road crossing that were inventoried and found to be barriers to aquatic organism migration. Funding in 2006 and 2007 was used to do National Environmental Protection Act (NEPA) analysis and design work on several projects on the Forests. The Forests are expecting to complete two projects in 2008 to remove road crossing that are barriers to fish migration and replace them with structures that will allow for passage for aquatic organisms throughout the year. An example is shown in Figure 29. The RLRMP Objective 54 called for replacing at least 6 crossings a year. The Forests did not

meet that objective in 2006 and 2007 but they did acquire the data that can make it possible to meet that objective in future years.

Table 15: Road crossings inventoried from 2005 to 2006 and found to be barriers to aquatic organism migration.

Year	Road/Stream Crossings Inventoried	Road/Stream Crossings Inventoried - Impassible	Fish Passage Projects Completed on the Forest
2005	35	27 (77%)	-
2006	-	-	0
2007	84	53 (62%)	0

Figure 29: A Road Crossing Surveyed on the Mt. Magazine Ranger District in the Summer of 2007.

AIR RESOURCES

The RLRMP requires the Forests to conduct all of our management activities in a manner that does not result in (1) a significant contribution to a violation of the National Ambient Air Quality Standards (NAAQS) or (2) a violation of applicable provisions in the State Implementation Plan (SIP).

The Clean Air Act (CAA) sets the standards for the air quality in the United States. The two sections of the CAA particularly important to Forest Service management are the National Ambient Air Quality Standards (NAAQS) and Prevention of Significant Deterioration (PSD). The NAAQS set the air quality standards for six criteria pollutants with which the entire country must comply. Primary NAAQS are set based on human health criteria. If the standards are not met for any criteria pollutant, the area is designated as non-attainment for the pollutant. None of the Forests is in a non-attainment area for any of the criteria pollutants.

The PDS Amendment of the CAA designated specific wildernesses and national parks as Class 1 Areas. The OSFNFs manage one Class 1 Area, the Upper Buffalo Wilderness. The purpose of the PSD provision of the CAA is to preserve, protect, and enhance the air quality in national parks and national wildernesses.

The PSD regulations charge the federal land manager with the "affirmative responsibility to protect the air quality related values (including visibility) of any such lands," and to consider "whether a proposed source or modification would have an adverse impact on such values" (40 CFR 51.166 [p][2]). The OSFNFs work with the Arkansas Department of Environmental Quality (ADEQ) to determine if a new industry or a modification of an existing industry will impact air quality in the Upper Buffalo Wilderness Class 1 Area. Table 16 shows the PDS permits reviewed by the OSFNFs during the last three fiscal years. The findings were reported to ADEQ. Of the PSD permits that have been completed, there were no impacts to visibility in Class I areas. Of the PSD permits that have been reviewed and are still going through the process, there may be some impacts to visibility.

Table 16: Prevention of Significant Deterioration Permits Reviewed by OSFNFs.

Prevention of Significant Deterioration Permits Reviewed by the Ozark-St. Francis National Forests	
Fiscal Year	**Number of Permits**
2006	4
2007	4
2008	3

LANDS AND SPECIAL USE PERMITS

Table 17 shows the Lands and Special Use items are tracked. The amount of work accomplished is dependent upon funding for that item each year.

Table 17: The Lands and Special Use Items that are Tracked.

Lands and Special Use Items Tracked	2006	2007
Land for Land Exchange- acres acquired & (conveyed)	40 (40)	572 (556.23)
Tripartite Exchange-acres acquired	80	
LWCF Purchase-acres acquired	80	19.7
Small Tracts Act, Title Claims- acres acquired & (conveyed)	0.0 (1.19)	0
Administrative Site Conveyance-cases (acres)	0	1 (0.51)
Change in Public/Private land interface- +/-mile line	-3.3	-5.25
Corners maintained **	25	240
Corners set **	11	65
Miles of landlines maintained	11.8	26.28
Miles of landlines established	4.8	68.05
Trespass cured	12	16
Special Use Permits Administered to Standard (recreation)	78	89
Special Use Permits Administered to Standard (lands)	419	524
Rights-of-Way Secured (Donation or Purchase)	3	1
Rights-of-Way Secured (Land Adjustment)	1	3

The line item labeled Small Tracts and Title Claims was a Public Law 78-120 title claim. The private claim was for an old cemetery that had been acquired by the United States “through mistake, misunderstanding, error, or inadvertence.”

Recommendation

It is recommended that the Forests drop the Corners Maintained and the Corners Set from this (future) M&E Report for the following reasons: The important unit of measure is miles of boundary marked/maintained on the ground and not the number of corner monuments (which can range from two per mile for a public land survey to one per hundred feet for a metes and bounds survey).

MINERALS (NATURAL GAS)

Minerals activity is dependent upon market values for gas and estimated potential to drill producing wells. Table 18 shows the activity on the Forests for 2006 and 2007. Activity on the Forests appears to be increasing.

Table 18: Activity on the Ozark-St. Francis NFs in 2006 and 2007.

ITEM	2006	2007
Acres on Title Report (Leasing)	238,000	87,000
Notices of Intent (Seismic)	1	3
Notices of Staking (onsite completed)*	6	13
Applications for Permits to Drill (APDs) approved	0	8
Producing wells administered to standard	51	57

Mitigation standards applied as projects are proposed include implementation of standards from The Gold Book, AR State Best Management Practices, and the Arkansas Best Management Practices for Fayetteville Shale Natural Gas Actives. These are applied to 100% of the locations proposed.

Reviews completed included WO/RO Minerals review and the WO/RO water review as it may relate to minerals activity.

Recommendation
It is recommend that we drop the NOS (onsite completed) from this (future) M&E Report for the following reasons: This item has no bearing on actual proposals (APDs) received and, therefore, does not really show the natural gas workload that is being accomplished.

FACILITIES

Accessibility Backlog - There is no accessibility backlog database. No major projects were accomplished in 2006. A new accessibility compliant district office for the Sylamore RD was built in Mountain View in 2007.

Recommendation
It is recommended that this monitoring be dropped from this (future) M&E Report for the following reasons: It is standard procedure to build accessibility into new construction projects and to include accessibility in facility restoration projects.

Health and Safety - There is no health and safety database. There is a culture of safety that is nurtured within the Forest Service. Health and safety considerations are built into all projects and jobs performed on National Forest lands. For example, projects that address health and safety concerns are top priority to be funded each year.

Recommendation
It is recommended that the Forests continue to nurture safe procedures. All projects and jobs should consider safety of the workforce and the public. Having Health and Safety as a separate monitoring item should not be necessary.

Energy efficient upgrades - There is no energy efficient upgrades database. All new construction projects that require heating and cooling will be made considering energy efficiency. Any renovations will also consider energy efficiency.

Recommendation
It is recommended that this item be dropped from this (future) M&E Report for the following reasons: Since energy efficiency is considered on all projects, it is recommended that monitoring of this item would be meaningless.

Upgraded fire facilities - There is no fire facilities database. In 2006, the Fayetteville Tanker Base was completed. No facilities were constructed in 2007.

Recommendation
It is recommended that this item be dropped from this (future) M&E Report for the following reasons: Fire facilities are not an item being tracked by the Forest Service at the WO/RO level for funding and accomplishment purposes.

TRANSPORTATION AND PUBLIC ACCESS ROAD CHANGES

Road Additions - In 2006 there were 1.41 miles of new roads constructed. In 2007 there were 2.7 miles of new construction and 44.4 miles of existing roads added to the roads database.

Road Subtractions - In 2006, a roads adjustment (analysis) subtracted 10.7 miles from the Forests' system roads. There were no subtractions in 2007.

Roads Closed - This item monitors additions or subtractions to Level 1 roads (closed roads). This is tracked in the infra database and may not totally reflect ground conditions. In 2006, there was an increase of about 34 miles in Level 1 roads. In 2007, there was a decrease of approximately 54 miles in Level 1 roads.

Obliteration or decommissioned - In 2006, there were 3.19 miles of roads obliterated or decommissioned. In 2007, no roads were obliterated or decommissioned.

OFF-HIGHWAY VEHICLES (OHV)

In 2006, the Forests worked with the public to designate new OHV routes on the Forests. The result of this collaboration was an OHV system map (Back Country Guide) scheduled for completion in 2007. Table 19 lists the OHV trails that were in place on the Ozark National Forest in 2006:

Table 19: 2006 OHV Trails on the Ozark National Forest.

2006 OHV Trails on the Ozark National Forest			
District	**Trail**	**Miles**	**Description**
Big Piney	Moccasin Gap Horse Trail	28	Multiple Use
	Brock Creek OHV Trail	42	Dual Track and Single Track
Boston Mountain	Mill Creek Trail	42	27 – Main Trail 15 – Interior Loops
Mt. Magazine	Huckleberry Mountain Horse Trail	40	Multiple Use

In 2007, the Back Country Guide was published. This guide showed designated OHV routes. It included almost 900 miles of designated routes on roads and an additional 211 miles of designated OHV trails for an approximate total of 1100 miles.

This initial OHV Trail System will be used as a baseline and analyzed periodically to officially add or subtract OHV routes.

RECREATION AND VISUAL MANAGEMENT

SCENIC BYWAY

Plans Completed – No plans were completed in 2006 or 2007. The Highway 103 portion of the Mulberry River Road Scenic Byway was completed in draft (Pleasant Hill RD) in 2007.

Byway Areas Monitored – West one-half of Pig Trail Scenic Byway (Boston Mt. RD); Review of Mt. Magazine Scenic Byway regarding gas development, pipelines, utility corridors and recreational events (Mt. Magazine RD) and Pig Trail – east side, Ozark Highlands, Mulberry River Road and the Highway 21 Scenic Byway (Pleasant Hill RD).

Recommendation – Complete Mulberry River Scenic Byway Plan.

WILD AND SCENIC RIVERS

Plans Revised – No plans were revised in 2006 or 2007.

Change in Outstandingly Remarkable Values – There was no change in values in 2006 or 2007.

Wild Section Use Trend Change – Trend changes were not detectable in 2006 or 2007.

Visitor Satisfaction – Visitor satisfaction data was not collected in 2006 or 2007.
Recommendations – Schedule Wild and Scenic River Plan revisions. Drop visitor satisfaction as a measure due to difficulties in obtaining this type of information.

WILDERNESS AREAS

Non-native Invasive Species Inventoried –The Sylamore RD completed an inventory of Leatherwood Wilderness in 2006. In 2007, NNIS inventories were completed on Hurricane Creek, Richland Creek, Upper Buffalo, and East Fork Wilderness (Big Piney RD).

Non-native Invasive Species Treated – No NNIS treatments were done in 2006 or 2007.

Old Roads Reverting Back to Natural – Most roads are reverting except where hikers and horseback rider use is preventing vegetation growth (Big Piney). Old roads are primary routes for horse traffic in Leatherwood Wilderness and get substantial traffic.

Resource Damage Monitored Using Limits of Acceptable Change – None.

Recommendations – Monitor mapped NNIS occurrences and prioritize treatment needs.

OZARK HIGHLANDS TRAIL (OHT)

Miles of Trail Maintenance – In 2006, 26.6 miles of OHT were maintained on Boston Mountain RD; 16.7 miles were maintained on the Sylamore RD; 68.4 miles on the Pleasant Hill RD; and 57.1 miles on the Big Piney RD.

In 2007, 26.6 miles of OHT were maintained on Boston Mountain RD, 15.6 miles were maintained on the Sylamore RD; 68.4 miles on the Pleasant Hill RD; and 57.1 miles on the Big Piney RD.

Trail Maintenance Trends – Significant downed trees across trail from Red Oak Decline and increased brush growth due to increased sunlight reaching the ground (Boston Mt. RD); Difficult to find volunteers to help with maintenance (Sylamore RD) and increased fallen trees across trail due to Red Oak Decline (Pleasant Hill RD).

EXPERIMENTAL FORESTS

Research Projects Developed – No projects were developed in 2006 or 2007.

Data Collected or Analyzed – None.

SPECIAL INTEREST AREAS

Management Plans Completed – Stack Rock (Big Piney RD) was completed in 2006. In 2007, the Mt. Magazine SIA Draft Management Plan was completed as well as the Clifty Canyon and Sandstone Hollow Management Plans. A plan for a Stack Rock loop hiking trail departing from the Ozark Highland Trail was developed.

Trends – No change reported for most districts in 2006 and 2007. There has been a significant increase in use of Mt. Magazine SIA due to the new Mt. Magazine State Park and an increase in rock climbers using Stack Rock SIA.

There has been increased gas well activity near Mt. Magazine SIA that may impact visual quality as seen from the bluff line.

RESEARCH NATURAL AREAS

Research Natural Area Plan Priority – Priorities have not yet been established.

STATE PARKS

Visitor Satisfaction Related to the Partnership – Unknown.

Public Health and Safety Through Permit – The annual state park inspections for Mt. Magazine State Park were completed in 2006 and 2007. Health and safety were addressed.

DEVELOPED RECREATION AREAS

Visitor Satisfaction – Visitor satisfaction data was not collected in 2006 or 2007.

Public Health and Safety – No major accidents or injuries known or reported during 2006 or 2007. In 2006, Hazard trees were removed, playground equipment was inspected, and water systems were flushed in developed recreation areas. Poison ivy was treated for eradication at all developed sites on the Mt. Magazine RD.

In 2007, the septic system grinders at Cove Lake were replaced.

Recommendations –Drop visitor satisfaction as a measure due to difficulties in obtaining this type of information.

RLRMP Recreation Priorities

Wilderness

Priority One - Protect and manage wilderness to improve the capability to sustain a desired range of benefits and value so that changes in ecosystems are primarily a consequence of natural processes. Protect and manage the areas recommended for wilderness designation to maintain their wilderness values.

In 2006, red cedar posts were installed at several old travel route access locations around the Richland Creek Wilderness to stop unauthorized motorized vehicle traffic use entering into the wilderness area (Big Piney RD).

No treatments were done in 2007**.**

Priority Two - Update all wilderness management plans, including monitoring components, wilderness education, and restoration needs by 2008.

Plans were not updated in 2006 or 2007.

Recommendations - Update plans as funds are available.

Priority Three - Prohibit mining claim locations under the General Mining Law of 1872 in Designated Wildernesses (MA 1.A)

No wilderness mining claims were processed in 2006 or 2007.

Recommendations - Drop. There is no need to monitor this item. It is standard procedure to deny mining claims in Ozark National Forest wilderness areas.

RLRMP Recommended Wilderness

Priority One - Complete land line surveys on newly recommended wilderness boundaries. Boundaries will be ready for use as boundary postings after congressional designation.

Landlines were not surveyed for recommended wilderness in 2006 or 2007.

Recommendations - Annually prioritize surveying budget and survey proposed wilderness boundaries as budget allows.

Designated Wild and Scenic River

Priority One - Manage designated wild and scenic river sections to perpetuate their free-flowing condition and designated classifications, and to protect and enhance their outstandingly remarkable values and water quality.

This requirement was followed in 2006 and 2007.

Recommendations - Drop this monitoring item. This requirement is covered in priority two (below) on an individual river basis.

Priority Two - Manage designated wild and scenic rivers according to their Comprehensive River Management Plan.

Comprehensive management plans were followed in 2006 and 2007.

Priority Three - Review public access needs.

A review in 2006 identified increased parking needs at High Bank Canoe Launch and the need for a new canoe launch and vehicle parking at Indian Creek (Pleasant Hill RD).

Recommendations - Provide additional access as funding sources are provided.

Priority Four - Prohibit mining claim locations under the General Mining Law of 1872 in designated wild sections of the Designated Wild and Scenic Rivers

There were no mining claims in 2006 or 2007.

Recommendations - Drop this as a monitoring requirement. Wild sections are classified as Withdrawn from mining leasing. It is standard procedure to restrict claims for these areas.

It is also standard procedure to follow the protocol listed on Table 2-12 (Page 2-83) of the RLRMP to regulate mining on Scenic and Recreational Sections of Wild and Scenic Rivers.

RECOMMENDED WILD AND SCENIC RIVERS

Priority One - For the newly recommended Wild and Scenic River (North Fork of Illinois Bayou River), a Comprehensive River Management Plan and boundary declaration will be prepared and implemented within three years of congressional designation as required in the designation language.

There was no activity geared toward congressional designation of North Fork of Illinois Bayou in 2006 or 2007.

EXPERIMENTAL FOREST

Priority One - Protect and manage research natural areas to maintain natural processes. Identify a sufficient range of opportunities to meet research needs. Compatible uses and management activities are allowed.

In 2006, permits and agreements were made available for research in the Dismal Hollow RNA (Big Piney RD). There was no activity reported in 2007.

Priority Two - Continue to cooperate and assist the Southern Research Station to provide to forest managers research data related to timber harvest, ecosystem management, prescribed burning, soil, water, and other related forestry activities**.**

In 2006 and 2007, Henry R. Koen Experimental Forest was critical in development of an over 1-million acre modeling study on Fire-Oak Decline-Forest Climate Impacts.

In 2007, part of the Sylamore Experimental Forest (SEF) was inventoried to develop a ridgetop fire history important to understanding the ecology of this area.

RESEARCH NATURAL AREA

Priority One- Protect and manage research natural areas to maintain natural processes. Identify a sufficient range of opportunities to meet research needs. Compatible uses and management activities are allowed.

In 2006, permits and agreements were issued for research on flora and fauna of Dismal Hollow RNA.

No new permits were issued in 2007.

SPECIAL INTEREST AREA

Priority One - Protect and manage each special interest area (SIA) for its unique qualities and features. Allow uses and management activities, including access, that complement or are subordinate to the unique qualities and features.

In 2006, Stack Rock SIA dispersed campsites were created to limit impacts to the areas unique values (Big Piney RD).

Priority Two - Within the planning cycle, develop management plans and monitoring protocols for existing SIAs. Management plans for SIAs will be developed before implementing project work.
In 2006, Stack Rock SIA Management Plan was completed (Big Piney RD).

Trends - In 2006 and 2007, there were significant increases in use of the Mt. Magazine SIA due to increased visitation to the new Mt. Magazine State Park. Change in the use of other SIAs is thought to have increased little in 2006 and 2007.

SCENIC BYWAY CORRIDOR

Priority One - Preserve view-shed quality when accomplishing other resource activities.

- Incorporated into NEPA for proposed action (Mt. Magazine RD);
- Yes (Pleasant Hill RD).

Priority Two - Develop public view points and interpretive opportunities.

- Points identified for planning (Pleasant Hill RD);
- Designated in 1992 comprehensive byway plan, no funding to pursue (Mt. Magazine RD).

Priority Three - Promote and manage the scenic byways within the Forests for the traveling public and the benefit of local communities.

- Byway displayed in various brochures available to the public;
- FS office adopted a section of Scenic Byway 309 for maintenance (Mt. Magazine RD).

Priority Four - Work toward state or national scenic byway designation for all byways.

- Hwy 103 section of Mulberry River Road Scenic Byway plan completed (Pleasant Hill RD). Hwy 309 designated a State Scenic Byway in 1989.

Priority Five - Within one year of the approval of the RLRMP, establish a schedule to complete corridor plans for all scenic byways. Complete all plans in the first planning period.

- Comprehensive Plan completed for Hwy 309 in 1992.

OZARK HIGHLANDS TRAIL CORRIDOR

Priority One - Maintain a forest trail system across the Ozark NF.

- OHT was maintained by volunteer groups in 2006 and 2007.

Priority Two - Manage the Ozark Highland Trail to protect the trail experience, and to provide for the conservation and enjoyment of its nationally important scenic, historic, natural, and cultural qualities.

- The OHT was managed to provide for conservation and protection of visitors experiences in 2006 and 2007.

STATE PARKS

Priority One - Work with the State Parks to provide interpretive information about forest management activities.

- The Mt. Magazine Ranger District provides the state park with brochures and recreation information. The district participates in state park events such as the Mt. Magazine International Butterfly Festival.

DEVELOPED RECREATION AREA

Priority One - Supply a variety of recreational facilities that are responsive to user demands.

- In 2006, Mt. Magazine RD added an additional swim area and pavilion parking for Cove Lake Recreation Area.
- No new areas were added or in 2007.

Priority Two - Operate developed recreation sites including campsites and picnic areas. Activities included in this endeavor are trash collecting, cleaning, maintaining equipment, monitoring water systems, and other activities associated with keeping the facilities clean, safe, and in good repair. These will continue to be managed utilizing meaningful measures standards or the appropriate Agency standards while stressing health and safety.

- Conduct weekly cleaning, trash collection, and maintenance at Spring Lake & Sorghum Hollow Horse Camp.
- Conduct weekly cleaning, trash collection, and maintenance at Cove Lake during non-concession season.
- Remove hazard trees, maintain SSTs, carry out poison ivy control at all areas (Mt. Magazine RD); Yes (Boston Mountain RD).
- Manage five developed fee area campgrounds, three developed non-fee campgrounds, two developed non-fee day use areas, and one developed non-fee road rest area (Boston Mountain RD).

Priority Three - Focus investments and improve the cost effectiveness of operating recreational facilities by using one or more of the following techniques where feasible: decommissioning underused sites, maintaining concessionaire agreements, entering into management partnerships, and investigating other measures.

- Yes (Boston Mountain RD).
- Cove Lake Recreation Area operated by concessionaire April 1 – September 15.
- Spring Lake Recreation Area is closed Labor Day through the Friday of Memorial Day weekend (Mt. Magazine RD).
- Seeking partnerships and investigating other operations options (Pleasant Hill RD).

Priority Four - Focus developed recreation on the niche statement written during the recreation alignment process, which emphasizes water related day-use activities, scenic and wildlife viewing, and trail activities such as hiking, biking, horseback riding, and off-highway vehicle (OHV) riding. Overnight facilities will only be developed in support of the niche activities.

- Yes – Pleasant Hill RD.
- Decommissioned approximately four miles of designated horse trail due to erosion issues, minimal maintenance on remainder of district trails (Mt. Magazine RD)

UPPER BUFFALO DISPERSED RECREATION AREA

Priority One - Maintain semi-primitive non-motorized management of activities.

- Acknowledged and began formal trail development process for user defined mountain bike trails within the Upper Buffalo Dispersed Recreation Area.

WEDINGTON UNIT URBAN RECREATION AREA

Priority One - Provide urban recreation opportunities.

- District contracted with U of A to concession the area in 2006.

INDIAN CREEK DISPERSED RECREATION AREA

Priority One - Provide a combination of semi-primitive, non-motorized, and motorized management activities.

- Yes - Pleasant Hill RD.

Priority Two - Maintain two major motorized routes through the Indian Creek Dispersed Recreation Area as the primary access with secondary routes supporting dispersed recreation opportunities. This includes access to trailheads for horseback riding, hiking, biking, and rock climbing activities, local historic points of interest, interpretive opportunities, and administrative uses including timber harvest for forest health. Development of motorized recreation opportunities will not be a priority in this area although they will exist due to motorized access to other recreational opportunities.

- Yes - Pleasant Hill RD.

Priority Three - Determine where motorized access will be allowed by considering support of dispersed recreation activities; disturbance of solitude of large blocks of land; public health and safety; forest health; and local economic and administrative considerations.

- Indian Creek Dispersed Recreation Area Draft Management Plan scheduled to be written starting in 2009.

Priority Four - The Forests' Trails Strategy Team will consider motorized opportunities in this area utilizing roads and trails developed for access to other dispersed recreation opportunities.

- Indian Creek Dispersed Recreation Area Draft Management Plan scheduled to be written starting in 2009.

HERITAGE

Archeological sites are reported as protected to standard or managed to standard.

"Protection" is defined as avoiding any disturbing impacts to an archaeological site. This includes redesigning projects to avoid sites, or painting boundaries around sites to prevent any penetration by machines or ground disturbing activities.

"Managed" is defined as a treatment that enhances, protects, or preserves an archaeological site. This could include removal of all trees within a tree-length buffer around a cemetery, use of prescribed fire to reduce woody vegetation favoring fine fuels to prevent root damage to intact cultural deposits, or streambank stabilization to reduce erosion and caving.

The items listed in the RLRMP to be monitored by Heritage are displayed in Table 20 with results being given for 2006 and 2007.

Table 20: Heritage Monitoring Results for 2006 and 2007.

Heritage Monitored Item	2006 Result	2007 Result
Sites protected to standard	2,332	2,707
Sites managed to standard	3,892	4,267
Number of site management plans made	2	4
New sites recorded in heritage resource database	110	375
Government to government agreements	1	1
Participation in Bridge-A-Gap Conference	Yes	Yes
Evaluation of Native American feedback	Positive	Positive

LAW ENFORCEMENT

Trends in Unlawful Criminal Behavior

- There has been a decrease in Marijuana production on USFS lands.
- Illegal use of OHV use remains about the same with little or no notable changes.
- The illegal harvest of ginseng continues to increase due to the increase of the price per pound. Most wholesalers are giving $800 per pound.

Cumulative Impacts to Natural/Cultural Resources
Continued illegal OHV use is causing soil erosion on natural resources.

- Law Enforcement continues to enforce illegal activities by patrolling known OHV areas as much as possible.

Accidents

- Accidents including OHV and hunting continue to rank high in the accident category.
- The majority of OHV accidents are caused by the abuse of alcohol and speed.
- Hunting accidents occur sporadically through hunting season and are usually attributed to hunters not identifying their target.

Citations
Citations issued by Law Enforcement for FY2006 and FY2007 are recorded in Table 20.

Table 20: Citations issued by Law Enforcement during FY2006 and FY2007.

Law Enforcement Citations	FY2006 Statistics	FY2007 Statistics
Violation Notices	433	709
State Violation Notices	145	173
Warning Notices	305	770
Incident Reports	328	401

Acres affected
The majority of the forest is affected in some form. The majority of the affected acres are in recreation areas both developed and undeveloped.

Types of Impact of Illegal Activity

- Illegal OHV use impacts natural resources.
- Illegal use of alcohol and drugs continues to impact the public and employees by creating a driving hazard.
- Violating State driving laws impacts driving conditions as well as public and employee safety.
- Continued disturbance and thefts of cultural resources continues to be impacted by opportunist and organized theft.

ENVIRONMENTAL MANAGEMENT SYSTEM

The Washington Office (WO) is currently developing the Environmental Management System (EMS). Direction from the WO is anticipated in FY2008.

Recommendations
Once EMS is developed, follow the direction given by the WO.

Appendix A

List of Preparers

The following individuals contributed to the 2006 – 2007 Monitoring and Evaluation Report.

A.J. Brigance	Forest Timber Contracting Officer
Tony Crump	Forest Hydrologist (now in Regional Office)
Steve Duzan	Forest Planning Biologist
Robert Flowers	Forest Landscape Architect
Roger Fryar	Deputy Fire Management Officer
Tammy Hocut	Data Management/GIS
Carol Horn	Lands Adjustment and ROW Program Manager
Connie Jankowiak	Minerals and Special Uses Program Manager
David Jurney	Forest Archaeologist
Kathy King	Writer/Editor
Ron Klouzek	Technical Services Staff Officer
Gary Knudsen	Public Services/Planning Staff Officer
Gary Monk	Law Enforcement
Kim Mortenson	Forest Land Surveyor
Ralph Odegard	Forest Wildlife Biologist (Retired)
Gregg Vickers	Forest Silviculturist
Len Weeks	Forest Soil Scientist
Keith Whalen	Forest Fisheries Biologist