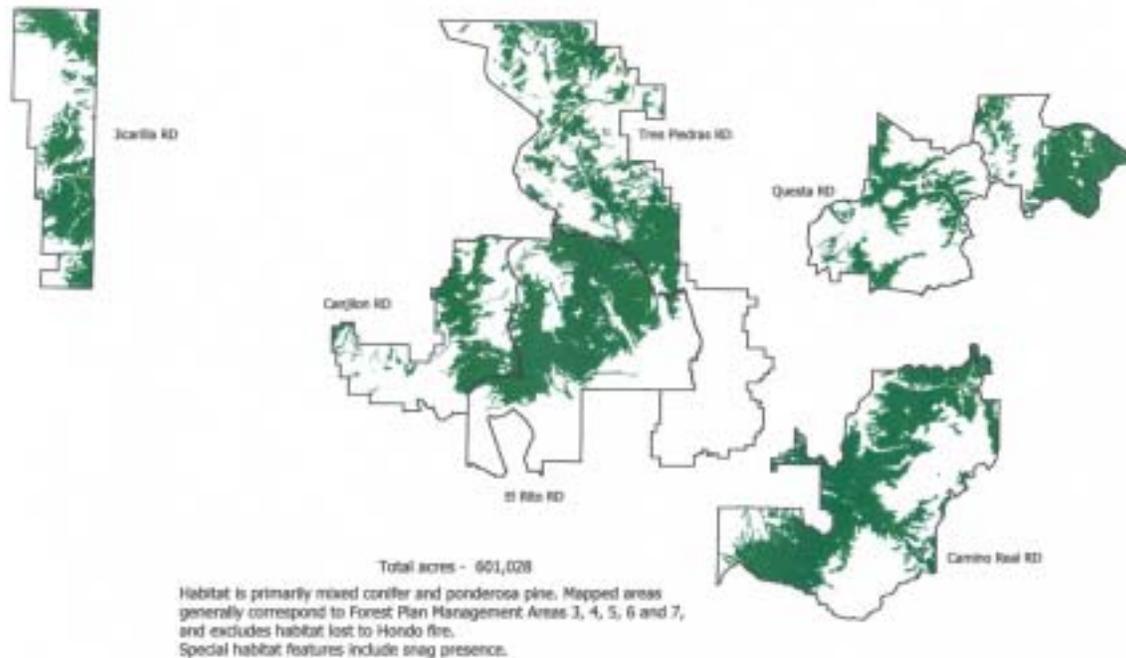


Hairy Woodpecker (*Picoides villosus*)

Indicator Species Habitat

The hairy woodpecker is an indicator species for the presence of snags and down logs (USDA 1986a, p.97). Hairy woodpeckers are one of the most common woodpeckers in the Southwest, particularly in riparian habitats and in ponderosa pine, mixed-species and spruce-fir forests (Hubbard 1978). The species is a forest generalist, keying in on available snags and live aspen. Nests are primarily in trees averaging 17 inches in diameter at breast height (DBH) and approximately 60 feet high. The woodpecker forages for insects primarily on tree trunks averaging 17 inches DBH and greater than 30 feet tall. Down logs are also important in supporting insect populations for the hairy woodpecker.

On the Carson National Forest, this species is commonly observed throughout the ponderosa pine and mixed conifer habitat types. The species may be casual in the spruce-fir (not shown on map), but higher elevations are not preferred habitat. As displayed below on a map of the Carson National Forest, the potential habitat for the hairy woodpecker is abundant and well distributed across the forest. The acres on this map are based on terrestrial ecosystem unit data and not on current vegetation cover types. The potential habitat distribution map based on vegetation cover will replace this map when available.



Map 1. Hairy Woodpecker Potential Habitat Distribution on the Carson National Forest

Management Activities or Natural Events That May Affect Habitat

Negative: Excessive gathering of dead and down fuelwood, reducing fuel loads by prescribed fire and wildfire across large areas.

Positive: Maintaining large trees for future down logs and snags, maintaining standing dead aspen and cottonwood trees, reducing open road densities in areas of highly accessible dead and down material, wildfires and insect and disease infestations.

Plans, Regulations and Guidelines Supporting, Maintaining or Improving Habitat

- *Carson National Forest Land and Resource Management Plan, Forest-wide Wildlife and Fish (1986)* requires that “at least 300 snags per 100 acres on 60 percent of suitable timberlands be retained, not determined by interdisciplinary team review to be highly vulnerable to fuelwood collection. The guideline for the minimum size for snags is: Conifers - 12 inch DBH and 15 feet tall. Aspen - 10 inch DBH and 12 feet tall.” (USDA 1986c, p. Wildlife & Fish – 8)

The Forest Plan’s direction on down logs is to “retain sufficient size and length per 100 acres of down logs (where biologically feasible) on 75 percent of suitable timberlands, not determined by interdisciplinary team review to be highly vulnerable to fuelwood collection. The guideline for the minimum size for down logs is: Conifers - 12 inch diameter and 5000 linear feet per 100 acres of mixed conifer, ponderosa pine and spruce-fir. Aspen - 10 inch diameter and 3300 linear feet per 100 acres.” (USDA 1986c, p. Wildlife & Fish –9)

The desired conditions for Management Areas 1 through 7 are described as quality habitat for hairy woodpecker (USDA 1986c, Management Area Prescriptions for MA 1 through 7).

- Record of Decision for Amendment of Forest Plans (1996) *provides guidelines relative to the management of both Mexican spotted owl and northern goshawk habitat. In restricted areas “retain substantive amounts of key habitat components:*
 - o Snags 18 inches in diameter and larger.
 - o Down logs over 12 inches midpoint diameter (USDA 1996, p. 90).

In goshawk landscapes outside of post-fledging family areas “snags are 18 inches or larger DBH and 30 feet or larger in height, downed logs are 12 inches in diameter and at least 8 feet long, woody debris is 3 inches in or larger on the forest floor, canopy cover is measured with vertical crown projection on average across the landscape.” (USDA 1996, p. 92)

- Management Recommendations for the Northern Goshawk in the Southwestern United States (1992) *describe the hairy woodpecker as an important prey species for the goshawk and habitat management recommendations include: “Snag availability in managed stands can be increased by:*
 - o Leaving snags during timber harvest, and
 - o Creating snags using herbicides, topping, or girdling (Reynolds et. al 1992).
- Mexican Spotted Owl Recovery Plan (1995) *also references the importance of snag and down log retention for Mexican spotted owl prey species (USDI 1995).*

Habitat Condition And Trend On The Carson National Forest

The key feature used in the Carson Plan EIS to identify occupied or quality hairy woodpecker habitat was “snags”. There are two levels that need to be considered when looking at hairy woodpecker habitat across the Forest. First is the overall ponderosa pine and mixed conifer

habitat. This is important to help place the subset of quality habitat habitat in perspective. Although there are approximately 637,488 total acres of ponderosa and mixed conifer (based on current stand data cover types), the Forest Plan EIS identifies a subset of 106,880 acres of hairy woodpecker habitat in the ponderosa pine and mixed conifer. According to the Forest Plan EIS, hairy woodpeckers will utilize mature and old growth stands of pine, fir and aspen (USDA 1986a, p. 97). Since 1986, stands have grown, some have been harvested or burned and data to estimate conditions has improved. Although there is important data forest-wide, the subset of snags is the primary feature by which habitat trend for hairy woodpecker is tracked.

Several factors are used to determine habitat trend. Management activities (primarily timber sales) and wildfire have reduced certain habitats to unsuitable conditions. High intensity wildfire and certain harvest prescriptions such as overstory removal, seed cuts and shelterwood harvests are examples of areas that are deducted from the total acres of quality hairy woodpecker habitat. Total stand acres are not deducted. Only the actual acres treated that are estimated to result in acres becoming unsuitable are subtracted. Appendix A explains in more detail how habitat trend is determined.

Suitable stands (500 ac) that had experienced high intensity fire were removed from the woodpecker habitat. Suitable habitat lost to timber harvest (884 ac) was also deducted. Also taken into account was forest succession, where ponderosa pine and mixed conifer stands have progressed towards more quality habitat since 1986. Only one percent ingrowth rate was used as the dense nature of many of the stands result in significant competition and stagnation in those stands that are most likely to progress to old growth. To compound this situation, timber sale projects have allocated old growth stands that did not meet old growth standards, but were the closest and/or the best stands within the project area. Although old growth allocation does not necessarily preclude forest management activities, allocated stands are usually set aside from these practices. These stands should probably have been the highest priority stands to thin from below and move or set on track towards actually progressing to a biological representation of old growth more rapidly.

Table 1. Hairy Woodpecker Suitable Habitat Acres: Change from Wildfire, Logging, and Tree Growth 1986-2002

Ranger District	Total PP Acres	Estimated Acres of Habitat in 2002	Habitat Acres Reduced by Wildfire	Habitat Acres Reduced by Logging	Total Acres Reduced	Total Acres of Ingrowth (+ 1%)	Remaining Acres of Hairy Woodpecker Habitat
D1, D2, D6 ¹	342,426	33,140	0	579	579	331	32,892
D3	35,848	341	0	0	0	3	344
D4	254,306	54,020	0	305	305	540	54,255
D7	206,668	25,200	500	0	500	252	24,952
Total	839,248	112,701	500	884	1,384	1,127	112,444

From 1986 to 2002, the estimated habitat trend for hairy woodpecker on the Carson National Forest is from 106,880 acres to 112,444 acres of habitat, or upward trend by about five percent. It should be noted that these numbers reflect acres of the best condition habitats and are most comparable to the acres estimated at the time the Forest Plan was initiated.

¹ D1 = Canjilon, D2 = El Rito, D3 = Jicarilla, D4 = Camino Real, D6 = Tres Piedras, D7 = Questa

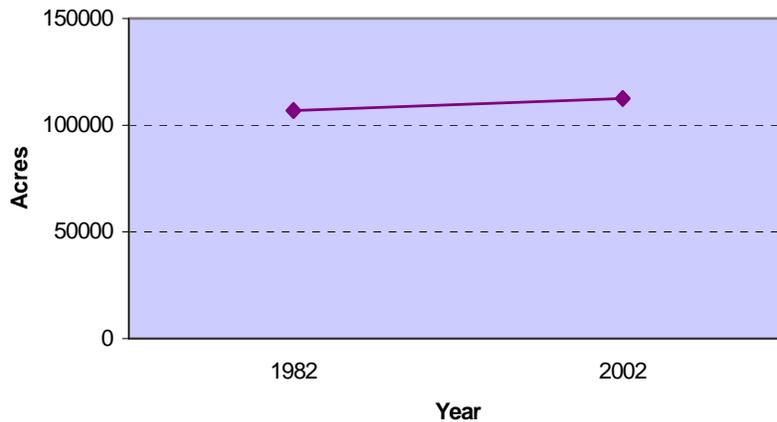


Figure 1. Changes in Hairy Woodpecker Suitable Habitat on the Carson National Forest 1986-2002

Forest Management Activities

Forest-wide conditions are represented by various diversity unit analyses that have been conducted since the inception of the Forest Plan (1986). These include analyses such as MaPa, Alamo/Dinner, Angostura and Ojo Ryan on the east side of the Carson. On the west side these include: Hopewell, Felipito, La Manga, Borracho, Valle Grande, Upper Petaca Ecosystem Management Area and other data from the entire Vallecitos Federal Sustained Yield Unit, as well as other stand exams across the Forest. These are generally consistent with conditions on most of the Forest, except that the domination of mid-seral conditions (VSS 3 and 4) appears to be even more prevalent on the east side than the west. With the exception of wilderness areas, early (VSS 1) and late (VSS 6) seral conditions are largely absent.

Snags and down woody debris comprise an important habitat component for many woodpeckers and other cavity-nesting species. Low snag availability resulting from timber harvest, fuelwood removal, or intense surface fires may adversely affect populations of snag-dependent species, such as the hairy woodpecker (Balda 1975, Thomas et al. 1979). Timber harvest, fuelwood harvest and other personal use products such as vigas and latillas can also reduce down materials. The figure below shows that between 1986 (when the Carson Forest Plan was implemented) and 2000, approximately six percent of the “potential” hairy woodpecker habitat has been actively managed for timber production.

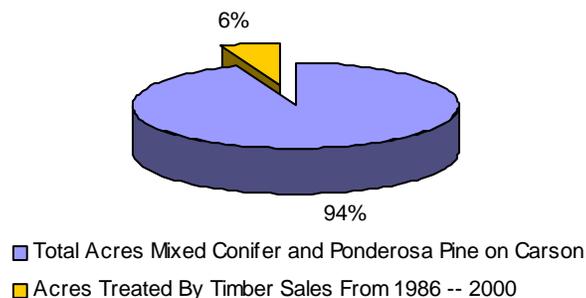


Figure 2. Proportion of Hairy Woodpecker Forested Habitats Treated in Timber Sales on the Carson National Forest From 1986 to 2000 (RMRIS DB, Activity Records)

The figure below shows that of the six percent potential hairy woodpecker habitat that has been treated through timber sales since 1986, 62 percent of the habitat has shifted from late to early seral conditions.

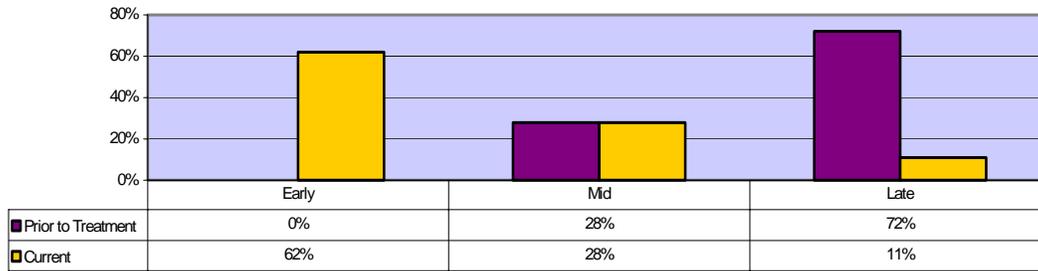


Figure 3. Changes in Forested Seral Conditions in Timber Sale Areas on the Carson National Forest from 1986 to 2000.

Although timber harvest areas have shifted seral stages from late to early, it is on a limited percentage of the total habitat area and the rest of the treated areas are still in mid to late seral conditions. Szaro and Balda (1982) studied the effects of timber harvest on breeding bird densities in ponderosa pine forest on the Coconino National Forest in Arizona. During all years of the study, hairy woodpeckers were found in all types of harvested stands, except clear cuts.² Hairy woodpecker densities averaged about 3 pairs/100 acres, and did not differ among treatments (Szaro and Balda 1982, 1986).

Gathering of dead and down fuelwood is common practice on the Carson National Forest. Accessibility and increasing demand for fuelwood has made snags and down woody debris susceptible to removal along forest roads. Areas with high road density have the highest rate of snag removal -- primarily on slopes immediately above roads. Zones generally confined to 50 feet on either side of an open road are where fuelwood gathering is most concentrated. Dead and down fuelwood gathering requires a permit. The *Carson Firewood Guide*, which accompanies every fuelwood permit issued, specifically states, "You may not cut:

- o Standing dead ponderosa pine trees or those to be preserved for wildlife habitat.
- o On timber sale or contract areas posted with signs, green fuelwood areas.
- o Within 100 feet of paved roads.
- o Within 100 feet of lakes and flowing streams.
- o Within established recreation areas."

There are over 254,000 acres of wilderness areas (Wilderness Act 1964), wild and scenic river areas (Wild and Scenic Rivers Act 1968), roadless areas (USDA 1986c, 20. Semi-primitive-2), slopes > 40 percent (USDA 1986c, 5. MC/PP >40% - 2 and Timber - 12) and special management areas (USDA 1986c, 19. Special Areas - 2) on the Carson National Forest that have management direction through the Forest Plan or federal laws that exclude harvesting or removal of snags or are considered inaccessible to snag removal.

In addition, management efforts since 1986 have been consistent with Forest Plan guidelines, which are intended to "provide quality habitat for the hairy woodpecker". Large trees, which are future down logs and snags, are being maintained across the Forest.

² Clearcutting is not practiced on the Carson National Forest.

Natural Snag Recruitment

Wildland fire and insect and disease infestations result in the creation of snags. Approximately 6,000 acres of snags of various species in ponderosa pine and mixed conifer vegetation type were created in the 1996 Hondo Fire event on the Questa Ranger District. Other than the Hondo Fire, very few fires - wild or prescribed - have actually changed seral stage conditions on the Carson.

Since 1979, insect infestations have been tracked on the Carson National Forest through aerial surveys. The cumulative insect and disease infestations that have occurred from 1979 to 2001 have been mapped. Depending on the type of insect attack, snags are created at different rates as a natural part of ecosystem processes. Pine bark beetle occurrences almost always result in small pockets of ponderosa pine tree mortality after one year. The trend in bark beetle infestations on the Forest since 1986 directly correlates to snag recruitment and improvement of habitat for the hairy woodpecker.

Spruce budworm infestations generally slow growth unless repeated defoliation occurs over several years. The spruce budworm infestations usually move around to different areas, but overlap areas do occur and those areas generally produce some snags after several years.

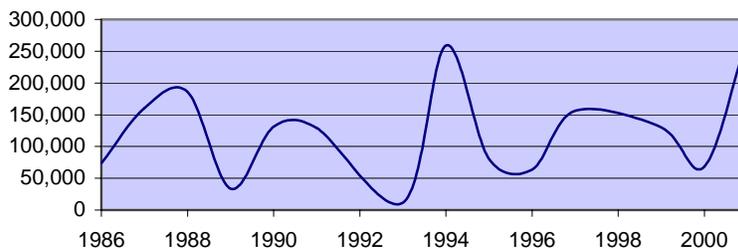


Figure 4. Spruce Budworm Defoliation on Carson National Forest 1985 to 2001 (acres).

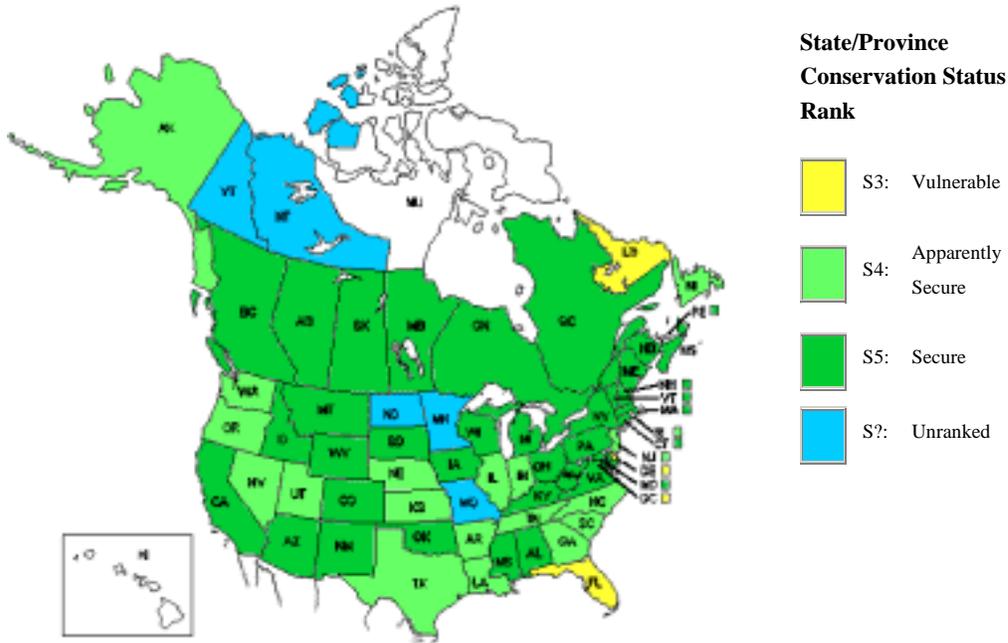
During the life of the Carson Forest Plan, there has been little change in the long-term trend of available habitat and quality of habitat. This conclusion can be made given 1) the small amount of potential hairy woodpecker habitat that has been affected by forest management activities since 1986, 2) the relatively minor changes in seral conditions due to wildfire and 3) the limited areas on the Forest where dead and down fuelwood is collected, 4) the continuation of natural snag recruitment, which compensates for items 1-3.

Population Trend And Viability

Hairy woodpeckers are year-round residents of nearly all forest types from central Canada to the southern United States (Scott et al. 1977). This species is one of the most common woodpeckers in the Southwest, particularly in riparian habitats and in ponderosa pine, mixed species and spruce-fir forests (Hubbard 1978). Overall, the US population is stable.

The *NatureServe* database (www.natureserve.org/explorer) documents that throughout its range, the hairy woodpecker is listed as “G5”, (i.e., globally secure and common, widespread and abundant) although it may be rare in parts of its range, particularly on the periphery. Reasons given for the G5 ranking are its large range and that it is common in many areas and there is no evidence of large-scale declines. It is not vulnerable in most of its range. Species with this rank typically occur in more than 100 localities, and there are more than 10,000 individuals. Within the United States, the hairy woodpecker is listed as “N5” (i.e., secure and common, widespread,

and abundant). In New Mexico, the hairy woodpecker is listed as “S5” (i.e., secure, common, widespread and abundant).



Map 2. Distribution of Hairy Woodpecker in North America (NatureServe Explorer 2002)

Monitoring information from the North American Breeding Bird Surveys in New Mexico indicates population and trends are stable, abundant and not declining. The following graph displays a slightly upward trend from 1968 to 2000 for the hairy woodpecker in New Mexico.

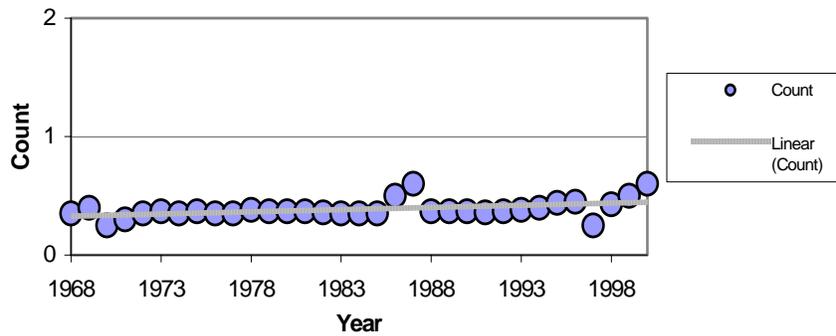


Figure 5. Estimated Trend for Hairy Woodpecker in New Mexico (Sauer et. al 2001)

Carson National Forest

On the Carson National Forest, a USGS Breeding Bird Survey has three survey routes adjacent to or within the Carson National Forest – Angel Fire, Cebolla (near La Placitas), and Ojo Sarco.³ An average of 0.52 woodpeckers were found along these transect lines annually. Six to eight years of data do not provide sufficient information to determine trend; however, it does document that the species commonly occurs on the Carson.

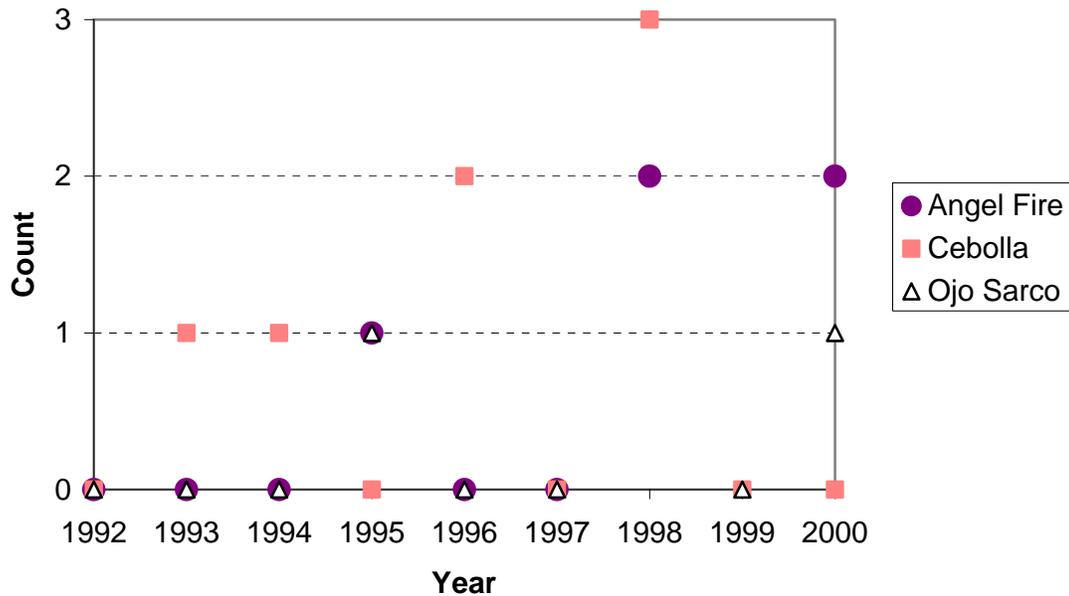


Figure 6. Time Series of Species Data for Angel Fire, Cebolla and Ojo Sarco Survey Routes

Eagle Environmental conducted a prey base analysis study in the spring and summer of 1985 in an area west of the Questa Ranger District on public lands administered by the Bureau of Land Management (BLM) (Stahlecker et al. 1989). Data for this species comes from the wooded canyon benches habitat, which is similar to the transition zone between the piñon-juniper and ponderosa pine type that is a condition prevalent across much the Carson National Forest. This habitat type contains a mix of juniper, piñon and ponderosa pine. The survey also includes the upland forest habitat, which is similar to the lower elevation mixed conifer habitats on the Carson, but is generally a more open canopy than most of the Carson's forested stands. The woodland canyon benches had not been harvested, while the upland forest was historically harvested. Population densities for the wooded canyon benches averaged 4.4 breeding pair per hectares (~100 acres). The upland forest habitat type averaged 4.8 breeding pair per 40 hectares (~100 acres).

Competition from other woodpecker species for cavity sites could affect populations of this management indicator species, however in this study northern flickers averaged almost identical population densities by habitat type. With over 600,000 acres (USDA 1987) of similar habitats on the Carson National Forest, population viability should be maintained.

³ Numbers reflect the abundance of the species near the survey route. They are averages of the total counts along the route for the period 1989-1998. Because each survey route is 24.5 mi long, and consists of 50, 3-minute counts along the length of the route, the abundance estimate represents the number of birds that a very good birder would encounter in about 2.5 hours of roadside birding in the area near the BBS route.

Avian inventories were also conducted on the Camino Real Ranger District in the mixed conifer and ponderosa pine from 1999 to 2001. These inventories were not specifically designed to determine breeding pair per acre but were strip transects to determine relative abundance and occurrence. However, it is estimated that 22 individuals per square kilometer were encountered. Although individuals do not directly relate to breeding pair, if 50% of these individuals represent a breeding pair, this data indicates very similar populations to the spot mapping data collected by Stahlecher in 1989. **Population trends of hairy woodpecker appear stable on the Carson National Forest.**

Taking into account the condition and trend of the bird's habitat on the Forest and existing data from nearby habitat, the hairy woodpecker population on the Carson NF is stable. Continuing to manage the Forest according to the Forest Plan's guidelines – maintain road densities at their lowest within analysis areas across the Forest, 300 or more snags per 100 acres, large woody debris on the forest floor, increase the aspen component, decrease conifers in aspen -- will insure that hairy woodpecker habitat and populations will be maintained over time. Natural occurrences, such as wildfire and lightning strikes, can also create favorable habitat conditions for the hairy woodpecker.

References

- Balda, R.P. 1975. The relationship of secondary cavity nesters to snag densities in western coniferous forests. Wildlife Habitat Technical Bulletin 1. US Department of Agriculture, Forest Service, Southwestern Region.
- Bennetts, R.E. 1991. The influence of dwarf mistletoe infestation on bird communities in Colorado ponderosa pine forests. Fort Collins, CO: Colorado State University. 83 p. M.S. thesis.
- Flippo, Mark. 1979. (unpubl.) Avian and rodent survey in the Jicarilla District of the Carson National Forest, New Mexico. 48p.
- Hubbard, J. 1978. Revised checklist of the birds of New Mexico. Publication No. 6. NM Ornithology Society.
- NatureServe Explorer: An online encyclopedia of life [web application]. 2001. Version 1.6. Arlington, Virginia, USA: NatureServe. Available: <http://www.natureserve.org/explorer>. (Accessed: March 23, 2002).
- New Mexico Department of Game and Fish. 2001. BISON-M (Biota Information System of New Mexico): Biological database for New Mexico. NMDGF in cooperation with USDI BLM, USDI FWS, USDI Bureau of Reclamation, US Army Corps of Engineers, USDA Forest Service and University of New Mexico. <http://nmnhp.unm.edu/bisonm>
- Reynolds, Richard T.; Graham, Russell T.; Reiser, M. Hildegard; and others. 1992. Management recommendations for the northern goshawk in the southwestern United States. General Technical Report RM-217. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 90 p.
- Sauer, J. R., J. E. Hines, and J. Fallon. 2001. The North American breeding bird survey results and analysis 1966-2000. Version 2001.2. Patuxent Wildlife Research Center, Laurel, MD. <http://www.mbr-pwrc.usgs.gov/bbs/bbs>.
- Scott, Virgil E.; Evans, Keith E.; Patton, David R.; Stone, Charles P. 1977. Cavity-nesting birds of North American forests. Agriculture Handbook 511. Washington DC: US Department of Agriculture, Forest Service. 112 p.

- Scott, Virgil E.; Patton, David R.; 1989. Cavity-nesting birds of Arizona and New Mexico forests. General Technical Report RM-10. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 72 p.
- Stahlecker, Dale W.; Kennedy, Patricia L.; Cully, Anne C.; Kuykendall, Charles B. 1989. Breeding bird assemblages in the Rio Grande Wild and Scenic River Recreation Area, New Mexico. *Southwestern Naturalist*. 34(4): 487-498.
- Szaro, R.C.; Balda, R. 1982. Selection and monitoring of avian indicator species: an example from a ponderosa pine forest in the Southwest. General Technical Report RM-89. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 8p.
- Szaro, R.C.; Balda, R. 1986. Relationships among weather, habitat structure and ponderosa pine forest birds. *Journal of Wildlife Management*. 50:253-260.
- Thomas J.W., ed. 1979. Wildlife habitats in managed forests — the Blue Mountains of Oregon and Washington. USDA Agriculture Handbook No. 553. US Government Printing Office, Washington, D C. 512 p.
- USDA Forest Service. 1986a. Environmental impact statement, Carson forest plan. Albuquerque, NM: US Department of Agriculture, Forest Service, Southwestern Region. 386 p.
- USDA Forest Service. 1986b. Record of decision for the Carson National Forest land and resource management plan. Albuquerque, NM: US Department of Agriculture, Forest Service, Southwestern Region. 6 p.
- USDA Forest Service. 1986c. Carson National Forest land and resource management plan. Albuquerque, NM: US Department of Agriculture, Forest Service, Southwestern Region.
- USDA Forest Service. 1987. Terrestrial ecosystems survey of the Carson National Forest. Albuquerque, NM: US Department of Agriculture, Forest Service, Southwestern Region. 552 p.
- USDA Forest Service. 1996. Record of decision for amendment of forest plans – Arizona and New Mexico. Albuquerque, NM: US Department of Agriculture, Forest Service, Southwestern Region. 96 p.
- USDI Fish and Wildlife Service. 1995. Recovery plan for the Mexican spotted owl (*Strix occidentalis lucida*): Volumes I and II. Albuquerque, NM: US Department of Interior, Fish and Wildlife Service. Volume I, 172 p. and Volume II 145 p.