Sunday, October 19, 2003

New Life Coming From Piñon Death

By Adam Rankin
Journal Staff Writer

There may be life after death for northern New Mexico's beleaguered piñon forests.

Some scientists are already seeing signs of reincarnation amid acres of brown and needle-free piñon— dead and dying from the relentless bark beetle onslaught— though the epidemic is far from over.

Species of shrubs and grasses not commonly seen in decades are sprouting in some areas where competition for limited resources— such as light, nutrients and water— has been lifted with the death of thousands of piñon. That transmutation may also attract a greater diversity of bird and insect life.

State urban forester George Duda said that in areas hit earliest by the beetle, such as Los Alamos and the Pajarito Plateau, there are reports of a flush of natural vegetation.

"Grasses, flowers, they are coming up, all they need is direct sunlight," he said. "The beetles have just finished their buffet, and the next course that is going to be served are those ground cover plants that serve other animals and insects, which, for the most part, have been absent."

He said much of that vegetation has been gone for decades because the thick piñon forests have crowded out ground cover that needs direct sunlight to thrive.

Carlos Valdez, a horticulturalist with New Mexico State University's cooperative extension service, said the drought and beetle infestation is turning Los

Alamos' lower-elevation piñon and juniper forests back to grasslands, similar to what the region looked like around the turn of the century.

"In spite of the drought, there are a lot of grasses and forbs coming in pretty strongly underneath those dead piñon trees. That is pretty exciting," he said. "There is good and bad in everything."

For scientists, the massive die-off represents a golden opportunity to document an ecosystem shift on a massive scale. The bark beetle infestation— gaining force from a prolonged drought that has weakened the piñon's natural defenses— spans regions of Arizona, Utah, Colorado and New Mexico.

Major stressors, such as drought, can provide ecologists a window into evolutionary mechanisms that might show how, and even why, some animals and plants adapt, while others don't and therefore die off or constrict their range.

An avian feast

In northern New Mexico, a few studies are focusing on how birds are responding to the environmental change.

Bill Neuwirth, who is working on his master's degree at the University of New Mexico with adviser Blair Wolf, said it is still too early to draw conclusions from his work, but preliminary data show increased concentrations of birds in areas with newly dead piñon.

"The trend may not be significant at this point, there is still a lot of work to do," he said. "I'd like to try to do it another year to really have something more solid to say."

Neuwirth's study— which looks at eight plots from Sanchez Canyon north to Questa— has just been looking at bird density so far, irrespective of species or how the birds use dead piñon areas.

"They could be nesting, they could be feeding, they could have a territory there... the study hasn't addressed that yet," he said.

The greater concentration of birds matches his predictions, Neuwirth said. He expected the increased plant diversity— the greater heterogeneity of the environment— to translate into more birds and a greater diversity of birds as they take advantage of new ecological niches created by the die-off and flush of grasses.

"I just see a striking difference," he said about the grasses and

North Sections
- Home
- Sports
- Opinion
- Entertainment

North
- Rally Held at Rumsfeld Home
- Study: Lab Seepage In River
- Artist, Museum Supporter Honored
- Woman Honored for Working With Girls
- Recycling Makes Dollars, Sense
- Two DWI Sentences Raising Eyebrows
- New Museum Services Position Filled
- Archaeologists Piece Together 1854 Battle
- Man Held in NMHU Shooting
- Kaune Foodtown To Change Hands, Not Service
- Santa Fe Plaza— Heart of a City
- Out-of-State Prison Likely for Ex-Judge
- Bumper Sticker Blames Judges for DWI Problem
- Overtime Fraud Case Dismissed
- Ex-Cadets' Accuser Alleged Previous Rape
- Solar Flare Could Jam Satellites

More North

plants growing in his test plots, though that is not the focus of his study. "Apparently, there are just a lot of seeds lying around waiting for the piñon to die."

He said it would be interesting to see what happens as more and more trees die.

Jeanne Fair, an ornithologist with Los Alamos National Laboratory, is trying to answer that question by looking at sections of forest with varying degrees of piñon mortality.

She said the epidemic is presenting a great opportunity for research, because there just aren't any studies that address catastrophic beetle epidemics in Southwest piñon forests.

"Most studies have been done on spruce bud worm outbreaks," she said, adding that she hasn't seen the same increase in grass and ground cover species on her experimental plots.

Waiting and watching

Different species of bark beetle plague coniferous forests across the globe, from Alaska to the American West and Germany to Siberia. In Alaska, where average temperatures have risen nearly 4 degrees in the past 100 years, scientists are investigating links between beetle outbreaks and climate shifts due to global warming.

Fair has been working with colleagues Steve Fettig and Dave Kellar on studies around Los Alamos that compare bird responses in thinned piñon forests to areas with varying piñon mortality.

"The verdict is still out, basically, for what this is going to mean for birds," she said, though results from this summer show more insect-eating birds in human-thinned forests than those that went unthinned.

"I think it is early on, so it is hard to say," she said, adding that they plan to continue the studies for a few more seasons.

"There is such a rapid rate of change that I think we are just in the beginning of it," she said.

She said data in piñon forests with beetle mortality ranging from 25 percent to 90 percent show no differences so far. Fair's work has been focusing on bird species that depend on piñon and juniper forests for various aspects of their life cycle.

A changing backyard

The juniper titmouse, bluegray gnatcatcher, gray flycatchers, bush tit and black-throated gray warbler all depend on piñon and juniper forests during the summer, she said, whereas the townsend solitaire and black-capped and mountain chickadees are more dependent on them in the winter.

She said piñon jays may not be as hard hit by the beetle epidemic, because despite the bird's common name, it is not as dependent on

the trees as some may think.

"They turned out to be a pretty good scavenger," she said.

Other studies that have looked at beetle epidemics suggest that once tree mortality hits about 40 percent, bird use starts to drop.

If that holds true for piñon forests in northern New Mexico, it may mean trouble for some bird species, as experts predict piñon mortality to approach 95 percent.

Fabian Chavez, Santa Fe's integrated pest manager, said beetle numbers have skyrocketed this fall.

One 12-ounce trap in the city collected 4,791 beetles in a single week, he said.

At the beginning of this summer, when the beetles first became active after the winter and their numbers were highest, Chavez said he was counting beetles only in the hundreds.

"What we had was an exponential explosion of these guys," he said. "Unfortunately, I think that is going to mean another big fade of trees this fall."

Dave Henderson, executive director of New Mexico's Audubon Society, said he doesn't expect to see major changes in bird populations for another three to 10 years, though he has noticed more chickadees lately.

"From a birder's point of view, new birds are going to be in your backyard," he said.