

**Phainopepla (*Phainopepla nitens*) use
of southern Nevada mesquite woodlands
and management implications**

JERI K. KRUEGER

*U.S. Fish and Wildlife Service,
1510 Decatur Boulevard, Las Vegas NV 89108*

A study of Phainopepla habitat use in southern Nevada mesquite woodlands was conducted in 1996 and 1997 to determine breeding season, nesting success, and the general condition of mesquite woodlands on public lands administered by the Bureau of Land Management (BLM). This study was funded through the BLM by the Clark County Desert Conservation Plan to gather information on the status of Phainopeplas in southern Nevada and identify specific management concerns to be addressed for the development of the Clark County Multiple Species Habitat Conservation Plan. Results of this study were used to develop a Mesquite Woodland Habitat Management Plan for the BLM in southern Nevada.

In southern Nevada, Phainopeplas exhibit nearly exclusive use of mesquite and catclaw acacia for breeding habitat due to their preferred diet of berries produced by the mistletoe that parasitizes mesquite and catclaw. Much of the riparian mesquite has been replaced by invading salt cedar or removed for urban development, and the remaining woodlands have been severely degraded from uncontrolled woodcutting, increased frequency and intensity of fires, and trampling from heavy human use. When people first settled in Las Vegas Valley in the mid 1800s, the valley supported a large mesquite forest that followed Las Vegas Creek (now referred to as Las Vegas Wash) from Big Spring all the way to the Colorado River. This forest has now been completely replaced by urbanization, with only a few small pockets of original mesquite remaining in the valley. Most of the remaining mesquite woodlands occur in valley bottomlands and along the edges of dry lakebeds where perennial flowing or standing water is absent, but groundwater occurs close to the soil surface.

The results of this study determined that the most productive Phainopepla breeding sites in mesquite woodlands located on BLM-administered lands were located in the vicinity of the small communities of Moapa and Glendale. This area supports an abundance

of old-age mesquite with heavy mistletoe infestation. The climate is slightly warmer here than at other mesquite woodland locations in southern Nevada, which provides mistletoe berries more protection from freezing temperatures in winter. Mistletoe berries are highly susceptible to cold temperatures. A colder-than-average winter may freeze the aerial shoots and berries that start forming in the fall, and may preclude *Phainopeplas* from breeding in the vicinity for several years.

Results of this study also indicated that breeding *Phainopeplas* at the Moapa site preferred to nest in the tallest trees with the heaviest mistletoe infestation. Many of these trees also displayed less branching than average, indicating that preferred nest trees had not been subjected to past stress factors such as woodcutting, fire, and trampling that cause multi-branching in mesquite. It is highly probable that heavy mistletoe infestation is a key determinant in the *Phainopepla*'s selection of nesting sites. Not only do mistletoe clumps supply its preferred diet, but they also provide shelter and protection from predators. Taller trees are preferred because the *Phainopepla*'s typical perch is the highest branches of the tree where birds have an unobstructed view for territorial and predator defense. In addition, high perches assist *Phainopeplas* in their habit of hawking insects, which is typical for members and relatives of the silky-flycatcher family.

Future management efforts should focus on the protection of existing old-age woodlands, along with the restoration of mesquite along riparian areas. Mesquite that occupy the hot, dry deserts of the southwest grow very slowly, and a specific set of environmental conditions must be met before mesquite can successfully reproduce in this harsh climate. It is for this reason that mesquite woodlands in desert environments should be protected from woodcutting activities. Many existing woodlands show no sign of recent recruitment, possibly due to declining water tables in these locations. Intensive irrigation methods may need to be employed during habitat enhancement projects in locations with lower water tables to ensure that seedlings do not die before roots have a chance to reach groundwater.

Additional surveys should include the large catclaw washes found in the Piute and Eldorado Valleys of southern Nevada. Several large washes, including Piute, Roman, and Empire Washes, are all known to support fairly large populations of *Phainopeplas*. These birds are easier to study than many other more secretive birds because of their high visibility. A combination of factors including the male's favorite perch atop the highest tree branch, his glossy black plumage, bright red eyes, distinctive crest, and his unmistakable "wurp?" call all assist in easy detection of this desert-dwelling bird. Yet no studies

have been conducted in catclaw habitat to determine breeding success. These habitats may be particularly important because of the warmer temperatures in extreme southern Nevada which help mistletoes produce lush crops of berries throughout the winter and spring.

The close association of mesquite, mistletoe, and Phainopeplas is a prime example of the complex interrelationships of species in nature. If one species is affected, all other species dependent on it are in turn affected. Without mesquite, we would have much less mistletoe, and subsequently lower Phainopepla populations. It is our responsibility to ensure that these complex relationships remain intact so that our descendents have the opportunity to enjoy these beautiful “shining dancers” of the desert.