United States Department of the Interior

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February 13, 2003

Cons. # 2-22-96-F-330R

Memorandum

To: Field Office Manager, Las Cruces Field Office, Bureau of Land Management, Las Cruces, New Mexico

From: Field Supervisor, New Mexico Ecological Services Field Office, U.S. Fish and Wildlife Service, Albuquerque, New Mexico

Subject: Reinitiation of Formal Section 7 Consultation for the Mimbres Resource Management Plan

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (BO) based on our review of the Mimbres Resource Management Plan (RMP) and its effects on the endangered northern aplomado falcon (*Falco femoralis septentrionalis*) (falcon) in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Formal consultation was reinitiated on December 26, 2001. The Service requested more information regarding the status of yucca elata on some of the allotments under consultation. After collecting data on yucca status, this information was provided to the Service by the Bureau of Land Management (BLM) on October 15, 2002.

This biological opinion is based on information provided in the previous BO transmitted by our office in 1997 (Cons. #2-22-96-F-330), the biological evaluation (BE) submitted to our office by the BLM in 1996, one addendum submitted to our office on December 4, 2001, requested information submitted to the Service on October 15, 2002, meetings and conference calls with staff and management from the Las Cruces Field Office (LCFO) and New Mexico State Office of the BLM, and other sources of information available to the Service. A complete administrative record of this consultation is on file at this office.

Consultation History

A BO was issued by the Service regarding the effects of the Mimbres RMP in May of 1997 (#2-22-96-F-330). This BO also related the Service's concerns on the effects of livestock grazing in falcon habitat. The BO concluded that actions undertaken under the plans would not jeopardize the continued existence of the falcon. Incidental take for the falcon was not anticipated, but was

indexed to habitat conditions and trends as determined through research. The reasonable and prudent measures given in the incidental take statement were to: 1) Conduct research to determine the extent of suitable falcon habitat in the resource area, 2) compare the suitable habitat and livestock management practices on BLM lands to the occupied habitat and livestock management practices in Chihuahua, Mexico, and 3) within five years evaluate these data to determine whether management changes are needed in key habitats to facilitate the recovery of the falcon. Terms and Conditions were given as a part of the Incidental Take Permit and the Reasonable and Prudent Measures. Term and Condition 3.2 states, "If data indicate that current management is impeding recovery of the aplomado falcon, BLM will change management practices as needed to enhance habitat suitability for the species."

BIOLOGICAL OPINION

I. DESCRIPTION OF PROPOSED ACTION

The proposed action is to continue management of the Mimbres Resource Management Area under the direction of the Mimbres RMP. The RMP provides general program guidance, and in some instances, specific decisions related to various programs. Programs such as recreation, fluid minerals, livestock grazing, realty, rights-of-way, wildlife habitat, and cultural resources receive direction from and are authorized by the RMP. The BLM has requested reinitiation of consultation with the Service because of new information regarding the falcon and the documented presence of a pair of nesting falcons in the Mimbres Resource Management Area.

In addition to the management guidance specified under the RMP, the BLM has agreed to implement a program to monitor falcon occurrence, effects of livestock activities on yuccas and nesting substrates, and potential shrub encroachment into grassland vegetation types. The BLM is currently in the process of conducting an inventory of yucca nesting substrates on five allotments within the Mimbres Resource Area. These data will be used to direct management actions if it is determined that nesting substrate availability may be limiting now, or in the future, as a result of current land use practices. The LCFO has also agreed to initiate and implement a grassland health/shrub encroachment study. The proposal for this study will be submitted to the New Mexico Ecological Services Field Office (NMESFO) in May of 2002.

II. STATUS OF THE SPECIES

A. Species description

The falcon usually occurs in seasonally warm environments characterized by an abundance of diverse small avian prey, other stick-nest-building birds, and expanses of varied but open country. The historical range of the falcon includes the action area, much of which is considered to be suitable habitat (Appendix A).

Northern aplomado falcons are long-tailed and intermediate in size between the American kestrel (*Falco sparverius*) (kestrel) and prairie falcon (*F. mexicanus*) (Hector 1983). Female falcons are larger than males; both sexes measure about 12 to16 inches long and have a wingspan of about 31 inches (Hector 1988). In the United States, northern aplomado falcons may occur sympatrically throughout the year with the American peregrine falcon (*Falco perigrinus*), prairie falcon, kestrel, merlin (*F. columbarius*) and outside of the breeding season with the Arctic peregrine falcon (*F. p. tundrius*).

Adult northern aplomado falcons can be distinguished from other North American falcons by their long tail with alternating narrow black and white bands. The back and dorsal side of the wings are blue-gray with a pronounced white trailing edge across the entire wing. The upper breast is bleach white to creamy with variable amounts of black streaking, depending on the sex. There is a distinct broad dark or black "cummerbund" on the lower breast, which at close range may show faint white barring. The lower abdomen and undertail coverts are rufous. When viewed frontally at a distance, the falcon imparts a distinctive "tri-colored" white-black-rufous appearance. Facial markings are striking with a blackish cap and nape that are contrasted by a bold white supraorbital (facial) stripe that forms a "V" towards the nape; at close proximity, the stripes are white towards the face and become more rufous toward the nape. Immature falcons are brownish-gray on the back and dorsal side of the wings, with the white trailing wing edges apparent. The breast and facial stripes are cinnamon-colored, with heavy blackish streaking on the breast.

Flight profiles of both adult and immature northern aplomado falcons are similar to other falcons, except for the longer tail. Flight is generally direct, though they will occasionally soar. Northern aplomado falcons pursue prey in a variety of fashions. They have been observed to pursue prey in direct linear flight (similar to a merlin), tower above prey and stoop (similar to peregrine falcons), and to "hawk" insects from a perch. Falcons have been observed to pursue prey on the ground and pairs often hunt cooperatively (Hector 1986; A. Montoya, The Peregrine Fund, pers. obs., 1996). In addition, juvenile falcons released in south Texas have been noted to hunt cooperatively in groups (C. Perez, U.S. Fish and Wildlife Service, pers. obs., 1996). They will occasionally follow coyotes and humans, to capture flushed prey (A. Montoya, The Peregrine Fund, pers. obs., 1996) and have also been observed hunting alongside grass fires (C. Perez, U.S. Fish and Wildlife Service, pers. obs., 1996).

B. Life history

Falcons appear to be year-long residents across most of their northern range where populations currently exist in Mexico (Hector 1981). Primary nesting occurs from March to June in northern Chihuahua, with aerial courtship displays being observed as early as late January and early February (Montoya 1995). Falcons typically use stick nests constructed by other large birds such as Swainson's hawks (*Buteo swainsoni*), Chihuahuan ravens (*Corvus cryptoleucus*), and possibly white-tailed kites (*Elanus leucurus*). Nests are usually situated in forks of yuccas or in the tops

of mesquite trees. In south Texas, an abandoned raven nest atop a 20-meter electrical tower was used by a pair of falcons in 1995. In 1999, falcons were observed nesting in electrical towers in Chihuahua (Young *et al.* 2001). Both sexes participate in an approximate 32-day incubation period (Hector 1981), with young fledging about 35 days after hatching. Fledglings may remain in the vicinity of the nest for at least 1 month after fledging (Hector 1981). Montoya *et al.* (1997) observed seven nests in northern Chihuahua and documented that three of the seven nests fledged at least one chick, with a total of four young fledged from the seven nests (11 eggs total). Causes for nestling mortality were inconclusive (Montoya *et al.* 1997), but starvation and predation by great horned owls (*Bubo virginianus*) and coyotes (*Canis latrans*) were suspected.

Although the range of juvenile dispersal is not well known for the falcon, a 1993-94 study of radio-tagged falcons released in South Texas revealed that from 2 to 6 months post-release the movements of 14 monitored falcons did not extend beyond 10 kilometers from the 18,268 hectare Laguna Atascosa National Wildlife Refuge boundary (Perez *et al.* 1996). At least 6 falcons with functioning transmitters were still in the general vicinity of the refuge 6 months post-release. However, long range dispersals have been recorded for released falcons. One male falcon dispersed 136 kilometers north of the release area at an age of 70 days (Perez *et al.* 1996), and another male dispersed 22 kilometers south of the refuge near Brownsville, Texas, in 1989. Daily linear movements of up to 55 kilometers indicate the highly mobile behavior of young falcons (Perez *et al.* 1996). It is unknown whether dispersal by reintroduced falcons is indicative of natural dispersal. Home range estimates for individual falcons in Chihuahua, Mexico, during the breeding season ranged from 3.3-21.4 square kilometers (Montoya *et al.* 1997).

Research by Hector (1981), Jiménez (1993), and Montoya *et al.* (1997) show a wide array of birds, insects, mammals, and reptiles have been documented in the diets of falcons. In eastern Mexico, birds comprised 94 percent of individual prey items in remains examined. Of prey items seen captured, birds comprised 35 percent and insects comprised about 65 percent (Hector 1985). Hector (1981) determined that birds composed 97 percent of the prey biomass. Montoya *et al.* (1997) found a similar preference for avian prey items with meadowlarks (*Sturnella neglecta* and *S. magna*), common nighthawks (*Chordeiles minor*) and northern mockingbirds (*Mimus polyglottos*) among the most frequently taken birds in northern Chihuahua.

Falcons have been documented from a variety of open woodland, savanna, and grassland habitats (Hector 1981, U.S. Fish and Wildlife Service 1990). Within the Chihuahuan desert, falcons typically occur in open grasslands with scattered mesquite and/or soaptree yucca (*Yucca elata*) or Torrey yucca (*Y. torreyi*) (Ligon 1961, Montoya *et al.* 1997). Montoya *et al.* (1997) found woody vegetation densities in home ranges of falcons in Chihuahua, Mexico, varied from 11.2-139.5 plants/hectare with no significant difference between nesting and non-nesting territories. Ground cover ranged from 28.9-69.5 percent on falcon territories and also did not differ significantly between nesting and non-nesting territories (means equaled 49.9 versus 37.8 percent, respectively).

Existing data suggests that ecological status of Chihuahuan Desert grasslands currently occupied by falcons is late seral to potential natural community or climax (PNC) with significant basal cover of grass species. Montoya *et al.* (1997) reported occupied (nesting) habitat as having basal ground cover ranging from 29-70 percent with a mean of 46 percent. Woody plant density was 5-56 plants per acre, with a mean of 31 plants per acre. Dominant woody plant species were Mormon tea (*Ephedra* spp.), soaptree yucca, honey mesquite (*Prosopis glandulosa*), senecio (*Senecio* spp.), creosote bush (*Larrea tridentata*), and baccharis comprising 74 percent of the community.

Preliminary data collected on sites occupied by falcons in Chihuahua, Mexico, and presented by Young *et al.* (2001) showed vegetative basal cover ranging from 43-48 percent (nesting and detection areas, respectively), with tobosa (*Pleuraphis mutica*) and blue grama (*Bouteloua gracilis*) as the dominant grass species. Grass height was 8.4 inches in nesting areas and 7.8 inches in perching areas. Shrub density was 105 and 253 shrubs per acre in nesting and detection habitat, respectively. Dominant shrubs were longleaf ephedra (*E. trifurca*), acacia (*Acacia* spp.), tarbush (*Flourensia cernua*), honey mesquite, soaptree yucca, and creosote bush. Biomass, measured after nest site selection, was 744 and 862 pounds per acre in nesting and detection areas, respectively. Grazing utilization was estimated as light, within a predominately continuous yearlong grazing regime, and with a smaller number of ranches using rotational grazing regimes.

C. Population dynamics

Population dynamics of northern aplomado falcons are similar to those known of other North American falcons. Falcons usually have a maximum clutch size of three eggs. Chicks and fledglings are susceptible to predators such as ravens, great horned owls, and hawks (Keddy-Hector 2000). Falcons have been known to attempt to reinitiate nests after the loss of eggs or chicks, however the success of reinitiation is not well documented. There is very little information on site fidelity for individual falcons although one area in Mexico was known to have breeding falcons continuously for 10 years (Keddy-Hector 2000). Little information exists on the variability or stability of falcon populations in the wild. Falcons are generally high on the trophic scale and their absence from apparently suitable habitat may indicate prey base or habitat problems in an ecosystem. Populations of breeding birds in Chihuahuan desert grasslands tend to be highly variable, but are generally declining (Sauer *et al.* 2000). This variability would influence falcon occurrences in New Mexico. Relatively little has been quantified concerning the population of falcons in Mexico. No recent population or trend information is available for eastern Mexico since Hector's research in the late 1970s and early 1980s. Based on falcon surveys conducted in northern Chihuahua in 1998 and 1999, the known falcon population in northern Chihuahua was 66 individuals (Young *et al.* 2000). Limited information suggests the population is stable to declining. However, falcons observed in New Mexico and western Texas may be dispersing individuals from a Mexico population. Although falcons are listed as endangered in Mexico, legal protection mechanisms are limited.

D. Status and distribution

Historically, the falcon occurred in Mexico and in Texas, New Mexico, and Arizona in the United States. Falcon populations declined dramatically during the 1930s and 1940s. Breeding populations of the species were considered extirpated from the United States by the 1950s. The

Service listed the falcon as an endangered species under the Act on February 25, 1986 (U.S. Fish and Wildlife Service 1986). No critical habitat has been designated.

The Northern Aplomado Falcon Recovery Plan (U.S. Fish and Wildlife Service 1990) identified habitat alteration (*i.e.*, shrub encroachment associated with heavy grazing and agricultural development) compounded by collecting pressure and later by pesticide contamination as the likely reasons for the decline of falcon populations in the United States. Current factors that may affect the recovery of the falcon include: 1) continued grazing in previously altered grasslands, which may prevent a return to grassland habitat and promote continued shrub encroachment (Humphrey 1958, Buffington and Herbel 1965, Hector 1987); 2) proliferation of weedy species such as snakeweed; 3) declines in prey species populations; 4) fragmentation of habitat due to urban expansion and oil and gas development; 5) removal or destruction of nesting and perching structures; 6) incidental shooting by hunters and poachers; and 7) pesticide contamination.

The most important factor contributing to the falcon's decline in the United States was probably the conversion of large mesquite and/or yucca grasslands to creosote bush or mesquite desert shrublands. The loss of these grasslands in southern New Mexico is significant. For example, it is estimated that the habitat in the Jornada del Muerto located between the San Andres Mountains and the Rio Grande went from 5 percent desert shrubs and 58 percent open grasslands in 1858, to 80 percent desert shrubs and virtually no open grasslands today (Zimmer 1995). This change is due primarily to intensive livestock grazing compounded by lower than average precipitation around the turn of the last century.

The loss of grassland habitats may partially explain the documented declines in grassland breeding birds in New Mexico, which are primary prey for falcons. According to the North American Breeding Bird Survey, the trend is negative for 46 percent of the species of grassland breeding birds in New Mexico (Sauer *et al.* 2001). Causes for these declines may be due to factors that impact migratory birds here in New Mexico, or they may be due to threats that are significant elsewhere along the migratory route or in the wintering areas of these species.

Although collecting pressure was considered a significant factor in the decline of the falcon in the early part of the 20th century, incidental shooting, poaching, and collecting are not considered significant threats at this time. But, increased access to previously inaccessible habitat may increase poaching and illegal collecting.

Pesticide contamination was recognized as a severe impact to the falcon population in eastern Mexico. The pesticide DDT did not go into use until 1948 (Hector 1983, 1987); therefore, it was

not the primary cause of falcon declines. It may, however, have added adverse effects to the already declining falcon populations. DDT was used from about 1948 to the mid-1970s before its use was eliminated in the United States. Kiff *et al.* (1980) found an average decrease (1954-1967) in eggshell thickness of 25.4 percent that was equivalent to the maximum amount of thinning reported for any peregrine falcon population. Eggshell thinning of over 20 percent is likely to result in reproductive failure due to egg breakage (Peakall *et al.* 1975). As a top avian predator in its ecosystem, the falcon is susceptible to bioaccumulation of persistent pesticides. In Mexico and in the southwestern United States, heavy concentrations of DDT persist in potential falcon prey (White *et al.* 1983) and this may be a continuing threat to falcons.

Hector (1981, 1987) gives a thorough account of historical falcon occurrence in the United States through examination of specimen collections and historical literature (Appendix A 1). He surmised that until the early 1930s the falcon was a regular breeding species in the coastal grassland communities of southern Texas and in the desert grassland communities of southern New Mexico, southeastern Arizona, and western Texas. Historical sightings (those prior to 1953) in New Mexico are concentrated in the southwestern corner of the state from Sierra and Doña Ana counties to the Boot-heel region (Williams 1998). In New Mexico, falcons were historically reported from Hidalgo, Grant, Luna, Doña Ana, Otero, Sierra, and Socorro counties (Appendix C). In Arizona, the most recent documented occurrences of falcons were recorded in 1975 and 1977, though there appears to be suitable habitat throughout the southeastern portion of the State. Greenlee, Cochise, Santa Cruz and Pima counties are presumed to have historically supported falcons and the Arizona Game and Fish Department has identified these counties as potential falcon release sites.

Currently, coastal southern Texas supports the majority of falcons in the United States. Since 1985, falcons have been propagated and reintroduced to southern Texas around the Laguna Atascosa National Wildlife Refuge (NWR) and Matagorda Island NWR. A released pair nested and fledged one young on Port of Brownsville land in extreme southern Texas in 1995. In 1996, four territorial pairs produced three fledglings in the same vicinity (P. Jenny, The Peregrine Fund, pers. comm. 1996). These reintroduced falcons were the first known successful nestings in the United States since the nest record near Deming, New Mexico, in 1952 (Ligon 1961). As of May 2001, there were 33 documented pairs of falcons in the wild in Texas with further supplements to the population planned for later in 2001. Of these 33 pairs, 22 were nesting in the spring of 2001 with a total of 13 successful nests and 21 chicks banded. Initial releases of falcons in west Texas occurred in summer of 2002 but success of these releases is not yet known.

Until 1992, it was believed that the only remaining falcons were restricted to coastal southern Texas and eastern Mexico from southern Tamaulipas south, even though no systematic surveys had been done in northern or central Mexico. Hector (The Peregrine Fund, pers. comm. 1996) did cursory surveys in northern Mexico and commented on habitat suitability. No falcons were detected during those surveys. But in 1992, a population of falcons was found on private ranch land in northern Chihuahua, Mexico, about 80 miles south and 50 miles west of the United States border (Montoya and Zwank 1995). Since the confirmation of this population, nesting falcons

have been found about 50 miles to the west and reliable observations have been reported from the Galeana and Gomez Frias areas of Chihuahua, about 150 miles west of the 1992 discovery site. Young *et al.* (2000) found nesting falcons about 31 miles west of the Texas border (about 74 miles south of El Paso, Texas). Young *et al.* (2000) also found a single falcon in 1998 and 1999 near Columbus, New Mexico, within 7 miles of the Mexico border near Palomas, Chihuahua.

During the past decade, falcons have been observed sporadically throughout their historical range in the Southwest (Appendix C). Whether a remnant population is present in New Mexico, or falcons are immigrating from northern Mexico, is unknown. However, the presence of a breeding population in northern Chihuahua may provide a source of dispersing birds that have been documented in New Mexico and western Texas. Montoya (The Peregrine Fund, pers. comm. 1996) banded 13 juvenile falcons at 9 to12 nests in Chihuahua in 1996. To date, only one juvenile bird banded in this study has been seen in New Mexico. It was observed on Otero Mesa in 1999.

In the spring of 2001, a nesting pair of falcons were observed near Deming. This is the first documented pair of nesting falcons in New Mexico since the pair in Luna County in 1952. This pair was unsuccessful in its first nesting attempt. Re-nesting was initiated in June, however, the three eggs laid by the female were abandoned. In spring and summer of 2002 two active pairs of falcons were documented in the area managed by BLM under the Mimbres RMP. One of these pairs has been present in the action area since December of 2000. This pair successfully fledged three offspring in the summer of 2002 on a second nesting attempt. These three offspring are currently still in the action area. The other pair was documented searching potential nest sites and copulating but was not encountered again during monitoring or surveys. Three individuals have been documented on separate occasions in February, May, and August of 2002 while the known pair was being monitored and during surveys of adjacent areas. One female bird appeared to be moving back and forth across the border into Mexico where other falcons have been documented by Mexican researchers (La Fon, Universidad Autonoma de Chihuahua (UACh), pers comm., 2002). Falcon surveys were conducted at Issak's Lake near Las Cruces in 1999, but no falcons were detected. Ten surveys were conducted in the area near where the falcon pair nested south of Deming in 2001. No additional individuals were detected during these surveys. There is one undocumented report of a single falcon west of the nesting territory of the active pair. This sighting has not been confirmed (Sandy Williams New Mexico Department of Game and Fish (NMDGF), 2001, pers. comm.).

The success of reintroductions in Texas, the several observations of falcons in New Mexico in recent years, and now the presence of a nesting pair, all indicate that falcon recovery is possible in New Mexico. Despite the drastic reduction of desert grasslands in southern New Mexico, there are still extensive grasslands within the historical range of the falcon totaling about 5,752,000 acres (Appendix B). The BLM and the Service (1999) have developed interim criteria for livestock grazing in falcon habitat pending completion of an ongoing study entitled "Determination of Habitat Suitability for Aplomado Falcons on Public Lands in Southern New

Mexico." The criteria broadly describe habitat as grasslands of greater than 320 acres in size, below 6,500 feet in elevation, and with adequate available nest substrates. We estimate that 70 percent of the grasslands shown in Appendix B meet these criteria for a total of about 4,026,000 acres of suitable falcon habitat in New Mexico. Of the 4,026,000 acres of suitable falcon habitat in New Mexico, approximately 65 percent is heavily fragmented with roads, highways, rural developments, cell towers, power lines, oil and gas development, and livestock management facilities leaving 1,409,000 acres of relatively unfragmented suitable falcon habitat. The majority of this habitat occurs on Otero Mesa, White Sands Missile Range, the Armendaris Ranch, and the boot-heel region comprised of Hidalgo, Luna, and Grant Counties (Appendix B).

III. ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone section 7 consultation, and the impacts of State and private actions that are contemporaneous with the consultation in progress. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

A. Status of the Species in the Action Area

The action area includes all areas under the management direction of the Mimbres RMP. Habitat for the falcon within these areas is characterized as Chihuahuan Desert grassland (grass-rolling upland and grass-flat standard habitat sites) containing primarily tabosa grass (*Pleuraphis spp.*) and black and blue grama grasses (*Bouteloua spp.*). Soaptree and Torrey yucca are scattered throughout; other dominant shrubs include mormon tea (*Ephedra sp.),* javelina bush (*Condalia ericodes*), small leaf sumac (*Rhus microphylla*), and mesquite. Tabosa swales, or draws, that are scattered throughout southern New Mexico and are distributed throughout the action area may provide the most important foraging and nesting habitat for the falcon. Swales are associated with washes that occur between mountains ranges and within wide valleys. Gramma grasslands in the action area may also be important foraging areas for the falcon, providing habitat for migratory and passerine bird species that make up the vast majority of the falcon's diet. Commonly, yucca stands are found within and on the margins of swales and gramma grasslands. Tall stature (1.5 meters or greater) yucca within the stands provide perching sites and nesting structures for other raptors to build stick nests using materials from nearby shrubs. Nests of this type and in these locations are potential falcon nest sites and are important to the recovery of this species in New Mexico. The acres of suitable falcon habitat within the action area have not been quantified and habitat suitability in the area ranges from marginal to high.

Surveys for the falcon have been conducted over the last decade but include only a fraction of suitable habitat in southern New Mexico. Results of documented individuals in surveys and reports of sightings are summarized in Appendix C. Some surveys have covered portions of the

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action area, however, these surveys are useful only in determining presence at the time they were conducted. It is not possible, given the limitations of the survey protocol, the vast amounts of unsurveyed habitat within the action area, and the highly mobile nature of the falcon to be certain falcons were absent.

In spring and summer of 2002, two active pairs of falcons were documented in the area managed by BLM under the Mimbres RMP. One of these pairs has been present in the action area since December of 2000. This pair successfully fledged three offspring in the summer of 2002 on a second nesting attempt. These three offspring are currently still in the action area. The other pair was documented searching potential nest sites and copulating but was not encountered again during monitoring or surveys. Three individuals have been documented on separate occasions in February, May, and August of 2002, while the known pair was being monitored and during surveys of adjacent areas (Meyer, 2002). One female bird appeared to be moving back and forth across the border into Mexico where other falcons have been documented by Mexican researchers (Lafon,UACh, pers comm., 2002).

B. Factors Affecting the Species in the Action Area

Livestock grazing is the principle traditional use for the entire action area. Livestock grazing directly impacts herbaceous ground cover, plant density, and species composition. Removal of fine fuels modifies natural fire regimes. Grazing can either maintain vegetative communities or convert them to new community types depending on such factors as present vegetative community, timing and duration of grazing, livestock numbers, and precipitation. Mismanagement of grazing has historically led to reductions in the quality and quantity of grasslands, disruption of abiotic processes, changes in plant community types, conversion to shrub lands, and declines in grassland breeding bird populations (Grover and Musick 1990, Whitford 1997, Whitford *et al.* 1995, Felker 1998, Whisenant 1995, Sauer et. al 2000). The effect of current grazing regimes on falcon habitat is unknown.

Shrubs and low growing trees have always been present in New Mexico's grasslands but historically were largely limited to drainages or to rocky shallow soil areas (Dick-Peddie 1993, Humphrey 1958). Overgrazing of New Mexico's grasslands has lead to invasion of woody shrubs. Large areas of desert grassland in New Mexico were lost to shrub invasion beginning in the mid-to-late 1800's. As an example, in 1858 there were 83,625 acres of grassland without shrubs on the Jornada del Muerto. By 1963, the entire area had one of three brush species present (Buffington and Herbel 1965). These species included tarbush, creosote, and mesquite. The area covered by mesquite increased from 29,089 acres in 1858 to 91,701 acres in 1963. Within 75 years a black gramma grassland was converted to mesquite coppice dunes with little to no grass cover and 55 to 100 percent mesquite canopy cover (Hastings and Turner 1965). The RMP authorizes utilization levels of between 50 and 55 percent for all grass species except for black gramma in "deteriorated" sites, where the maixmum utilization allowed is 35 percent. However, it is recognized that not all rangelands in the resource area are subject to 55 percent utilization. There are many areas that experience lower utilization because of their

inaccessibility, or because of livestock management systems such as rest-rotation, or deferred rotation.

Nesting structure availability is a key factor in falcon population recruitment. Livestock impacts to yucca are well documented (Kerley *et al.* 1993, Young *et al.* 2001), but many of their long term effects on nest structure availability in southern New Mexico are not known.

Livestock management facilities, particularly open-topped water storage tanks, are a hazard to falcons and their prey species. Six dead falcons were found in storage tanks in the falcon study area in northern Mexico (K. Young, New Mexico State University, pers. comm. 1999). These tanks did not have the wildlife escape ramps. Although wildlife escape ramps or netting are required on storage tanks and water troughs on BLM lands, there is limited information on whether they are in place or are properly maintained to prevent falcon drowning. Roads, fences, and livestock handling facilities fragment falcon habitat and may have undocumented negative effects on falcon prey species.

Oil and gas exploration and development activities are not currently ongoing in the action area. While some parcels have been nominated, the parcels remain unleased.

Recreation is prevalent throughout portions of the action area and includes off-road vehicle use, hunting, camping, and day use by visitors. Disturbance to falcons from these activities has not been documented. However, there may be disturbance to nesting falcons from illegal alien traffic in Luna County. In May 2002, failure of the only known falcon nest in New Mexico was documented. Inspection of the nest after it was abandoned found multiple signs of human presence and disturbance including soil trampling and empty water jugs. It is possible that the nest tree was used by illegal aliens for shade and to hide from border patrol agents.

IV. EFFECTS OF THE PROPOSED ACTION

Grazing

Actual use and utilization data indicate that stocking rates and grazing management practices will be variable. Management practices of grazing include, but are not limited to, fencing to exclude livestock, development of pipeline/trough systems to draw livestock away from riparian areas and prescribed livestock grazing systems (year-long, rest or deferred rotation, seasonal, holistic, or excluded from grazing). The RMP authorizes livestock to consume between 30 and 50 percent of available forage, depending on the forage species, range condition, and season of use.

Impacts to falcon habitat within the allotments will vary in their intensity depending on stocking rate, livestock distribution, and site capability. There will be direct impacts to falcons during the nesting season if nest structures (large yuccas) are disturbed by cattle. Meyer (2001) reported that he observed cattle rubbing on a yucca containing a falcon nest, twice in one observation period, while monitoring the falcon pair outside of Deming. He described the yucca as shaking

moderately as the first cow rubbed against it, and violently as the second cow rubbed a shoulder against the yucca. This occurred March 1, 2001, when the falcons were showing site fidelity for the yucca. They later nested in the yucca. Livestock were still in the pasture on March 8, 2001, as the pair began to incubate, but were removed March 15, and were not in the pasture the remainder of the nesting season. The falcons at the nest displayed disturbed behavior such as leaving the nest and vocalizations in response to livestock presence (Meyer, La Tierra Environmental Consulting, pers. comm., 2001). Livestock rubbing on nest trees occupied by falcons could disrupt successful nesting behaviors and could potentially knock down yucca plants while eggs or chicks still occupy the nest.

The intensity and duration of human activity associated with livestock grazing is low. The exception would be near handling facilities and along roads. Falcons are described as being relatively tolerant of disturbance (USFWS 1990). In the Mexico study area, they have successfully nested at livestock handling facilities, within a few yards of a maintained road, and on a steel power-line tower with a maintenance road underneath, but no information exists on the amount of human activity associated with sites while occupied, or the falcons response to these activities if they occurred (Montoya, The Peregrine Fund, pers. comm. 2001).

The threat most pertinent to grazing is habitat modification (Buttery and Shields 1975, Brown 1978, Benson 1979, Kaufman and Krueger 1984, Marlow and Pogacnik 1986, Kerley *et al.* 1993, Zimmer 1995, Burger *et al.* 1994, Huhta *et al.* 1996, Winter 1998, Young *et al.* 2001). Utilization rates recommended for semidesert scrub and shrubland is 30-40 percent (Holecheck 1988). The RMP allows livestock to consume between 30 and 50 percent of available forage, depending on the forage species, range condition, and season of use. This could result in vegetative community changes including: 1) conversion of grasslands to shrublands; 2) reducing the abundance, quality and diversity of native grass species; and 3) inhibiting the recruitment of yucca.

Depending on a variety of factors including the vegetative community, timing and duration of grazing, and livestock numbers, grazing can maintain vegetative communities or result in transition from grassland habitat to shrublands (Humphrey and Merhoff 1958). In areas of severe livestock utilization, such as around water sources, grass cover is almost completely removed. The diversity, abundance, and availability of falcon prey species in localized areas may be affected by the amount of forage removal and degree of fragmentation of grassland habitat (Benson 1979, Brown 1978, Burger *et al.* 1994, Huhta *et al.* 1996, Winter 1998).

Type conversion of native grasslands to shrub-dominated habitats is a threat that affects both the falcons and their prey. Type conversion is facilitated by numerous activities, including habitat fragmentation, overgrazing, drought, exotic species reintroduction, and fire suppression. Roads associated with livestock developments, livestock trails, fence lines, dirt tanks and livestock congregation areas impact habitat through changes in overland water flow. In tabosa draws or swale habitat, gradients are low and runoff from storms tends to occur as sheet flow (Zimmer 1995). Roads, livestock trails and dirt tanks concentrate and divert flows changing overland

hydrology and associated plant communities in an area. Changes in the amount of water affects habitat heterogeneity and can fragment some areas that become water-limited.

Trampling of soil by livestock alters its ability to absorb water (Zimmer 1995). Soil compaction causes water to flow over the soil surface rather than be absorbed into the ground, where it can be utilized by the roots of grass and forbs. Changes in water movement and availability to grasses and forbs affect their long term sustainability and gives a competitive advantage to woody species that are less palatable and whose roots are better able to reach deep water resources (Zimmer 1995).

Livestock contribute directly to the dissemination and germination of mesquite seedlings. Mesquite pods are high in sugar and are very palatable to both livestock and native wildlife species. Mesquite seeds have a thick seed coat and require scarification to germinate. When ingested by an animal, digestive juices dissolve much of the seed coat allowing it to readily germinate after passing through the digestive tract (Hernandez, unpublished thesis, 2000). Grassland habitat that is reduced in both quality and quantity is likely to result in a subsequent reduction of nesting and wintering prey species upon which the falcon relies as a food source. Reduction in prey species availability will further reduce the possibility of persistence of the falcon within the action area and may decrease or prevent nesting success for falcons already documented within the Mimbres Resource Area.

Nesting structure availability is key to successful reproduction and utilization of suitable grassland habitat by falcons. Falcons do not build their own nests, but instead rely on other avian species, such as Swainson's hawks and Chihuahuan ravens that typically build nests in forks of yuccas or the tops of mesquite trees (USFWS 1989). Long-term effects of livestock on older age-class yucca are not known. Kerley *et al.* (1993) found cattle consumed 98 percent of yucca flower stalks on the Jornada Experimental Range. While recruitment was not directly correlated to flower grazing, the information suggests that flower utilization at this level could impact the yucca population in the long-term through local extinctions of yucca moths, a subsequent reduced potential for sexual reproduction, and eventually a population of clones susceptible to risks associated with a lack of genetic variability, such as increased vulnerability of local extirpations due to stochastic events (disease, drought, etc.). Kerley et al (1993) found that although germination and recruitment were not significantly different, the proportion of small plants was significantly lower in grazed versus ungrazed populations. They concluded the main influence of cattle on population structure in the short-term was through grazing young plants (shoots and genets).

The presence of livestock can result in changes in yucca morphology as well as population structure. Cattle foraging on young vegetative growth in caudice rosettes results in the loss of apical dominance and increased branching of yucca plants (Kerley *et al.* 1993). Kerley *et al.* (1993) also found a higher proportion of procumbent caudices (lying parallel to the ground) in grazed populations than in ungrazed populations. This was attributed to trampling as opposed to a direct result of grazing. Livestock utilize large yuccas for rubbing and shading. In severe

cases, the layer of dead leaves surrounding the caudex and the bark can be rubbed off, affecting plant health. This can result in rot, a break in the caudex, and collapse of the plant. In Mexico, Young *et al.* (2001) found all but one yucca used by falcons showed evidence of disturbance by livestock, ranging from slight (n=8, 53 percent), to bare patches on caudex (n=4, 27 percent), to leaf cover completely absent (n=2, 13 percent). Livestock shading under yuccas and rubbing can result in eroded soil depressions at the base of the plant that may benefit the plant by collecting water, but can also result in exposed roots and increased potential for the plant to fall over. In some areas of the Mimbres Resource Area where nesting structures are limiting, livestock consumption of and disturbance to yucca will reduce the falcons ability to colonize some grasslands areas and to successfully nest in areas where livestock disturb yucca. Duarte (Universidad Autonoma de Chihuahua, pers. comm. 2002) proposed that lack of nest substrate availability may be affecting the ability of falcons to use grassland habitats in Chihuahua.

Other effects that will occur as a result of livestock grazing permit renewal are limited mostly to the construction or maintenance of livestock management facilities. These include fencing pastures, herbicide treatments, prescribed burns, water developments, placement of mineral supplements, access roads and human disturbance.

Water developments that are not outfitted with devices to prevent wildlife drowning (escape ramps, netting, etc.) can result in falcon mortality or may indirectly affect falcons by reducing prey species' availability due to passerine bird mortalities in the tanks. Drowning in open top water storage tanks is an indirect impact of livestock grazing (Craig and Powers 1975, Endersen 1964). In northern Mexico, within the falcon study area, six dead falcons were found in storage tanks that did not have wildlife ramps (K. Young, New Mexico State University, pers. comm., 1999). Two of these dead falcons were an adult pair, which had been nesting in a mesquite next to the water storage tank. On public land, BLM policy requires that open top storage tanks and livestock troughs include a wildlife ramp or netting to diminish or eliminate wildlife drowning. Mineral supplements and water tanks attract livestock. The effects of concentrations of livestock on rangelands are well documented (Kaufman and Krueger 1984, Buttery and Shields 1975, Marlow and Pogacnik 1986). Some areas experience more intense livestock impacts, resulting in adverse effects to grassland birds and falcon habitat. There is a greater potential for disturbance of falcons by livestock in areas where livestock concentrate. Livestock grazing may reduce falcon prey populations by reducing nesting attempts and limiting their success (Benson 1979, Brown 1978).

Roads that provide access to livestock management facilities provide increased access to humans as well as provide corridors for predator movement. Increased human disturbance and increased predator access may result in reduced recruitment of falcons. In addition, roads fragment habitat and result in edge effects which impact grassland bird populations by reducing available habitat and reducing prey availability for falcons (Burger *et al.* 1994, Huhta *et al.* 1996, Winter 1998).

Oil and Gas Exploration and Development

Oil and gas exploration and development activities are not currently ongoing in the action area. All phases of oil and gas activities, including geophysical exploration, exploratory drilling, field development, production, and oil refining have the potential to occur on the area but do not at this time. Parcels nominated for leasing exist in the action areas, but are not leased at this time. Future oil and gas discoveries may occur by either direct or indirect exploration methods.

Associated activities of development and exploration, including support services, refineries, and compressor stations will fragment, disturb, and destroy habitat.

Falcon mortality could occur as a result of increased human activity, or as a result of development and maintenance of the infrastructure that oil and gas exploration and development require. For example, falcon mortality could occur at pits used to store drilling muds and power poles and power lines associated with drilling and production. Petroleum and natural gas development will result in increased roads, increased power lines, noise sources, human disturbance and increased human presence.

Avian mortality due to collisions with vehicles on roads is well documented and, diurnal raptors that frequent and hunt along roadside habitats (such as kestrels) are at relatively greater risk of auto collisions (Newton *et al.* 1999). Increases in the number of roads and automobile use contribute to greater risks of raptor collisions with automobiles (Forman 2000). No road-killed falcons have been found in Chihuahua; however, at least two falcons were killed along roadways near Laguna Atascosa in south Texas, and a third bird was recovered after it had been hit by a car in the area (A. Montoya, The Peregrine Fund, pers. comm., 2001). Raptors collide with overhead power lines and fencing (Bevanger 1994, Fitzner 1975). Collisions seem more likely in low-light scenarios (e.g., dawn or dusk), during foul weather, and in locations where raptors concentrate around an abundant prey source and/or when the bird is hunting near the lines and paying attention to prey and not the lines (Bevanger 1994). Aerial pursuit raptors such as the falcon may be more susceptible to collisions (Bevanger 1994). Electrocution is the primary cause of mortality of raptors in North America. Electrocution is suspected in one falcon mortality found near a transmission line between a pump and farm in Chihuahua, Mexico (A. Montoya, The Peregrine Fund, pers. comm., 2001).

The amount of surface disturbance related to oil and gas development will be determined by the quality of discoveries and market considerations. Disturbance will continue as long as the wells are producing and until reclamation has occurred. Specific effects related to oil and gas development and exploration could include: Soil churning, soil compaction, loss of topsoil (when used as pipe-bedding material), loss of vegetative cover, altered surface and subsurface water flow, increased erosion, changes in plant density and species composition, loss of specific habitat features such as large shrubs, and potentially the introduction of exotic plants. These changes may persist, negatively affecting falcon prey populations until the habitat in the well-pad areas, pipeline corridors and roads is restored to near pre-disturbance conditions, which is a slow

process in this desert environment. Reclamation of disturbed areas can be extremely slow depending on the quality of reseeding, the species used, precipitation, and subsequent land management actions (Sinton, 2001).

Seismic surveys and construction of well pads, roads, and pipelines will disturb and displace ground-dwelling animals, disturb and destroy habitat structures such as shrubs with nests, cause habitat loss through erosion, and may change food and cover relationships due to vegetation changes and increased erosion. The composition and density of animal species may change within and adjacent to the pipelines, roads, and well pads. This would decrease prey base populations for the falcon in localized areas (Burger *et al.* 1994, Huhta *et al.* 1996, Trombulak and Frissell 2000, Winter 1998). Passerines comprise up to 97 percent of the biomass in falcon diets. A reduction in the numbers of grassland birds may be one reason for the falcon's decline in New Mexico (R. Meyer, La Tierra Environmental Consulting, pers. comm., 2000). Thus, activities that have a significant negative effect on grassland bird abundance will reduce the likelihood that falcons can survive within the action area. Machinery noise and human activity will disturb and displace wildlife during the time periods required to complete the construction of roads, well pads, and pipelines; but this will largely disappear after construction is completed. However, wildlife disturbance and displacement will continue long-term to a lesser degree because maintenance of well equipment and pad infrastructure is of a frequency and intensity that would disturb prey species and falcons adjacent to well-pad areas and roads. Likewise, if roads are built along pipelines, fragmentation of falcon habitat will persist.

The intensity of edge-effect disturbance will be greatest adjacent to construction areas and extend outward, dissipating with distance. The edge effect will extend a large distance (as much as 1.2 miles) from pipeline routes (Lovejoy *et al.* 1986, Wilcove *et al.* 1986, Fiedler and Jain 1992, Noss and Cooperider 1994, Forman and Deblinger 2000, Trombulak and Frissell 2000). Roads, range improvements, powerlines, and infrastructure development contribute to existing habitat fragmentation in the action area. Additional oil and gas exploration and development will result in increased fragmentation and reduced prey availability.

Seismic geological studies of underground formations associated with exploration may reduce nesting success of falcons by directly removing nesting habitat and causing high intensity short duration stress and disturbance to any falcons present in the study area. Seismic exploration activities are popular methods for locating subsurface formations that may contain oil and gas. Thumper and vibrator methods include pounding or vibrating the earth to create a shock wave. Usually four large trucks equipped with vibrator pads are lowered to the ground and triggered. Information is recorded and the trucks move forward a short distance. A similar method called seismic exploration 3-D process uses vibration to create a shock wave in the earth with as many as 6 to12 trucks (vibrator lines) arranged in a parallel array with a separation of several hundred to one thousand feet between lines. These methods result in destruction of yucca and grassland habitat along survey routes. This may prevent or decrease nesting attempts and success in areas where nest structures are limiting.

Structure development and human activity is prevalent on well pads during the drilling phase and also during routine maintenance of pad infrastructure. Resulting disturbance to falcons may decrease nest success by interrupting breeding and foraging behavior. Storage tanks on well pads also present a threat to the falcon and its prey species. Open storage tanks for drilling muds, water, or petroleum will result in mortality to prey species and possibly falcons.

Oil and gas development creates a disturbance at well pads during drilling and installation of permanent structures for producing wells. Permanent structures may include pumpjacks for oil wells, open pits, fluid storage tanks, meter houses, separator units, and compressors. Pumpjacks and compressor units produce almost constant noise. Spills of oil and other produced fluids are possible during drilling and later during storage and transport. Hydrogen sulfide and other gases are frequently vented into the atmosphere. Producing wells require regular inspection and maintenance necessitating frequent travel in areas that had formerly been infrequently traveled. The roads, pipelines, and power lines needed to service producing wells fragment habitat. Vehicle travel, well maintenance, compressor noise, power line and increased access for non-oil and gas related activities will create a disturbance edge effect that will extend beyond the actual well sites. Pipelines create a long lasting disturbance in xeric habitats and are difficult to reclaim, but disturbance from noise is limited and constant maintenance visits are not required. The BLM currently uses a distance of 1,200 feet for calculating the extent of edge effects from disturbance activities. Edge effects at well sites will continue as long as the wells are producing and being visited for normal oilfield activities. Each well will have an edge effect of about 40 acres. The area of habitat fragmented or directly disturbed by the actual pipelines, wells and oil pads, pumpjacks for oil wells, open pits, fluid storage tanks, meter houses, separator units, compressors, and associated roads along with the area of habitat disturbed by edge effect may impact a large portion of potentially suitable habitat for the falcon.

Within the resource area, the Service anticipates destruction of falcon nesting and perching structures, as well as increased habitat fragmentation and possibly a reduction in prey species. Falcon tolerance for disturbance associated with these activities is unknown. As the productive life of a field progresses, problems could arise from erosion of unvegetated areas, roads, unauthorized off-road travel, and improperly placed or un-reclaimed pipelines.

Mineral Mining

Locatable minerals in the action area include gold, silver, copper, lead, zinc, iron, molybdenum, cement-quality limestone, gypsite, turquoise, beryllium and other rare earth mineral, tin, uranium, alunite, zeolites, fluorite, and manganese. The potential for extraction is moderate to high in many areas throughout southern New Mexico; however, minerals are typically located in the uplifts or horst blocks and the production of locatable minerals from grasslands/falcon habitat is sporadic.

Saleable minerals such as sand, gravel and stone, clay, caliche, and volcanic cinders are common in the action area and are generally found along mountain pediments and in arroyos adjacent to mountain uplifts.

Right of Ways

Right-of-way (ROW) leases and permits are granted to qualified individuals, businesses, and governmental entities for the use of public land. Utility ROW's include electric transmission and distribution lines, pipelines, fiber optic corridors, and transportation corridors. Within the life of the plan, increases in ROW permits and leases are expected as oil and gas development continues and urban development increases. A brief description of each type of ROW expected to occur on BLM lands in the action area follows:

Pipelines

Pipelines associated with oil and gas exploration, development, production and transportation are usually buried. Pipelines greater than 4 inches in diameter, all injection lines, and gas lines with a pressure greater than 125 pounds per square inch (psi) must be buried and preferably be constructed of steel. Where burial is impractical, painting may be required for visual recognition. The ROW along a pipeline generally consists of a cleared area limited to a 50-foot work zone. Site preparation generally consists of removing brush while leaving grasses and forbs intact. Permanent roads or trails are generally not intentionally established on the pipeline route (USFWS Cons. # 2-22-01-F-373).

Transportation

There are numerous roads and trails crossing BLM lands in the action area. These routes may vary from interstate highways to two track jeep trails and foot paths. All routes through falcon habitat have the potential to create edge effects and decrease the quality of suitable habitat. The effects of roads and their associated fragmentation are documented (Burger *et al.* 1994, Fiedler and Jain 1992, Forman and Deblinger 2000, Huhta *et al.* 1996, Lovejoy *et al.* 1986, Trombulak and Frissell 2000, Wilcove *et al.* 1986, Winter 1998, Noss and Cooperider 1994).

Electrical Transmission, Distribution Lines, and Telephone Lines

There are numerous powerlines distributed throughout BLM lands in the Mimbres Resource Area. In addition, telephone lines are present throughout the action area. Powerlines provide places for birds to perch and poles provide nesting sites for many avian species, including Chihuahuan ravens and multiple species of raptors.

Raptors collide with overhead power lines and fencing (Bevanger 1994, Fitzner 1975). Collisions seem more likely in low-light scenarios (e.g., dawn or dusk), during foul weather, and in locations where raptors concentrate around an abundant prey source and/or when the bird is hunting near the lines and paying attention to prey and not the lines (Bevanger 1994). Aerial pursuit raptors such as the falcon may be more susceptible to collisions (Bevanger 1994). Electrocution is the number one cause of mortality in raptors in North America. Electrocution is suspected in one falcon mortality found near a transmission line between a pump and farm in

Chihuahua, Mexico (A. Montoya, The Peregrine Fund, pers. comm., 2001). Increased presence of utility lines will result in increased probability of mortality to falcons as well as their prey.

Avian mortality due to collisions with vehicles on roads is well documented and diurnal raptors that frequent and hunt along roadside habitats (such as kestrels) are at relatively greater risk of auto collisions (Newton *et al.* 1999). Increases in the number of roads, automobile use, and highway speeds will increase the risks of raptor collisions with automobiles in the future (Forman 2000). No road-killed falcons have been found in Chihuahua; however, at least two falcons were killed along roadways near Laguna Atascosa in south Texas and a third bird was recovered after it had been hit by a car in the area (A. Montoya, The Peregrine Fund, pers. comm. 2001). Falcons do not seem to be disturbed by ROWs. At least two pairs successfully nested within 500 meters (m) from a major highway in south Texas and one pair nested on a radio tower. One nest has been found in Chihuahua less than 100 m from a major highway (two-lane divided road) while more than 10 nests have been located within 100 m of dirt roads in Chihuahua.

All ROWs have the potential to fragment existing BLM grasslands. Roads and pipeline construction generally cause direct losses of habitat by removal of vegetation. Standard lease terms and conditions for oil and gas often do not require the use of existing roads; however, use of the existing road systems is encouraged to the extent practical.

Construction of ROWs will disturb and destroy falcon habitat structures such as shrubs with nests, cause habitat loss through erosion, and may change food and cover relationships due to vegetation changes and increased erosion. The composition and density of animal species may change within and adjacent to pipelines and roads. This may change prey-base abundance and composition available to the falcon (Trombulak and Frissell 2000). Passerines comprise up to 97 percent of the biomass in the diet of falcons (Montoya, 1995). Thus, activities that have a negative effect on grassland birds will reduce the likelihood that falcons can survive within the action area. Wildlife will be disturbed and displaced by machinery noise and human activity during the time pipelines are buried and sites are reclaimed. Direct disturbance and displacement will largely disappear after construction is completed. However, some wildlife disturbance and displacement will continue within the ROW, although to a lesser degree, if a road is built along the pipeline or is created as a result of off highway vehicle (OHV) activity.
The intensity of edge effect disturbance will be greatest adjacent to ROWs and extend outward, dissipating with distance. The edge effect could extend a large distance (as much as 1.2 miles) from the pipeline route, utility corridor or road (Wilcove *et al.* 1986, Fiedler and Jain 1992, Noss and Cooperider 1994, Forman and Deblinger 2000, Trombulak and Frissell 2000). The initial edge effect will be larger (in terms of spatial extent) and will subsequently contract, but not disappear, following construction. Revegetation of disturbed sites in Chihuahuan desert grasslands is typically very slow. Use of the pipeline as a road would also perpetuate the edge effect by maintaining surface disturbance. The edge effect may result in disturbance and displacement of falcons and their prey populations.

Powerline structures may provide nesting habitat for the falcon. Falcons in both Chihuahua and south Texas have nested successfully on telephone or utility poles. During the years 1996 to 2000, four falcon nests were located on power poles in Chihuahua and more than 10 falcon nests have been found on poles in south Texas since 1995 (A. Montoya, The Peregrine Fund, pers. comm. 2001).

Recreation

Recreation is prevalent throughout portions of the action area although most recreation is dispersed and includes caving, camping, hunting, picnicking, mountain biking, fishing, horseback riding, hiking, climbing, sightseeing, and off-road vehicle use. The action area contains developed BLM recreation sites. Facilities generally include self-guided interpretive trails, handicap-accessible bathrooms, and shelters. There are three levels of designated OHV use areas. These include public land areas open to OHV use, areas limited to existing roads and trails, and areas closed to all OHV use.

Trails and established recreation areas provide access throughout the action area. Harm or harassment may occur if individuals or groups from the public disturb nesting falcons or their offspring. The number and success of nesting attempts may be reduced if this occurs. Increased access by recreationists and hunters may result in increased poaching of adults or chicks by falconers and collectors.

Off highway vehicle use occurs throughout the area and can be characterized as either a method of transportation or as a direct recreational use. The RMP designated 16,190 acres open to OHV use, 2,371,630 acres limited to existing roads and trails, 532,530 acres limited to designated roads and trails, and 133,470 acres closed to OHV use. As transportation, OHVs are used to transport recreationists, such as hunters, to recreation sites. Examples of direct recreation use include motorcycle races and hill climbing. Although there are no known heavy OHV use areas currently in the action area, over the life of the plan, OHV use may change. However, popular OHV areas are characterized by rolling and stabilized dune lands or steep hills that receive motorcycle use. Generally, these areas are not likely to be suitable falcon habitat. Should future OHV use patterns change, areas of heavy and OHV use in suitable falcon habitat may have impacts to falcons and their prey base. An area used infrequently by an occasional user might

not have significant effects on nesting falcons beyond direct or noise disturbance effects; however, depending on the user's actions and the sensitivity of the bird, even periodic activity might dissuade a falcon from nesting in an area.

Indirect effects include reduced habitat suitability due to the presence of disturbance by human activities or reduced prey population. Destruction of nesting structures or smaller age class yucca or reduced long term yucca population viability will occur on a local level in areas of heavy OHV use and high road densities.

Realty Land Exchange

Laws such as Federal Land Policy and Management Act and the Federal Land Exchange Facilitation Act provide specific authority for land exchanges. The emphasis for the exchange is to acquire private and State trust lands in areas that have high resource values or unique characteristics that would enhance management of the public land, and dispose of public land that is valuable for urban expansion or that has other physical characteristics that make them difficult or uneconomical for BLM to manage.

Negative impacts to the falcon as a result of realty land exchanges would be indirect in nature. Loss of habitat due to fragmentation could be expected if exchanged BLM lands are falcon habitat and are subsequently developed. Resulting roads, increased vehicle traffic and people coming into contact with birds (vehicles and people) could result in take, reduced recruitment, and decreases in the quality of available habitat for the falcon. The falcon could be positively impacted by land exchanges if the BLM acquires suitable habitat for the falcon and manages it in such a way that it remains suitable. Effects of land exchanges would be variable depending on lands exchanged. Each proposed exchange would be analyzed at a site specific level.

Range Improvements

The proliferation of "weed" species such as snakeweed (*Gutierrezia* spp.) are a threat to the falcon in portions of its historic range (Montoya A., The Peregrine Fund, pers. obs., 1996). The transistion from native grassland to weed species may reduce habitat suitability for prey species of the falcon if proliferation is significant. Enhancement of existing grasslands, brush control, eradicating exotic, invasive species, prescribed burning, and other restoration activities that improve habitat features may be necessary to conserve the falcon and ensure that its habitat is sustainable.

Vegetation Treatment

The purpose of vegetation treatments are to control undesired plant species, suppress plants toxic to wildlife and domestic livestock, and control the expansion of exotic species that threaten native species and invade adjacent agricultural and pasture lands. Invasive plant species control

treatments could also be directed towards disturbances associated with oil and gas sites and ROWs. Treatments would also be designed to maintain fire control lines or fuel breaks or suppress vegetation that restricts vision or presents a safety hazard. Manual (cutting, pulling, mulching), mechanical (blading, roller chopping, mowing, drilling), biological (razing, insects, pathogens) and chemical (aerial, ground) techniques are used to treat vegetation.

Rangeland treatments are designed to achieve desired range conditions, increase forage production for livestock and wildlife, create stratified age structure dynamics in brushlands for wildlife enhancement and fuel hazard reduction, increase habitat diversity and improve watershed condition. However, depending on the goal of the vegetation treatment, the action may have a negative or positive effect on the falcon. Projects designed to improve forage resources for livestock may be successful in increasing cover and forage availability, which could indirectly benefit the falcon through improved habitat for prey species. However, other desirable attributes such as biodiversity in grass and forb species, or nest structure availability may not be an effect of proposed vegetation treatments.

The treatment of noxious weeds with herbicides is conducted in accordance with current BLM policy, including Manual Sections 9015 (Integrated Weed Management) and 9220 (Integrated Pest Management). The poisonous plants of greatest concern that occur in the action area are locoweed (*Oxytropis* spp.), mustard (Brassicaceae family), and milkweed (*Asclepias* spp.) Plants that are considered undesirable for livestock include oak, mustards, cocklebur, and snakeweed. Plants that are considered noxious weeds by the BLM Field Offices include Russian knapweed (*Centaurea repens*), hoary cress (*Cardaria draba*), Canada thistle (*Cirsium arvense*), Malta starthistle (*Centaurea melitensis*), leafy spurge (*Euphorbia escula*), musk thistle (*Carduus nutans*), yellow starthistle (*Centaurea solstitialis*), and African rue (*Peganum harmala*).

General management objectives are to maintain or improve vegetation with the emphasis on watershed protection and forage for wildlife. Watershed and livestock management objectives for each desired plant community (DPC) are to improve vegetation composition and production in areas that currently do not meet the vegetation condition objective. Each habitat area has threshold levels for the DPC. DPC for upland grasslands generally fall in the range of 65 to 80 percent grass, 20 to 30 percent shrubs, and 15 to 30 percent forbs. Vegetation treatments include prescribed fire or prescribed natural fire, fuel wood sales, and biological, chemical or mechanical controls. Projects such as fences, water developments, erosion control structures, reseeding, vegetative sales, or grazing treatments such as change in season of use, class of livestock, or stocking rates, can be employed to achieve the DPC.

Direct effects to falcons can be expected if an occupied nesting tree is inadvertently chosen for sale and removed. Additionally, prescribed fires in falcon habitat could destroy nest structures. Vegetation treatments to benefit livestock may result in changing locations of livestock congregation areas which may result in increased livestock presence and grazing intensity in areas where falcons are nesting. Additional disturbance to nesting structures by livestock may result. Vegetation treatments may alter availability of forage for livestock on a local level. As a

result, livestock movement to areas with higher forage availability may increase livestock presence, potential for disturbance to falcons, and grazing intensity in an untreated area.

Vegetation sales may impact the quality of habitat for falcons on a local scale. Sales include yucca, cacti, and other possible ornamentals for landscaping purposes as well as grama grass seed for harvest. A decrease in yucca could reduce potential nesting habitat. Prescribed fires may have short-term effects on falcon habitat quality and prey base by removing grassland habitat used by these species. Conversely, prescribed fires will have long-term effects on falcon habitat quality where they destroy nest structures that may be the limiting feature for falcons.

U.S. Department of Agriculture, Wildlife Services

Wildlife Services, as well as APHIS (Animal and Plant Health Inspection Service) conduct predator and pest control activities on public lands in southern New Mexico and in habitat for the falcon. These activities include grasshopper control, gopher and prairie dog control, corvid (ravens and crows) control, and predator control. Activities are conducted using various methods, including kill traps, live traps, and toxicants. Wildlife Services control activities on public land are guided by Department of Interior (DOI) policy and the annual regional Wildlife Services Plan prepared jointly by the USDA and BLM.

The Aplomado Falcon Recovery Plan (USFWS 1990) cites pesticide contamination as one of the likely reasons for falcon population declines in the United States. The extirpation of falcons from the United States as a result of persecution and habitat conversion, along with evidence of high levels of DDT contamination in falcons from eastern Mexico (Kiff *et al.* 1978) were factors that led to the listing of this species in 1986. Later it was suspected that pesticide use may have further reduced the populations in the United States (Kiff *et al.* 1980).

Falcons may be harmed by predator control and pest control if they consume toxicants distributed for the control of other species. Additionally, falcons may consume contaminated prey and suffer harmful effects from poisons resulting in mortality or lowered fitness. Falcon offspring may have reduced survival if pesticides are consumed by the breeding pair or if food brought to the nest is contaminated. It is also possible, but highly unlikely, that falcons may be captured in traps meant for other animals, such as coyotes (*Canis latrans*) or foxes, and suffer stress or mortality.

Great horned owls (*Bubo virginianus*) and coyotes are common predators of falcons. Coyotes are the most common large predator in falcon habitat although their predation on falcons is not significant compared to that of avian predators. Predator control of these species, including corvids, may benefit the falcon, although this benefit may be offset by the falcon's need to use the stick nests of other raptors and corvids.

Fire Suppression and Prescribed Wild Fires

Prior to European settlement, fire was the most common influence on the landscape in much of the southwest (Wright 1990). In drier parts of the West, however, the significance of fire effects on vegetation can be difficult to separate from the effects of drought (Wright 1990). The breakup and reduction of fuels caused by grazing and cultivation that came with European settlement, and then the introduction of organized fire suppression, have caused a drastic decrease in fire occurrence and size (Gruell 1983). Significant changes in vegetation have resulted from the omission of fire as a dominant ecological factor on many sites. While little site-specific information on pre-settlement natural fire frequency is available, it has beensuggested that natural fires were more common than they are today. Prior to livestock grazing, light fuels would have been more abundant, continuous, and easily ignited.

Prescribed fires or fires that are not suppressed during the nesting season could result in mortality of falcon offspring if they are unable to fly away from the nest tree. Fire suppression activities may also disturb or harm falcons if fire breaks are built in falcon habitat, or human activity resulting from fire activities is intense and invasive enough to disturb the breeding, feeding, or sheltering behavior of the falcon.

Build up of fuels from continuous suppression of fires in an area could increase the vulnerability of nesting substrates to catastrophic fire which might limit nest structure availability on a local level. Soap tree yuccas burn readily and resprout. In the short term, fire reduces availability of nest substrate. In the long term, fire is an important factor in maintaining desert grassland by preventing shrub encroachment.. However impacts to grassland systems are magnified when drought is a factor or when grazing is allowed to presume prematurely. BLM states in their regulations that all areas treated with prescribed burning, natural fire, or chemical herbicides will be rested from grazing for at least two growing seasons in areas where livestock use occurs. Following wildfires or prescribed burns, habitat would be largely unsuitable for foraging and nesting. However, falcons are highly mobile, opportunistic, and capable of responding to shifting habitat conditions in the event that fire is presented as a significant negative impact.

V. CUMULATIVE EFFECTS

Cumulative effects are the effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation. Numerous cumulative impacts are possible within and adjacent to the action area. Most of these impacts interact and combine to affect species and habitats indirectly. Potential cumulative effects on falcons in the action area would eliminate and fragment areas of suitable habitat.

Rapid human population growth in, and adjacent to, southwest New Mexico results in immediate habitat loss and fragmentation. Large areas around Las Cruces, El Paso, Texas, Juarez, Mexico, Deming, Lordsburg, and Silver City, New Mexico are being urbanized. Other, more remote areas, such as the west side of the Peloncillo Mountains and the Burro Mountains are also being developed for rural housing and agricultural conversion The typical land status pattern is private land in mountain passes, basins and along drainages. As these areas are developed, suitable habitat is lost and fragmented. The infrastructure necessary to provide for the growing human population exacerbates the impact to falcons and their prey. Roads, highways and urban development change overland flow characteristics and can impact desert grassland, ephemeral playas, arroyo habitat and other native plant communities.

Although marginal for farming, several areas of former grassland in this part of the State have been, and to a lesser degree, continue to be converted to farmland. These areas include the Uvas Valley, Animas Valley, Playas Valley and the area southwest of Deming. In many cases, areas are farmed for a few years then abandoned. Abandoned farmlands are converted to pasture land which has little or no structure or species diversity characteristic of a native grassland. The area is often farmed again, when economic conditions improve. Conversion of grassland to farmland is currently happening on a large scale adjacent to the action area in Mexico.

Ground-water pumping can impact subsurface and surface flow over large areas. Mexico and the United States share bolsons (basins where ground water is abundant and surfaces in cienagas) along the border. Farming in Mexico also increases the potential for impacts to falcons living in both southern New Mexico and Mexico from pesticides. Several pesticides that are illegal in the United States, including DDT, are legal and used in Mexico. Water diversion for agriculture and flood control projects facilitate the conversion of native grasslands to farmland along the Gila and Rio Grande Rivers.

Many areas in southern New Mexico have a significant amount of private and state grazing land. Impacts to the falcon from poor livestock management on State and private lands may affect the falcon by impacting prey species abundance and diversity over areas that extend beyond the boundaries of state or privately managed rangelands. Rangelands in Mexico will also continue to be impacted by grazing. In Mexico, communal areas are often most heavily affected.

Oil and gas exploration and development could increase on private and State land in the area. Development on private or State-owned lands that results in habitat fragmentation, reduction in prey species, or increased risk of mortality to falcons by electrocution, drowning, toxication, or vehicular collision would decrease their suitability as falcon habitat.

The potential for impacts from exotic species is complicated by land status. These species often disperse along roadways. Agreements are in place with some counties to treat noxious weeds along road ROWs. However, this effort is specific to broadleaf plants and does not slow the

spread of Lehman lovegrass, which originated from road construction seedings and rangeland vegetation treatment projects. This species has the potential to increase fire frequency over natural conditions, creating an environment where it would dominate. Invasion of exotic plants is prevalent in urban areas. Many of these exotics have the potential to spread onto public land and dominate native vegetative communities, reducing habitat quality for the falcon.

VI. CONCLUSION

After reviewing the current status of the falcon, the environmental baseline for the action area, the effects of the proposed Mimbres RMP, and the cumulative effects, it is the Service's biological opinion that implementation of the Mimbres RMP, as proposed, is not likely to jeopardize the continued existence of the falcon. No critical habitat has been designated for this species, therefore, none will be affected. The conclusion of no jeopardy for the falcon is based on guidance to conserve threatened and endangered species by the Mimbres RMP, voluntary actions by the Las Cruces Field Office of the BLM to minimize effects of management actions to falcons, a commitment to monitoring effects of management actions to the falcon and its habitat, and the commitment to use adaptive management to make management changes based on the monitoring information collected.

The Service has evaluated the impacts to the falcon that would result from continued implementation of the Mimbres RMP. Ongoing grazing may negatively impact this species in New Mexico. Allowing livestock to consume up to 50 percent of available forage may result in negative effects to falcon habitat, either by reduced abundance or diversity of native plants, reduced recruitment of yucca, and/or conversion of grasslands to shrubland. Range trends for some allotments have been reported in previous BEs submitted by the LCFO to be static, improving, or unknown. The unknown trends for some allotments are generally due to a lack of monitoring. It is also unknown whether current trend/condition data accurately reflect ecological condition and trend. Current monitoring also does not address impacts to significant habitat requirements of the falcon. This information is important to quantify the recovery of desert grassland systems and the falcon. Current levels of grazing may be limiting persistence of grassland habitats and ultimately, the falcon.

Lands managed under the Mimbres RMP contain a portion of potential or occupied falcon habitat and are open to grazing under the proposed action. The grazing allotments within the Mimbres Resource Management Area comprise a significant portion of suitable falcon habitat in New Mexico and are currently occupied by at least two pairs of falcons, three of their fledglings, as well as at least one more individual (Meyer 2002). Within the life of the plan, monitoring as is currently conducted by the BLM is likely insufficient to determine if management actions are affecting grasslands used by falcons and their prey either directly or indirectly. Previously cited research states that livestock grazing can affect falcon prey species composition and abundance as well as yucca recruitment and survival, however, no determination of how current livestock

management is affecting the recovery of the falcon can be made. While some areas of historical grasslands have been permanently type converted into shrublands as a result of historical overgrazing, some areas that are now degraded could potentially be restored. Current grazing levels in areas that have been heavily impacted by historical livestock use may not allow the habitat to recover to the point where it can sustain the prey base necessary for a sustainable population of falcons to persist. Livestock management facilities such as water storage tanks and troughs pose a direct threat to falcons if they are not properly outfitted with netting and escape ramps.

Few areas of unfragmented grassland remain in New Mexico. Habitat fragmentation resulting from land development (land exchanges, substations etc.), ROWs, and fluid mineral and hard rock mineral development and exploration is likely to decrease habitat quality for the falcon and may render once suitable habitat unsuitable. Fragmentation increases the likelihood of disturbance to the falcon by humans, which may negatively impact reproductive success and/or the likelihood that the falcon will find and successfully defend a suitable territory. Fragmentation has negative effects on falcon prey species that use grasslands for wintering and breeding.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act, as amended, prohibits taking (harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct) of listed species of fish and wildlife without a special exemption. Harass is further defined as an intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent to significantly disrupt normal behavior patterns. Normal behavior patterns include, but are not limited to, breeding, feeding, and sheltering. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the incidental take statement.

The measures described below are non-discretionary, and must be undertaken by the BLM to this consultation so that they become binding conditions of any grant or permit issued to any applicants, as appropriate, for the exemption in section 7(o)(2) to apply. The Federal agencies have a continuing duty to regulate the activity covered by this incidental take statement. If the BLM (1) fails to assume and implement the terms and conditions or (2) fail to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the BLM must

report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

I. AMOUNT OR EXTENT OF TAKE

At a minimum, there are two pair of falcons and four additional individuals within the Mimbres RMP area. The incidental take statement for this proposed action is based on a theoretical population recruitment/mortality scenario for a falcon population in the Mimbres RMP area. This falcon population scenario is based on the presumed longevity of falcons in the wild and an extrapolation of the incremental increases in falcons over the last decade within the RMP area. Using data from the Chihuahuan falcon population, birds documented in New Mexico, and life history information, the Service estimates that throughout the life of the plan (until 2013), the population of falcons in the Mimbres Resource Area will increase from a current number of at least 9 falcons to about 52 falcons by 2015.

Oil and Gas Exploration and Development: Oil and gas exploration and development may eliminate or reduce the suitability of falcon habitat. Disturbance of falcons or their young during the breeding season from machinery, maintenance operations, and vehicular traffic may result in reduced reproductive success and recruitment. Infrastructure such as telephone poles, wires, tanks, pits, and electrical poles may result in mortality by collision, drowning, contamination, and electrocution. Over the life of the plan, the Service anticipates take of three falcons through harassment by disturbing falcons from their nest and take by harm of one falcon through electrocution or vehicle mortality from associated oil and gas activities.

Rights of Way: The Service anticipates the take by harm of two falcons killed by vehicular traffic on highways and county or dirt roads. Off highway vehicle traffic has the potential to disturb nesting falcons and their offspring during the breeding season and may result in reduced recruitment. Over the life of the plan the Service anticipates the take of two falcons by harassment from these activities.

Recreation: Recreation may result in disturbance by humans to such an extent that nesting falcons are disturbed and nesting territories are abandoned. Likewise, the direct effects of recreation, such as OHV use, mountain biking, and hiking, on falcon prey species may reduce habitat suitability for the falcon. Over the life of the plan the Service expects take by harassment of one falcon as the result of these activities.

Realty: Exchanging falcon habitat for urban or rural development by nearby communities could potentially result in adverse impacts to falcons through mortality, harm, or harassment depending on which land use was designated for exchanged lands and where this land use occurred relative

to falcon presence. Environmental analysis by the LCFO should ensure that this activity does not result in take.

Vegetation Treatments: Vegetation treatments would have harmful effects on falcons if they destroyed nesting substrates occupied by falcons and their offspring, reduced nest structure availability or prey diversity and abundance. If vegetation treatments significantly affect forage availability to livestock, changes in grazing intensity would have localized effects on falcon prey abundance. Large-scale treatments, regardless of livestock use, may have localized negative effects on prey availability. Monitoring and data collection by the LFCO, as well as required environmental analysis and adaptive management of livestock grazing to address rangeland needs should be adequate to prevent these actions from resulting in take.

Predator Control: Predator control may directly affect falcons through accidental mortality, or if raptors and corvids are target species, nest availability may decrease. Although these actions could affect falcons, the Service does not expect their implementation would rise to the level of take.

Livestock Grazing: The Service expects the take by harassment or harm of 8 falcons/chicks/eggs to occur through destruction of active nests or disturbance to falcons and their offspring by livestock. We also expect the take of one falcon by drowning in an open-top water storage tank. Harm may also occur to falcons in the action area if livestock impacts to grasslands are such that the falcon prey base is significantly reduced and shrub invasion into grasslands occurs.

Over the life of the RMP, the Service anticipates take of 18 falcons as a result of the implementation of the proposed action. Fourteen falcons are estimated to be harassed by recreation, livestock grazing, and Right of Way traffic, a harassment resulting from mineral development and infrastructure. Four falcons are estimated to be harmed by implementation of the plan as a result of electrocution, vehicle collision, drowning, or reduced habitat suitability. The level of anticipated take will affect 33 percent of the projected falcon population. Most of the incidental take is anticipated to be in the form of harassment which is likely to be an adverse impact of high intensity and short duration not resulting in mortality.

II. EFFECT OF THE TAKE

The Service believes that the BLM's proposed management in the Mimbres RMP may reduce the probability of persistence of the falcon in the desert grasslands of the Resource Area. No critical habitat has been designated for this species, therefore, none will be affected.

REASONABLE AND PRUDENT MEASURES

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the falcon:

1. A nest-site plan shall be developed for each documented pair during the first breeding season that the nest is detected.

2. Within suitable habitat for the falcon, BLM shall consider and implement management actions that will provide long-term benefits to falcons and shall actively contribute to their recovery.

3. The BLM will monitor effects of rangeland management on falcon habitat.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the BLM must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary:

These terms and conditions will implement Reasonable and Prudent Measure 1, "A nest-site plan shall be developed for each documented pair during the first breeding season that the nest is detected."

1.1 When nest sites are documented, the Service and the New Mexico Department of Game and Fish will be contacted. A management strategy to prevent or minimize negative effects to the falcon will be cooperatively developed within two weeks of the determination of the location of the nest site.

1.2 The strategy will include an assessment of immediate risks to the falcons and their offspring, how risks will be minimized, how location information will be handled for public and agency inquiries, and any other special circumstances that need to be addressed.

These terms and conditions will implement Reasonable and Prudent Measure 2, "Within suitable habitat for the falcon, BLM shall consider and implement management actions that will provide long-term benefits to falcons and shall actively contribute actively to their recovery."

2.1 Using the falcon habitat model that has been developed by the New Mexico State University Cooperative Research Unit, BLM lands managed under the Mimbres RMP will be assessed for their value as suitable falcon habitat.

2.2 When amending or revising the RMP, BLM shall evaluate and prioritize unleased parcels in suitable falcon habitat that may be withdrawn from future leasing. Priority shall be given to those areas that remain largely undisturbed and are most likely to support healthy grasslands and prey populations.

2.3 The BLM shall evaluate potential habitat for falcons. Based on the abalysis of the habitat model and other biological information, priority falcon conservation areas will be determined and evaluated for potential restoration projects.

These terms and conditions will implement Reasonable and Prudent Measure 3, "BLM will monitor effects of rangeland management on falcon habitat."

3.1. The LCFO will develop Habitat Management Plans (HMP) in key habitat areas throughout the RMP management area. The HMP's will incorporate;

1. existing nest site plans (if any)
2. goals and objectives
3. determine site specific actions and/or projects to improve, enhance or maintain falcon habitat
4. determine the methodology to monitor critical falcon habitat elements, falcon populations, or other appropriate resources
5. develop an annual reporting schedule

The LCFO will begin development of the first HMP in the Hermanas Key Habitat Area. Proposed acreage included in this HMP will encompass approximately 1,054,982 acres of which 667,000 acres is BLM administered lands. Coordination and agreements with State and private land owners would be required before any activities would be considered on their lands. Development of the Hermanas HMP would begin in FY03 and completed in FY05.

Conservation Recommendation

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. BLM should pursue long-term standardized monitoring of grassland bird populations within the Mimbres Resource Area. This information would be beneficial in determining the effects of management actions on falcon prey species.

REINITIATION NOTICE

This concludes formal consultation on the proposed action, implementation of the Mimbres Resource Management Plan on lands administered by the BLM in southern New Mexico. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required if: 1) if the amount of incidental take is exceeded; 2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; 3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We look forward to continuing to work with you during the implementation of this RMP. In future communications regarding this consultation, please refer to consultation #2-22-01-F-373.

If you have any questions about this biological opinion, please contact Carrie Chalcraft or Lyle Lewis at the letterhead address or at (505) 346-2525, ext. 143 and 114, respectively.

Joy E. Nicholopoulos

Joy E. Nicholopoulos

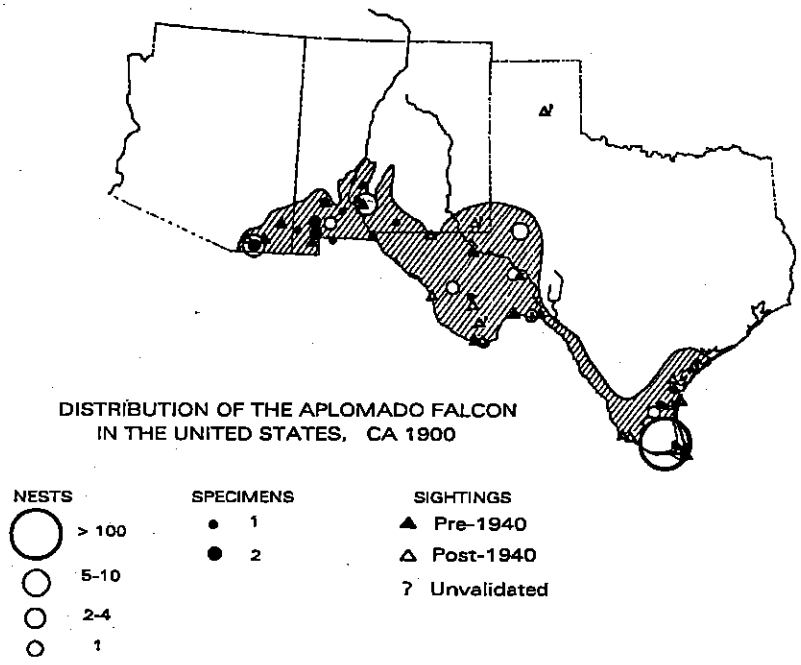
cc:

Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico

Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division, Santa Fe, New Mexico

Appendix A

Figure 1. Historical occurrences of aplomado falcons in the United States



Appendix B

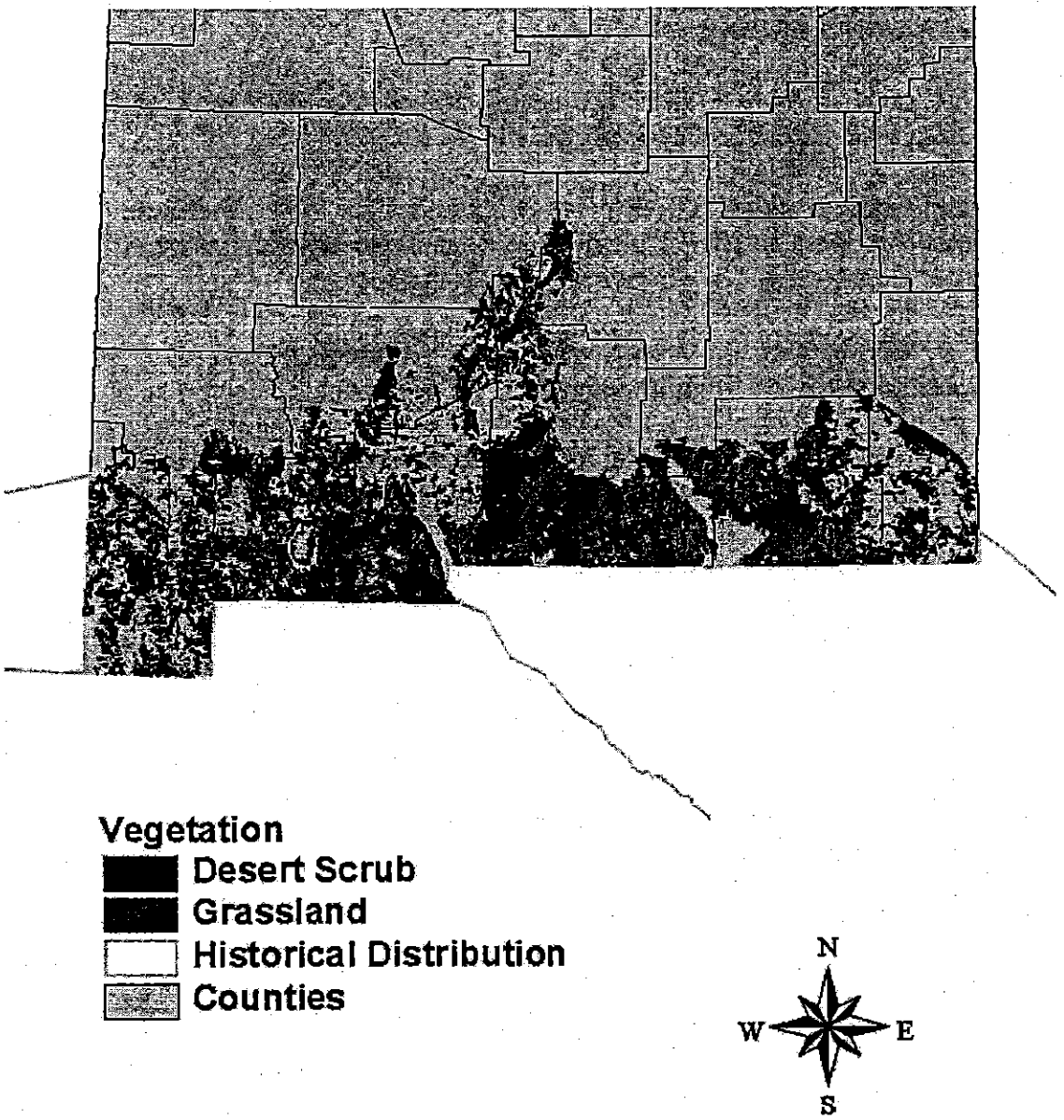
Table 1. Historical and Recent Sighting Data for falcons in New Mexico, Mexico, and Arizona

Historical and recent sightings of aplomado falcons by county (Williams 1998, updated by BLM LCFO 06/19/2002).		
NM County	***Historical Sightings 1853 - 1952***	***Recent Sightings 1962-2001***
Grant County	8/1875 Fort Bayard, 6/1886 near Hatchita, 7/1908 Playas Valley, 6/1924 4 mi N of Separ	10/1979 City of Rocks St. Park, 3/1987 N of Hatchita, 5-6/1994 Managas Valley, 12/1996-02/1997 N of Hatchita, 10/1999 3.5 mi S of Hatchita, 05/31/2002 26 mil S of Silver City US 1800 MiMk 143,
Grant/Luna	9/1918 20 mi SE Silver City, 9/1928 SE of Silver City	
Luna County	3/1853 near Deming, 9/1917 near Nutt, 7/1951 3 sites/obs near Hermanas, 5/20/1952 -nest w 2 young SW of Deming - near Hermanas	2/1982 S of Deming 10/2000 N of Hermanas - 3 birds incl 1 possible pair 01/2001 - Nesting activity Simpson Draw 03/2002 - Nesting activity Simpson Draw 05/08/2002 - Pair observed on Dbl Bar V allotment approx 20 mi SW of Deming 05/10/2002 - Single adult 5mi NW of 05/08/2002 sighting.
Doña Ana County	8/1909 1 nest w young 10mi E of Rincon, 1908 & 1909 several nests Jornada, 5/1975 near Santa Teresa	7/1996 Isaacks Lake, 4/17/1998 Jornada Exp Range, 4/18/1998 Santa Theresa near the airport, 8/2/1999 Baylor Canyon Rd near Organ (unconfirmed), 9/9/1999 1 Mi E of I-10 Lazy E Exit,

NM County	*Historical Sightings 1853 - 1952*	*Recent Sightings 1962-2001*
Otero	6/1917 45 mi S of Alamogordo at 5500 ft.	5/1991 Holloman Lakes, 6-7/1991 near Tularosa, 9/1993 W of Orogrande, 6-7/1994 near Tularosa, 5/1997 Otero Mesa (unconfirmed), 8/11/1999 Mile Marker 185 Hiway 70 on WSMR, 9/11/1999 McGregor Range Fenceline at Gyp Tank, 9/18/1999 McGregor Range Fenceline S of Gyp Tank, 11/14/2001 2 mi SE of Hat Ranch Hdq,
Sierra	11/1918 N of Engle, 12/23/1918 10 mi NE of Engle, 5/1924 Cutter, 15 mi SE of TorC (8 mi S of Engle, 15 mi SE of Cutter)	
Socorro	8/1917 25 mi N of Engle	8/1992 W of Bingham
Socorro/Valencia		1/1998 N of Bernardo
Eddy		12/1963 near Otis, 4/1988 30 mi E Carlsbad near Laguna Grande, 11/1993 Carlsbad
Lea		5/1962 San Simon Ranch
Hidalgo County, Arizona		3/1977 4 mi S of Rodeo
Es. Chihuahua, Mexico	3/1892 Palomas, 5-6/1952 nest near Berendo,Chihuahua	1998 Near Palomas (BLM Aplomado Project), 1999 Near Palomas (BLM Aplomado Project),

Appendix C

Figure 2. Habitat types present in southern New Mexico and historical falcon distribution



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