

availability and value of installing a carbon monoxide detector; and (4) the agency issue press releases and consumer advisories with information regarding the availability and value of CO detectors. The petitioner cited the results of the 1996 Research Note and stated, "many if not most of these deaths could be prevented by carbon monoxide detectors," but did not offer any data to support this assertion. NHTSA denied the Denenberg petition because the costs would have been unjustifiable⁶ in relation to the benefits. The effectiveness of CO detectors lessens substantially over time and most vehicle-related CO deaths involve older vehicles.

The agency is denying this petitioner's request for the same reasons. In addition to our previously stated reasons for denying the petition, the agency is also concerned that the automatic engine shut-off device proposed by the petitioner could prove to be a hazard. For example, in a tunnel with congested traffic, the concentration of CO may cause the device to shut off the engine, resulting in further traffic congestion or even possible crashes.

In accordance with 49 CFR part 552, this completes the agency's technical review of the petition for rulemaking from Mr. Albert Donnay. Based on this review, the agency has concluded its resources would be more productively directed to other areas. Therefore, Mr. Donnay's petition is denied.

Issued on: September 20, 2005.

Stephen R. Kratzke,

Associate Administrator for Rulemaking.

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List the Gentry Indigo Bush as Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 12-month petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding on a petition to list

the Gentry indigo bush (*Dalea tentaculoides*) as endangered under the Endangered Species Act of 1973, as amended. After reviewing the best available scientific and commercial information, we find that listing the species is not warranted at this time. We ask the public to submit to us any new information that becomes available concerning the status of, or threats to, the species. This information will help us monitor the status of the species.

DATES: The finding announced in this document was made on September 14, 2005. Although no further listing action will result from this finding, we request that you submit new information concerning the status of, or threats to, this species whenever it becomes available.

ADDRESSES: The complete file for this finding is available for inspection, by appointment, during normal business hours at the Arizona Ecological Services Office, 2321 West Royal Palm Road, Suite 103, Phoenix, AZ 85021-4951. Please submit any new information, materials, comments, or questions concerning this species or this finding to the above address.

FOR FURTHER INFORMATION CONTACT: Mima Falk, Plant Ecologist, Arizona Ecological Services Tucson Sub-Office, 201 North Bonita Ave., Suite 141, Tucson, AZ, 85745; 520-670-6150, ext. 225.

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(B) of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), requires that, for any petition to revise the List of Threatened and Endangered Species that contains substantial scientific and commercial information that listing may be warranted, we make a finding within 12 months of the date of receipt of the petition on whether the petitioned action is (a) not warranted, (b) warranted, or (c) warranted but that the immediate proposal of a regulation implementing the petitioned action is precluded by other pending proposals to determine whether any species is threatened or endangered, and expeditious progress is being made to add or remove qualified species from the List of Endangered and Threatened Species. Section 4(b)(3)(C) of the Act requires that a petition for which the requested action is found to be warranted but precluded be treated as though resubmitted on the date of such finding, *i.e.*, requiring a subsequent finding to be made within 12 months. Such 12-month findings must be published in the **Federal Register**.

On January 7, 2002, we received a petition dated January 2, 2002, requesting that we list the Gentry indigo bush (*Dalea tentaculoides*) as an endangered species, and that critical habitat be designated concurrently with the listing. In a Stipulated Settlement Agreement, signed June 14, 2004 [*Center for Biological Diversity v. Norton*, CV 03-473-TUC-FRZ (D. Az)], we agreed to submit a 90-day finding to the **Federal Register** by January 31, 2005. On January 25, 2005, we made our 90-day petition finding that the petition provided substantial information indicating that listing may be warranted. The finding and our initiation of a status review was published in the **Federal Register** on February 2, 2005 (70 FR 5401). We are required, pursuant to the court approved Stipulated Settlement Agreement, to make our 12-month finding pursuant to the Act [16 U.S.C. 1533(b)(3)(B)] by September 15, 2005.

Biology and Distribution

Gentry indigo bush is an erect perennial shrub that grows from a woody root crown and can be up to 1 meter (m) (3.2 feet (ft)) tall. It is a member of the Fabaceae (Pea) Family. The leaves are compound, 3-6 centimeters (cm) (1.2-2.4 inches (in)) long with 9-17 pairs of leaflets. The leaflets are hairless, notched at the tip, and dotted with punctate glands (translucent pitted glands or colored dots) on the lower surface. The flowers are sessile (lacking a stalk), 6 millimeters (mm) (0.24 in) in length, and are presented in oblong clusters. The flower petals are rose-purple. Plants flower in the spring, from late March to mid-May. They may produce a second set of flowers in late summer and fall in response to monsoon precipitation.

Howard S. Gentry originally described the species in 1950. It is a distinctive member of the genus *Dalea* with no closely related species (Gentry 1950; Barneby 1977). The main distinguishing character that separates this species from other sympatric species is the presence of elongate, brown, tentacle-like glands on the calyx (the outer whorl of flowering parts), lobes, floral bracts (the reduced or modified leaf subtending a flower), and branches.

Gentry indigo bush is known historically in the United States from only three areas in southern Arizona: The western and northern slopes of the Baboquivari Mountains (Tohono O'odham Nation), the Coyote Mountains (Mendoza Canyon), and Sycamore Canyon (Coronado National Forest) in

⁶ We estimated that the total cost of the requirement would exceed \$240 million. This estimate does not include the cost of installation and maintenance.

the Atascosa Mountains. Today, plants are only known to occur in Sycamore Canyon and on lands within the Tohono O'odham Nation (Schmalzel 2005).

The plant has also been found at three locations in Mexico. The first location was found in 1995, northeast of Huásabas in the State of Sonora. In 2004, the species was documented to occur in Sierra El Humo, south-southwest of Sasabe, Arizona, in northwestern Sonora, Mexico (L. Hahn, pers. comm., 2004). Surveys in 2005 documented the persistence of those two populations and discovered a third in the Sierra de La Madera (Van Devender 2005).

Surveys in Sycamore Canyon, AZ

Gentry indigo bush grows in scattered patches at elevations of 1,097 to 1,219 m (3,600 to 4,000 ft) in Sycamore Canyon and several side channels. Plants are usually found on floodplain terraces in sandy or gravel soils, or, less commonly, on talus slopes (a slope formed by an accumulation of rock debris) close to the floodplain. The usual tree canopy for Gentry indigo bush consists of Arizona sycamore (*Platanus wrightii*), Arizona ash (*Fraxinus velutina*), Arizona walnut (*Juglans major*), and several oak species. Plants can be found growing under these trees or out in the open. Where Gentry indigo bush grows in the semi-active floodplain, plants are exposed to periodic flooding and scouring events. Observations made by Gori *et al.* (1992) and Falk (1993) support the idea that plants are adapted to periodic, low-intensity floods. Plants that had been covered with sediment were found to be growing up through the deposited material. The plants can reproduce vegetatively (asexually), and roots have been found to connect young plants to nearby larger clumps. The ability to reproduce asexually presents a problem in estimating population numbers in that it is impossible to determine if plants are connected, except by uprooting them. As a result, the number of stems counted may not equal the number of individuals. Thus, the data from field surveys described below should be considered only rough estimates of population numbers.

There have been limited observations of sexual reproduction in the field. Gori *et al.* (1992) documented some reproduction on the monitoring plot, although they had difficulty determining if the new recruits were ramets (vegetative offshoots) or seedlings. Small plants located in May 2005 were pulled up and were identified as seedlings, not vegetative offshoots (Baker 2005). It is not known

if the seeds had lain dormant in the seed bank or were from a recent reproductive event. None of the adult plants had seed pods, and no seed pods were found on the ground (Falk, pers. obs. 2005). In fact, plants rarely have been observed to produce seed (Falk 1993; Gori *et al.* 1992). This may be the result of timing, as plants may not have been producing fruit at the time surveys were conducted. Schmalzel (2005) found seeds within dried inflorescences (*i.e.*, flowers) during his survey work in July. Staff from the Desert Botanical Garden collected approximately 15 seeds from plants they assumed to be Gentry indigo bush in 1998 and 1999, but the quantities are too small to conduct germination tests (K. Rice, pers. comm. 2005).

Although this species has adaptations to withstand periodic, low-intensity flooding, the population in Sycamore Canyon has experienced population fluctuations, some of those associated with flood events. In 1982, a status report documented only 100 plants from Sycamore Canyon (Toolin 1982). Following severe winter flooding in 1993, a large portion of a monitoring plot that had been established on a floodplain terrace washed away, and the overall population within Sycamore Canyon declined to 15–30 plants (Falk 1993). Gori *et al.* (1992) estimated that there were 1,400 “individuals” in Sycamore Canyon before the heavy rains of 1993. The population in Sycamore Canyon has been monitored sporadically since 1993. Bertelsen (1997) recorded approximately 500 individuals. Brooks (1999) found 194 plants, including a small group (15) in Peñasco Canyon. A U.S. Forest Service biologist reported seeing some patches of Gentry indigo bush while surveying for Sonora chub in the canyon (2000, 2001). In three separate surveys over consecutive years the numbers of plants varied. Baker (2003) found 100 plants, and Reina and Van Devender found 36 plants in 2004 (Baker 2005). In 2005, Baker recorded approximately 450 plants, with many seedlings and some resprouts from plants thought to be dead (bare branches, no leaves). The latter survey was done in May 2005, when the biologists (including Service staff) knew the plants would be flowering, allowing easy identification of Gentry indigo bush. Additional surveys in Sycamore Canyon were conducted in April and May (Darling 2005). These surveys were conducted on four separate visits, and approximately 922 plants were found. Of note was the location of many plants on talus slopes out of the floodplain. Due to variation in survey

methodologies, the current estimate for Sycamore Canyon is thus between 450 and 922 plants. Schmalzel (2005) observed during his surveys that plants were associated with grussy colluvium (*i.e.*, a loose accumulation of particles from decomposing granite) found on the sides of canyons, and he believed that locations in the floodplain may not be as important as those on the sides of the canyon. Schmalzel's 2005 observation is consistent with the results of Darling's 2005 survey report where Gentry indigo bush was found on talus slopes in Sycamore Canyon.

The distribution of sub-populations in Sycamore Canyon has changed over time. The overall population in Sycamore Canyon is best described as a metapopulation, that is, a population consisting of many “local” sub-populations or patches. Sub-populations may undergo extirpation (*i.e.*, loss) while others are created, such that distribution within the larger population is dynamic in nature and the species persists at a larger scale—in this case, throughout the canyon. This pattern follows Levins' dynamic metapopulation model (1969, 1970) describing habitat patches, or islands, with some of the patches disappearing but then undergoing recolonization from the remaining patches. For instance, a flood event could remove some sub-populations from the canyon, but the remaining sub-populations would persist and serve as a source of recolonization.

As a result, it is very difficult to track individual patches in the canyon over time. Early monitoring efforts documented the location of patches, but successive surveyors have found that previously documented patches are not always present. This indicates that patch location is very dynamic in the canyon. Based on the Baker 2005 survey, the densest plant patches are located in the central portion of the canyon (centered around where Peñasco Canyon enters into Sycamore Canyon) and areas directly to the north and south. The dynamic nature of plant distribution is likely influenced by drought and flooding, which is not uncommon for plants found in canyons subject to episodic climate events.

Additional Survey Work in Arizona and Mexico

Gori *et al.* (1992) status report included a review of historic localities in the United States and areas of suitable habitat in Arizona and Mexico, except areas within the Tohono O'odham Nation. No plants were found in the Coyote Mountains, and the authors surmised in the status report

that the population was extirpated, possibly due to past grazing practices.

In Mexico, surveys were conducted in areas not previously known to support Gentry indigo bush plants, but where the habitat appeared to be suitable. No plants were found in the areas surveyed, which included canyons in the following mountain ranges in Sonora, Mexico: Sierra Cibuta, La Colorada, Sierra el Tigre, Sierra los Ajos, Sierra Azul, Arroyo Las Fresnos, Sierra San Diego, La Angostura, and Sierra San Luis (Gori *et al.* 1992).

Extensive survey work has also been completed in other areas of habitat in Arizona that appear to be suitable, but that were not known to have ever supported Gentry indigo bush. Specifically, in Arizona in 1991, 1998, 2003, and 2005, surveys were conducted with negative results in all efforts. Areas surveyed include the Atascosa/Pajaritos (Upper Peck Canyon, California Gulch, Holden Canyon, and Rock Corral Canyon), the Baboquivaris (Thomas and Sabino canyons), and the Patagonia Mountains (Harshaw Creek, Finley and Adams canyons, Flux Canyon, and upper Mowry Wash) (Gori *et al.* 1992). Gentry indigo bush was not found in Atascosa, Penasco, or unnamed canyons in the Atascosa Mountains (Baker 2005), or in the upper reaches of Sycamore Canyon (Baker 2003). However, in 2005, Gentry indigo bush was located on the Tohono O'odham Nation (Schmalzel 2005). The Tribe should be contacted for additional information, if needed.

In 2005, Dr. Tom Van Devender and Ana Lilia Reina conducted extensive surveys for Gentry indigo bush in Mexico. From April through June, they visited 22 potential sites in 7 mountain ranges in Sonora, Mexico. The ranges surveyed west-southwest of Sásabe to southwest of Cananea were the Sierra El Humo, Sierra Las Avispas, Sierra Cibuta/Guacomea, Sierra Jojoba, Sierra de Los Pintos, Sierra de La Madera, and Sierra Azul. Sites surveyed were 1,045 to 1,518 m (3,400 to 5,000 ft) in elevation and mostly in canyons in desert grassland/oak woodland transition or oak woodland (Van Devender 2005). They also revisited the 2004 location of Gentry indigo bush in the Sierra El Humo, an isolated mountain range near the Arizona border in the Municipio of Altar, and a total of 126 plants were found in 6 patches in an unnamed canyon. A new population was located in the Sierra de La Madera. This mountain range is located east of interstate MEX 15 between Imuris and Magdalena. Plants were found in Cajón El Chorro, within the Sierra de La Madera. A total of 98 individuals were

found in 2 patches. Van Devender returned to the 1995 Huásabas site and documented 170 Gentry indigo bush plants. This site is atypical, as the plants were found under Chihuahua oaks on gentle north-facing slopes, not in canyon bottoms (Van Devender 2005). Overall, surveys in Mexico in 2005 documented 394 Gentry indigo plants at 3 locations. No other populations of Gentry indigo bush were located, and no historical records are known from any of the other 19 sites surveyed (Van Devender 2005).

In summary, Gentry indigo bush remains a rare, narrow endemic (*i.e.*, restricted to a particular region) in terms of its overall numbers, number of populations, and geographic distribution. Dedicated, extensive surveys conducted over the years have documented few new locations, and all known populations are small. No new locations have been found in Arizona despite fairly extensive surveys of apparently suitable habitat. In Sycamore Canyon, the overall population has fluctuated greatly since surveys began, and recovery from flooding in 1993 has been slow. Currently, the population constitutes only 32 to 67 percent of the pre-flood numbers. Most of the older plants are gone but there are many seedlings, which provides some evidence of the species' resiliency and ability to persist. However, it is not known how many of these seedlings will survive and contribute to the reproductive potential of the population. The limited demographic monitoring data show higher mortality in the small age classes (Gori *et al.* 1992). In some locations, larger and older plants were found completely out of the floodplain and up against the canyon walls, which provides some assurance that not all of the species' habitat is susceptible to flooding. The species has persisted at known locations for some time (based on herbarium records), and it seems likely that other areas that may support the plant were overlooked in previous survey efforts.

Previous Federal Actions

Gentry indigo bush was determined to be a candidate species as published in the 1980 Plant Notice of Review (45 FR 82480). A species with candidate status is one for which we have collected and assessed information sufficient to propose listing the species. On April 2, 1998 (63 FR 16217), we removed the Gentry indigo bush from candidate status. The reasons supporting removal from the candidate list were (1) the taxon was more abundant or widespread than previously believed or not subject to any identifiable threats; and (2) the

Service had insufficient information on biological vulnerability and threats to support issuance of a proposed rule to list. Following receipt of the 2002 petition, and pursuant to a stipulated settlement agreement, we published a 90-day finding on February 2, 2005 (70 FR 5401), finding that the petitioners had provided sufficient information to indicate that listing of the Gentry indigo bush may be warranted. In order to use the best scientific and commercial information available to determine whether listing of the species was indeed warranted, two public comment periods were opened. The initial comment period was opened by the February 2, 2005, 90-day petition finding for a period of 60 days, through April 4, 2005, and the comment period on the 90-day finding was reopened on July 25, 2005 (70 FR 42520), for an additional 10 days.

Summary of Factors Affecting the Species

Section 4 of the Act (16 U.S.C. 1533), and implementing regulations at 50 CFR 424, set forth procedures for adding species to the Federal List of Endangered and Threatened Species. In making this finding, information regarding the status and threats to this species in relation to the five factors provided in section 4(a)(1) of the Act is summarized below.

In general, we have focused much of the five factor discussion below on the Sycamore Canyon population in Arizona because we have specific information about it. Where we have information for populations in Mexico and on the Tohono O'odham Nation, we have specifically addressed that below.

Factor A: The Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range

Modifications and alteration of Gentry indigo bush habitat are associated with watershed degradation, roads, recreational activities, undocumented immigrant traffic and associated U.S. Border Patrol activities to control illegal entry, and the spread of invasive plant species. All of these factors have the potential to alter and degrade the species' habitat.

Watershed Degradation

In general, human-related activities can have an adverse impact on the arid watersheds of the Southwest (Bahre and Bradbury 1978; Bahre 1995; Hadley and Sheridan 1995). Such impacts may include erosion of stream channels and loss of herbaceous vegetation caused by overgrazing, altered fire regimes, mining

runoff, off-road vehicle use, road construction, and other anthropogenic activities, and all have contributed to reduced quality and quantity of riparian and wetland habitat (Hendrickson and Minckley 1984; Bahre 1995; Hadley and Sheridan 1995; Ohmart 1995; Whelan 1995; Debono and Neary 1996; Belsky and Blumenthal 1997; Wang *et al.* 1997).

Watershed degradation may be a concern in Sycamore Canyon, which is a small canyon cutting through rugged hills located within the Coronado National Forest, Nogales Ranger District. Special protection for the canyon is provided by inclusion within the Goodding Research Natural Area (RNA) and the Pajarita Wilderness. Lefevre (2000) concluded that human influence on Sycamore Canyon is mostly related to downcutting of the channel system, sediment movement, and sediment yield to the stream, and has resulted in erosion rates above that which would be expected under unroaded, unmined, and ungrazed conditions. Within the Goodding RNA, mining, roads, and grazing are prohibited, as discussed below. However, such activities occur in the hills outside of the Canyon and may influence conditions within it.

Grazing Effects on Watershed

The Sycamore Canyon watershed is 6,737 hectares (ha) (16,648 acres (ac)) in size (Lefevre 2000). All but 874 ha (2,160 ac) are within grazing allotments. The majority of those lands are on the Coronado National Forest, where many different types of uses are authorized (*e.g.*, livestock grazing, mining, roads, wilderness). Livestock grazing is not permitted within the boundaries of the RNA, including Sycamore Canyon.

The Bear Valley grazing allotment, which is located in the hills surrounding Sycamore Canyon, is 9,197.5 ha (22,710 ac) in size. Site-specific soil surveys (U.S. Fish and Wildlife Service 2002) indicate that 75 percent of the allotment is in satisfactory condition, 16 percent is considered impaired, 8 percent is unsatisfactory, and 2 percent is in unsuitable condition. Where soils were found to be impaired, it was attributed to lack of vegetative ground cover. In addition, the soils had altered structure, which inhibits water infiltration (Lefevre 2000). Lack of ground cover and compaction of the soil can lead to increased quantities of sediment and water flowing into the canyon. Between 1983 and 1997, the percent of ground cover has increased from 29 percent to 33 percent on this allotment, indicating that conditions are improving (Lefevre 1999). The majority of this allotment is

in satisfactory condition and on an upward trend. The number of permitted livestock on this allotment has decreased dramatically since 1908, when 1,000 cows were allowed. The numbers were reduced to 650 in 1917, 520 in 1930, and stocking was reduced to almost zero in 1961 due to range deterioration. Due to improvements in range condition the allotment is now permitted for 350 cattle. The overall reduction in livestock numbers from 1,000 to 350 cows indicates that the current management of this allotment is contributing to the overall improvement of watershed conditions, and with improved watershed conditions, the amount of sediment entering into Sycamore Canyon would be reduced, resulting in improved habitat conditions for Gentry indigo bush. There will be continued sediment and precipitation run-off associated with the impaired soils due to livestock grazing, but the amounts are difficult to quantify and may not be significant.

According to Van Devender (2005), none of the three Mexican populations are accessible to cattle, so grazing does not constitute a threat there. On the Tohono O'odham Nation, the influence of grazing is unknown, but the species is still present (Schmalzel 2005).

In summary, the watershed condition of the Bear Valley livestock grazing allotment has been improving since the early 1900s. There has been an overall decrease in the permitted numbers of cattle on the Bear Valley allotment and ground cover has improved to the point where 75 percent of the allotment is in satisfactory watershed condition. The continuation of these sound livestock-management practices will likely result in improved habitat conditions for Gentry indigo bush. Sediment will continue to move off the allotment, due to the 16 percent of impaired soils, but the amounts are difficult to quantify and may or may not result in significant effects to the ecosystem. The Mexican populations are not subjected to grazing, but watershed conditions there are unknown. Similarly, there is little information available from the Tohono O'odham Nation.

Roads

Many roads are present in the Sycamore Canyon watershed, and they have contributed to overall watershed degradation. However, it is not known how these roads affect ongoing erosion and, more importantly, how much of the eroded material ends up in the Sycamore Canyon drainage. The amount of sediment and surface runoff within the Sycamore Canyon watershed may affect Gentry indigo bush and its

habitat. The plants have adaptations for persisting in spite of flood events that have caused sediment to enter Sycamore Canyon, but it is unknown whether a threshold exists which, if crossed, may eliminate the metapopulation from the canyon. However, as noted above, the species does have the ability to recolonize after flood events, and plants located out of the floodplain and on associated talus slopes may provide the source for recolonization of the plants within the floodplain. The U.S. Forest Service maintains a road density of 0.58 km/km² (0.93 mile/mi²) within the watershed, and considers these roads to be "a primary source of erosion and sediment" (Lefevre 2000). This translates to 38.8 km (24.1 mi) of roads within the watershed, occupying 22.2 ha (55 ac) (Lefevre 2000).

The U.S. Forest Service has no immediate plans to address the effects of roads in the Sycamore Canyon watershed; thus sediment deposition and scouring in and along the stream channel could still occur. Again, we do not know if the sediment production associated with the roads is resulting in significant effects to the ecosystem and the habitat of Gentry indigo bush.

However, we do know that the metapopulation has persisted in the canyon under the current road conditions. We also note that the U.S. Forest Service closed unauthorized roads that crossed the stream at several locations near the mouth of Sycamore Canyon and built a bridge where Forest Road 39 crosses Sycamore Creek, thus eliminating some erosion threats associated with roads. It is not known whether roads are a threat to either the Mexican or Tohono O'odham populations, but we have no evidence that roads have adversely affected the species there.

Recreation

Sycamore Canyon is close enough to Tucson and Nogales, Arizona, to make it a popular destination for hiking and birding. The flora of the canyon supports 624 species of vascular plants, and birders come from all over the world to see various species considered rare in the United States. Because there are no designated trails within the RNA, trampling and compaction of soils from the resulting foot traffic can negatively affect the Gentry indigo bush in Sycamore Canyon. Gentry indigo bush plants grow on the floodplain terraces where hikers often create trails to avoid walking in the stream. Due to its narrow width, there are limited terraces in the canyon intensifying the use of Gentry indigo bush habitat as places to create trails. Many of the remaining plant

locations are near recreational trails, and plants were found that had been trampled (Falk, pers. obs. 2005). Even when the plants are flowering, they are not particularly showy and are quite fragile. When they are not flowering, they do not stand out, and it is fairly easy to step on them without noticing. Although no overnight camping is allowed in the RNA, there is unauthorized camping occurring, as evidenced by fire rings and obviously trampled areas where human activities had taken place. These activities degrade habitat and may reduce the areas potentially occupiable by Gentry indigo bush. They may also alter and reduce the amount of habitat available for plant germination. This in turn affects the ability of the plant to reoccupy sites after disturbance events.

We know of no plan to address the effects of recreation in this area or the larger watershed. The degree to which recreational activities may affect the population in Sycamore Canyon is not known. However, recreation has been ongoing in the canyon in the past, and the Gentry indigo bush continues to persist and increase in number; therefore, we do not believe recreation is affecting the overall population in Sycamore Canyon. We have no evidence that recreation is adversely affecting the Mexican or Tohono O'odham populations.

Undocumented Immigrant Traffic/U.S. Border Patrol Actions

The cutting and/or disrepair of the border fence along the U.S.-Mexican border by undocumented immigrants is an ongoing concern due to the potential for cattle trespassing and trampling of habitat. It is very difficult to monitor the status of this fence because it is a long hike or horse ride of over six miles down the canyon. The U.S. Forest Service does not monitor this fence as part of its allotment monitoring. It is possible that the fence could be cut or knocked down and livestock could enter the canyon without detection; however, the fence has apparently excluded trespass cattle since 1998. Given the seemingly slow recolonization of the Gentry indigo bush population in Sycamore Canyon since the 1993 flood, a single incursion of cattle could have a significant effect on individual clusters of plants in the canyon bottom. Currently, the majority of the sub-populations are in areas that would be accessible by cattle from the southern end of the canyon, absent a functional fence. On the other hand, the metapopulation has persisted even through times when the fence was down. We do not know what the long-

term effects to the metapopulation would be from livestock grazing, but it seems unlikely that the entire metapopulation in Sycamore Canyon would be severely affected by occasional use by trespass livestock.

Undocumented immigrants crossing the border into the United States from Mexico cross through Sycamore Canyon. Although we did not detect high levels of use during our 2005 survey, we did observe trash and many foot trails in canyons and uplands associated with Sycamore Canyon (*i.e.*, Peñasco, Atascosa, Hank, and Yank Canyons). Human traffic associated with this activity in the canyon bottom may directly trample plants and is likely contributing to Gentry indigo bush habitat degradation. It follows that areas receiving heavy use will be under surveillance by the U.S. Border Patrol. The U.S. Border Patrol's activities could also create additional disturbance by using the same foot trails, as well as increasing use of existing roads. We do not know if these types of activities are likely to increase in the future and cause detrimental effects to Gentry indigo bush and its habitat. Undocumented immigrants may also set fires. Although these fires are usually accidental (*e.g.*, an escaped campfire), they may be the ignition source for a future grassland fire in the watershed.

The border fence in Sycamore Canyon has remained intact since 1998. Border activity ebbs and flows, and it is difficult to predict where increased activity will take place. Currently, the level of border activity is not threatening the continued existence of the plant in Sycamore Canyon.

Invasive Plants

The invasive buffelgrass (*Pennisetum ciliare*) is used throughout Sonora, Mexico, as a pasture grass, and large natural grassland areas have been converted to buffelgrass. Buffelgrass lines the major highway in Sonora to the U.S. border. Noxious weed seeds can be spread by the wind, on the soles of shoes, and in the tire treads of vehicles. Riparian areas can also function as dispersal corridors for the movement of invasive plant species (Stohlgren *et al.* 1998; Parendes and Jones 2000). With the increase in border activity, it is probably only a matter of time before this highly invasive grass species is found in Sycamore Canyon. The U.S. Department of Agriculture's Agricultural Research Service has developed and released a cold-tolerant variety of buffelgrass, "Frio", which is intended to be used at higher elevations and in regions where current buffelgrass cultivars experience winter damage

(Hussey *et al.* 2005). These cultivars will increase the potential area of invasion.

Buffelgrass grows very quickly and out-competes native grass for water and nutrients. Once stabilized, it rapidly becomes the dominant plant cover. Should it become the dominant plant species on floodplain terraces, it could replace Gentry indigo bush along with other native riparian species in Sycamore Canyon, but it is not known to occur there at this time. We do not know if buffelgrass is found near the populations of Gentry indigo bush in Mexico, but it may be a potential threat to these populations in the future since so much planting of the grass has taken place in Sonora, Mexico. As of 1997, over one million ha (2,471,000 ac) of desert and thorn scrub in central Sonora had been cleared to plant buffelgrass (Van Devender and Felger 1997), but we do not know how close it is to invading canyons occupied by Gentry indigo bush.

Baker (2005) found at least one, and possibly two, species of *Pyracantha* in Atascosa and Sycamore canyons. This nonnative, aggressive species, should it become established and spread in Sycamore Canyon, could potentially reduce suitable habitat for Gentry indigo bush.

Many areas of Sonoran desert grasslands in southeast Arizona have been colonized by Lehman lovegrass (*Eragrostis lehmanniana*), an invasive species from South Africa. This grass has become so firmly established in southern Arizona that there may be no feasible control for it. Lehman lovegrass produces more fine fuel than native grass species (Cable 1971; Cox *et al.* 1984), leading to increased fire spread. Lehman lovegrass also increases after fire (Ruyle *et al.* 1988; Sumrall *et al.* 1991). Currently, the Bear Valley allotment does not seem to have continuous patches of Lehman lovegrass, so the effects from an altered fire regime due to its presence may not pose a threat to Gentry indigo bush. If the density and distribution of Lehman lovegrass were to increase on the allotment, then more frequent and higher intensity fires would be expected. This could potentially result in increased erosion and precipitation run-off, possibly leading to more frequent flood events in Sycamore Canyon. More frequent and greater intensity flooding may not allow for the recolonization of habitat and reestablishment of sub-populations in Sycamore Canyon during flood-free intervals, resulting in overall habitat and population reduction.

Establishment of these nonnative grasses in Sycamore Canyon or other

occupied habitat could compromise habitat quality and possibly endanger the long-term survival of metapopulations because the change in fire frequency and intensity could increase the frequency and intensity of flood events, placing sub-populations at increased risk. However, the threats from invasive species are considered to be only potential at this time, as there are no populations of the grass species present in Sycamore Canyon. We do not know if the populations in Mexico or on the Tohono O'odham Nation are threatened by invasive species.

In summary, there are ongoing and potential threats to the habitat of Gentry indigo bush in Sycamore Canyon. Many of the threats identified have been minimized (e.g., protection from livestock grazing, reduction in livestock numbers, overall improvement in watershed health) and while other threats are possible in the future, there is no evidence that they are currently affecting the population, and certainly not at a level that threatens the species (e.g., invasive species, recreation impacts, undocumented immigrant traffic, U.S. Border Patrol activities, and wildfire). Because they occupy similar habitat (i.e., canyon bottom), the populations in Mexico may be affected by the threats discussed in this section; however, due to a lack of detailed information regarding these sites, there is no direct evidence of threats to Mexican populations. The status of the populations in Mexico and on the Tohono O'odham Nation are not known, but some of the populations have persisted over time.

Factor B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

There are no known threats to Gentry indigo bush from over-utilization for commercial, recreational, scientific, or educational purposes.

Factor C: Disease or Predation

Grazing Effects on Plants

This section discusses the threat from cows directly eating the plant. Gentry indigo bush plants are palatable, as are most *Dalea* species. Gori *et al.* (1992) concluded, "Our surveys of Sycamore and Mendoza Canyons lead us to believe that grazing constitutes a threat to *D. tentaculoides*. We observed direct evidence of livestock browsing on, and even uprooting, the species in lower Sycamore Canyon where trespass cows from Mexico enter the canyon up to an impassable narrows."

As discussed above, Sycamore Canyon is found within the Goodding

RNA and the Pajarita Wilderness within the boundaries of the Coronado National Forest, Nogales Ranger District. Livestock grazing is not permitted within the boundaries of the RNA, but trespass cattle use has been a sporadic problem (U.S. Department of Agriculture 1998). Trespass cattle can enter the canyon from the mouth of the canyon at the northern end, and also from the southern end on U.S.-Mexico border. The sides of the canyon are generally too steep for livestock. Cattle have been observed in the northern reaches of the canyon (Brooks 1999), and Brooks noted heavy cattle use in the southern end of the canyon (i.e., below "the narrows") most likely attributable to trespass livestock from Mexico. In 1997, the U.S. Forest Service proposed a set of actions in Sycamore Canyon to protect the federally threatened Sonora chub (*Gila ditaenia*). One of those actions included building a fence at the northern portion of the canyon to restrict livestock access to the riparian areas. As long as this fence is maintained and remains effective, no direct threat of cattle in the upper reaches of Sycamore Canyon exists.

In the lower reaches of Sycamore Canyon, trespass cattle from Mexico may present another problem. Although the U.S.-Mexican border fence had been in a state of disrepair, in the fall of 1998, 2.4 km (1.5 mi) of fence was repaired and information provided to us during our status review of the species indicates that the fence is currently functional in preventing livestock trespass and has not been recently cut (Parker 2005). Thus, while sporadic grazing was historically considered a potential threat to Gentry indigo bush, we do not believe that trespass cattle from Mexico pose a threat at this time in Sycamore Canyon. This determination is based on the protective status of the area as an RNA and the measures taken by the U.S. Forest Service to construct and maintain a fence preventing cattle from entering the canyon from Mexico.

We know that livestock grazing occurs on Tohono O'odham Nation in the general area where the plants were known to be in the southern Baboquivari Mountains, but have no recent information on plant numbers. We are currently working with the Nation to gather information on this population. We anticipate that, if livestock grazing is determined to be a concern, we can work cooperatively with the Nation to resolve those issues.

We do not know if the populations in Mexico are affected by livestock grazing; nothing was reported on the grazing regime in the areas surveyed. Van

Devender (2005) noted that the populations he found were in areas not accessible to livestock.

Gentry indigo bush is palatable to other species beside livestock. Brooks (1999) provided one observation of a plant being almost totally eaten by a rabbit. Schmalzel (2005) also noted one Gentry indigo bush that had evidently been clipped at the base by a valley pocket gopher (*Thomomys bottae*), but we do not consider this to be a major threat. We acknowledge that rabbits, gophers, and other herbivores may eat plants, but we do not think this constitutes a major threat to the species because of the size of mature plants and the abundance of other herbaceous plants in the canyon available for food.

We know of no diseases threatening this species.

Factor D: The Inadequacy of Existing Regulatory Mechanisms

The population in Sycamore Canyon is on the Coronado National Forest and subject to the general Federal regulations of the National Forest System. Gentry indigo bush is on the Coronado National Forest's Sensitive Species List. Populations that may be present on the Tohono O'odham Nation are not protected by any regulation of which we are aware. Mexican populations have no protection because they are on private land and are afforded no protection under Mexican laws. The Arizona Native Plant Law (State of Arizona) does consider this species as highly safeguarded, and thus a permit is required from the Arizona Department of Agriculture to salvage the plant; however, no other protection is afforded to the species or its habitat.

U.S. Forest Service (Sycamore Canyon, AZ)

The metapopulation of Gentry indigo bush in Sycamore Canyon is within the Goodding RNA and the Pajarita Wilderness. There are no other locations on U.S. Forest Service land. The U.S. Forest Service has stated that Gentry indigo bush is afforded a high level of protection because it shares its habitat with critical habitat of the federally listed Sonora chub. The U.S. Forest Service has done much work to improve the habitat of Sonora chub, including removal of a road at the mouth of Sycamore Canyon, protection of riparian areas at the northern end of Sycamore Canyon, and the expansion of the Goodding RNA. These actions have contributed to improvement of Sonora chub habitat and are likely to improve Gentry indigo bush habitat, as discussed above. Many activities are prohibited within the RNA; livestock grazing,

timber harvest, and overnight camping are examples. A mining withdrawal has also been completed for lands within the RNA, for a period of 25 years. In addition to the Sonora chub, the canyon also supports populations of the federally listed Chiricahua leopard frog (*Rana chiricahuensis*) and Mexican spotted owl (*Strix occidentalis lucida*).

The surrounding watersheds are also under U.S. Forest Service management. A multiple-use policy allows for grazing, recreation, and other activities that may be affecting the habitat of Gentry indigo bush. These issues were discussed under Factors A and C above.

In summary, the U.S. Forest Service has completed a number of conservation actions in Sycamore Canyon that have improved habitat for Gentry indigo bush. Road closures and the protection of riparian areas at the canyon mouth have undoubtedly increased the overall health of the riparian ecosystem in the canyon. We believe that U.S. Forest Service actions and the amount of protection the canyon receives by virtue of its wilderness and RNA designation will promote the long-term conservation of Gentry indigo bush in Sycamore Canyon.

The Tohono O'odham Nation

The Tohono O'odham Nation has not drafted specific regulations to address sensitive species on their sovereign lands. We have a Statement of Relationship with the Nation, and provide technical assistance with wildlife and plant issues at their request. The Nation is currently working with us on allowing us access to the Baboquivari Mountains so that we may assist them in survey and assessment of their Gentry indigo bush populations.

Mexico

Three locations of Gentry indigo bush have been documented in Mexico. We have basic information (e.g., plant community, associated plant species, elevation, and substrate) and population estimates for these sites. We are not aware of any protection for these areas, but Van Devender observed during his 2005 survey work that the sites do not have obvious direct threats. Furthermore, all of the sites are in remote locations and in canyons with no livestock access (Van Devender 2005).

Factor E: Other Natural or Manmade Factors Affecting the Continued Existence of the Species

The known extant Gentry indigo bush populations are small, isolated, and threatened by unpredictable variation in demographic and environmental

characters (i.e. flooding). Genetic factors, such as reduced genetic variation due to small population size, may also contribute to this species' overall status. Inbreeding depression and loss of genetic diversity may occur in small populations of less than a few hundred individuals; such loss may reduce the fitness of individuals and the ability of the population to adapt to change (Frankel and Soule 1981). Both of these genetic considerations result in an increased likelihood of extirpation (Lande and Barrowclough 1987). Climate change may influence precipitation patterns in ways that could affect the long-term persistence of the metapopulations.

Flooding

The past movement of water and sediment in Sycamore Canyon has affected the plants and their habitat. After the 1993 El Niño winter rains, most of the monitoring plot was washed away, and the then-known overall plant population declined dramatically, with more than 90 percent of the known individuals washed away or covered with sediment. Recolonization has slowly occurred; at last count there were 450 to 922 plants recorded in Sycamore Canyon (Darling 2005), fewer than the estimated 1,400 that were documented in 1992.

Lefevre, a U.S. Forest Service hydrologist (1999), notes that the changes observed in Sycamore Canyon after the 1993 flood were, in his professional opinion, geologic in nature. Large flood events (e.g., greater than the 25-year event) and their effects on channel morphology will likely overshadow any management activity of the U.S. Forest Service.

In summary, above-average flood events (greater than the 25-year event) will likely affect the dynamics of the metapopulation in Sycamore Canyon, but U.S. Forest Service actions are not likely to influence or minimize the effects from such events. The species does have the ability to recolonize after flood events, and plants located out of the floodplain and on associated talus slopes (i.e., the sides of the canyon) may provide the source for the recolonization of the plants in stream habitat.

Population Size and Stochastic Events

Estimated numbers of the metapopulation in Sycamore Canyon have fluctuated dramatically since the early 1990s. The sub-populations had seemingly been reduced to very low numbers in 1993, after the canyon was subjected to a large flood event. Since that time, overall numbers and patches

have been increasing. In 2005, we observed many seedlings and resprouts, alleviating some of our concern regarding the plant's seemingly low reproductive output. We still do not know the environmental factors that allow for successful seed germination, and do not know how many seedlings will survive. We observed no seedlings away from patches, although some patches contained only a few larger plants and were dominated by seedlings.

This species could potentially be negatively affected by environmental stochasticity (variations over time in the population's operational environment) and natural catastrophes (Menges 1991). The minimum viable metapopulation (MVM) size is an important estimate of the minimum number of interacting local sub-populations necessary for the long-term persistence of a metapopulation (Hanski 1999). In general, 15 " 20 well-connected patches are required for MVM (Maschinski, in press). Baker (2005) found 12 patches in Sycamore Canyon, but that is only an estimate from one of the five known populations. There were likely more patches than he detected. More consistent monitoring could help us determine the patch dynamics of Gentry indigo bush more accurately. A decrease in the overall number and size of patches, and a lack of recolonization of extirpated patches, could indicate that the metapopulation is not at equilibrium.

The most likely adverse scenario in Sycamore Canyon is that of catastrophic flooding. Increased rainfall combined with an altered hydrograph in Sycamore Canyon may result in many patches being washed out. Long-term drought, such as the one the region is experiencing currently, may affect the species' ability to recolonize vacant patches. In Sycamore Canyon, the combination of small patch size, uncertain persistence of the patches, highly variable overall number of patches, and a highly dynamic and uncertain environment due to flooding and drought could make this population vulnerable to extirpation, although it has continued to persist despite such climatic events.

The species is located in at least five locations, reducing the risk of stochastic events affecting all of the known populations simultaneously. The population in Sycamore Canyon, despite a severe reduction in overall numbers, still persists and is recolonizing the canyon. Recent observations of seedling recruitment and resprouting indicate that the metapopulation can recover from

environmental stochastic events. Given the population's persistence in Sycamore Canyon, we do not believe that its continued existence is threatened now or in the foreseeable future.

Genetic Factors

Harmful genetic effects, such as genetic bottlenecks and founder effects, are often associated with small plant populations (Hedrick and Miller 1992). A genetic bottleneck is a significant reduction in the genetic diversity of a population resulting from a significant reduction of the number of individuals of a species in a specific place or time. It is often associated with a stochastic event and can result in a loss of genetic diversity. The founder effect (Mayr 1963) refers to the establishment of a new population from only a few colonizing individuals, which may represent only a small portion of the overall genetic variation of the original population. Reductions in genetic diversity from these and other causes can have profound effects on both short- and long-term population survival, as genetic variation is related to a population's ability to survive stochastic events (Huenneke 1991; Rogers and Montalvo 2004; Falk *et al.* in press). In Sycamore Canyon, the small number of individuals, small size of the metapopulation, and the type and severity of environmental factors to which the metapopulation is exposed could influence the genetic diversity of the metapopulation.

The ability of a species to persist over time is related, in part, to genetic variation in a population, which provides the basis of adaptation to changing environments. The greater the heterozygosity (number of different types of alleles) present, the higher the probability that at least some plants in a population will be able to adapt to changing circumstances (Huenneke 1991; Reed and Frankham 2003). As populations become depauperate (less variation) in their genetic make-up, the ability of the populations to adapt to changing environmental factors, like climate change or changes in the local environment, may decrease.

The long-term persistence of a population is also related to the fitness of the individuals within the population, where fitness is typically measured in terms of survival and reproduction. Inbreeding depression is a relative decrease in fitness of offspring resulting from either selfing (pollination within the same plant as opposed to between two different plants) or mating between closely-related individuals compared with outcrossed individuals

(Barrett and Kohn 1991). The reduction in fitness is associated with a higher rate of expression of recessive and often lethal alleles (parts of genes that control certain characters, *i.e.*, flower color) in a population. This condition leads to an overall reduction of fitness in a population until the population cannot produce viable offspring. We do not know if this is a factor for Gentry indigo bush because we have not identified the type of breeding system (*e.g.*, obligate outcrosser, selfing, or combination). Thus, we have no information to indicate that genetic factors and small population size are a threat to Gentry indigo bush now or in the foreseeable future. Further, we have no documentation that this species historically persisted in significantly higher numbers than it does today, so its rarity is not necessarily an indication of excessive vulnerability to extinction.

Climate Change

Mean annual temperatures rose 1.1–1.7 degrees Celsius (C) (2.0–3.1 degrees Fahrenheit (F)) in the American Southwest in the 20th century, and are predicted to rise 4.5–6.1 degrees C (8.1–11.0 degrees F) in the 21st century. Predictions of changes in precipitation are less certain; however, some models predict as much as a doubling of annual precipitation, with the largest increases in winter precipitation (Southwest Regional Assessment Group 2000). But these predictions contrast with current trends of a warming North Atlantic and cooling tropical Pacific, with associated changes from a relatively wet period to drought, insect outbreaks in Southwestern forests, and increasing wildfires (Patterson 1997; Betancourt 2004). Some models predict dramatic changes in Southwestern vegetation communities as a result of climate change (Thompson *et al.* 1997). Climate change can occur abruptly, with associated major changes in the environment (National Academy of Sciences, Committee on Abrupt Climate Change 2002). Climate change could affect metapopulations of Gentry indigo bush in unpredictable ways. For example, changes in precipitation may increase the frequency and magnitude of flood events, possibly affecting the distribution and persistence of patches in occupied habitat. Rainfall patterns may shift towards more summer precipitation and less winter precipitation. The germination of seeds may be linked to seasonal rainfall events, and changes in rainfall patterns may affect the population dynamics of this species. We have no information to indicate that climate change constitutes

a threat to Gentry indigo bush now or in the foreseeable future.

In summary, Gentry indigo bush remains a rare, narrowly distributed endemic plant species throughout its range in southern Arizona and in Mexico. Extensive survey work in the United States and Mexico has increased the documentation of populations by one and reconfirmed the existence of two populations in Mexico. In total, there are approximately 1,400 individuals, distributed among 5 sites. There are 2 confirmed populations in the United States, containing over 66 percent of the known individuals. At this time, the majority of Gentry indigo bush in the United States is located within Sycamore Canyon; we do not have an accurate assessment of the numbers of Gentry indigo bush on the Tohono O'odham Nation. We have no information indicating that populations in Mexico or on the Tohono O'odham Nation are experiencing any direct threats. The populations, based on observations of the Sycamore Canyon metapopulation, have the ability to recover from floods and drought. We have seen seedlings and plants resprout, alleviating our concern regarding the plant's ability to reproduce and recover from flood events and sediment deposition. Threats to the Sycamore Canyon population have been minimized by U.S. Forest Service actions, and ongoing activities are not immediately threatening the population.

Finding

We have carefully assessed the best scientific and commercial information available regarding past, present, and future threats faced by the species. We reviewed the petition, available published and unpublished scientific and commercial information, and information submitted to us during the public comment periods on our 90-day finding. This finding reflects and incorporates information we received during the public comment periods. We also consulted with recognized plant experts, including those most familiar with this species, and other Federal resource agencies. On the basis of our review, we find that the petitioned action of listing the Gentry indigo bush is not warranted.

In making this finding, we recognize that one historical population in the United States has been extirpated and is presumed lost. We also recognize that populations are still present on the Tohono O'odham Nation, but that those populations are under the management of a sovereign nation and subject to their laws. The same is true for populations in Sonora, Mexico. There are ongoing

activities and natural events that may be affecting the habitat and reestablishment of the species. Other threats, like undocumented immigrant traffic, are larger than one agency's jurisdiction. However, we believe that existing regulatory mechanisms are sufficient to protect the species. The overall existing management of the U.S. Forest Service is protecting much of the habitat in Sycamore Canyon. We also acknowledge that, due to small population size, demographic or genetic factors may apply to each of the locations in Arizona and Sonora, Mexico, but we have no genetic information to determine whether this is indeed the case.

We conclude that the Gentry indigo bush does not warrant listing at this time. In order to make a warranted finding, the species must, at a minimum, meet the definition of a threatened species. In accordance with section 3(19) of the Act, a threatened species is one which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Based on all the information we have gathered and reviewed, we do not conclude this to be the case for the following reasons.

Populations have persisted in all but one of the known locations over time. A new population was located in Mexico and offers hope that there may be more populations located with additional surveys. Areas that were previously overlooked as suitable habitat outside of the floodplain appear to support Gentry indigo bush. Thus, populations may not be as vulnerable to extirpation from flood events as previously thought since the species does have the ability to recolonize after flood events, and plants located out of the floodplain and on the sides of the canyon could provide a source for the recolonization of plants in stream habitat. The largest known population occurs in Sycamore Canyon within the Goodding RNA, where mining, roads, and grazing are prohibited and where the U.S. Forest Service has completed a number of conservation actions that have improved the habitat for Gentry indigo bush. Additionally, as noted above, the actions of the U.S. Forest Service and the protection that the canyon receives by virtue of its wilderness and RNA designations will continue to provide for the long-term conservation of Gentry indigo bush in Sycamore Canyon. The metapopulation in Sycamore Canyon has persisted through some dramatic environmental events, and its numbers have increased; thus, we believe it will continue to persist into the future. Other factors (e.g., watershed degradation,

invasive species, undocumented immigrant and U.S. Border Patrol activities, recreation, fire, climate change, and genetic factors associated with small population size) discussed above have not been documented as more than low magnitude or potential threats, and therefore it is not reasonably foreseeable that these factors pose threats over a significant portion of the species' range. We anticipate that we will have the opportunity to work cooperatively with the Tohono O'odham Nation, as we have in the past, to census their populations and address potential concerns, if necessary. We also plan to emphasize the need for and participation in future monitoring efforts, surveys, and genetic studies.

The Service does not believe the Gentry indigo bush is likely to become a threatened species throughout either all or a significant portion of its range in the foreseeable future. The only population for which we have a thorough threats assessment is the one on U.S. Forest Service land in Sycamore Canyon. While the Sycamore Canyon population is not entirely devoid of potential threats, we believe that U.S. Forest Service management (e.g., RNA and Wilderness designations, exclusion of both domestic and Mexican cattle from the habitat) sufficiently ameliorates human-influenced threats, while its persistence over time through droughts and floods, and its discovery outside the floodplain, render it unlikely to be extirpated from the canyon as a result of natural factors.

Threats facing the other populations are less well known. Three populations are known from Mexico. One population in Mexico has been present since its original discovery in 1995, another one was relocated in 2005 after it was initially detected in 2004, and the remaining population was only detected in 2005. Based on this information, two of the populations are known to have persisted. In addition, according to information received during the public comment period, the Mexico populations are in areas not accessible to cattle. We can verify that plants still exist on the Tohono O'odham Nation. The fact that the Mexican and Tohono O'odham Nation populations have persisted under current management and through various climatic conditions provides evidence that whatever threats may exist, if any, are not significant. In summary, we have no evidence to indicate that any portion, let alone a significant portion, of the species' range is threatened to the extent that listing under the Act is warranted.

We will continue to monitor the status of this species and will accept

additional information and comments at any time from all concerned governmental agencies, the scientific community, industry, and any other interested party concerning this finding. This information will help us monitor and encourage beneficial measures for this species.

References Cited

A complete list of all references cited herein is available upon request from the Field Supervisor at the Arizona Ecological Services Office (see **ADDRESSES** section).

Author

The primary author of this document is the Arizona Ecological Services Office (see **ADDRESSES** section).

Authority: The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: September 14, 2005.

Marshall Jones,

Acting Director, U.S. Fish and Wildlife Service.

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AT74

Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for *Astragalus lentiginosus* var. *coachellae* (Coachella Valley milk-vetch)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; reopening of public comment period and notice of availability of draft economic analysis.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce the reopening of the public comment period on the proposed designation of critical habitat for *Astragalus lentiginosus* var. *coachellae* (Coachella Valley milk-vetch), and the availability of a draft economic analysis of the proposed designation of critical habitat. We are reopening the comment period to allow all interested parties an opportunity to comment simultaneously on the proposed rule and the associated draft economic analysis. Comments previously submitted on this proposed rule need not be resubmitted as they have already been incorporated into the