

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of *Tumamoca maddougali* To Be Endangered**AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Final rule.

SUMMARY: The Service determines a plant, *Tumamoca maddougali* (Tumamoc globe-berry), to be an endangered species under the authority contained in the Endangered Species Act of 1973 (Act), as amended. This monotypic genus is known from northern Sonora, Mexico, and from Arizona where it occurs on Federal, State, Indian, Pima County, City of Tucson, and private lands. The species is threatened with habitat destruction from increased agricultural development, urbanization, a proposed Central Arizona Project (CAP) aqueduct, grazing, and collection. This action implements the protection provided by the Act.

DATE: The effective date of this rule is May 29, 1986.**ADDRESS:** The complete file for this rule is available for public inspection during normal business hours, by appointment, at the Service's Regional Office of Endangered Species, 500 Gold Avenue SW., Room 4000, Albuquerque, New Mexico.**FOR FURTHER INFORMATION CONTACT:** Peggy Olwell, Endangered Species Botanist, Office of Endangered Species, PO Box 1306, Albuquerque, New Mexico 87103 (505/766-3972 or FTS 474-3972).**SUPPLEMENTARY INFORMATION:****Background**

Tumamoca maddougali was first collected on July 31, 1908, by D.J. Macdougall, a scientist at the Carnegie Desert Laboratory, on Tumamoc Hill, west of Tucson, Arizona. The specimen was sent to J.N. Rose, a botanist at the

U.S. National Herbarium, who described it as a new genus and species in honor of the type locality and its collector (Rose 1912). This plant is a delicate perennial vine in the gourd family. It grows from a tuberous root and has slender herbaceous stems (Toolin 1982). Its thin leaves have three main lobes, each divided into narrow segments. The plant bears small, yellow, male and female flowers and produces small, red, watermelon-like fruits. Flowering begins before the summer rains, with female flowers either being aborted or not produced until after rains later in the season; fruit set normally occurs in August and September. The population biology and ecological requirements are poorly understood (Toolin 1982), and additional studies are needed.

Historically, *Tumamoca maddougali* has been found in 16 very scattered populations from Pima County, Arizona to northern Sonora, Mexico. Toolin (1982) searched known localities in Mexico and was unable to relocate any Mexican populations. However, in October 1985, a reconnaissance of the historic Mexican localities identified 5 populations with approximately 60 plants. There were no large numbers of juveniles found in these populations (Reichenbacher, F.W. Reichenbacher and Assoc., Tucson, pers. comm., 1985). Reichenbacher (1984) reported 10 U.S. populations containing a total of 38 adults, 11 juveniles and 126 seedlings. Extensive field surveys of 53,500 acres in Avra Valley conducted from August to November, 1984, increased the known U.S. populations to 30, containing 290 reproducing adults, 65 probable adults, and 1,627 juveniles (Reichenbacher 1985a; Boyd, Tierra Madre Consultants, Riverside, California, pers. comm., 1984). Continued surveying in the summer of 1985 increased the total known U.S. individuals to 2,300 of which 433 are adults (Reichenbacher, pers. comm., 1985).

These populations occur on private, Federal, State, Indian, Pima County, and City of Tucson lands.

Tumamoca maddougali occurs in the Arizona Upland Subdivision of the Desert Scrub Formation at elevations of 450-795 meters (1,476-2,608 feet) in rocky to gravelly, sandy, silty, and clayey soils derived from granite, basalt, and rhyolite. The vegetation is palo-verde/cactus shrub and creosote bush/

bursage desert scrub. Dominant associate species are creosote bush (*Larrea divaricata*), palo-verde (*Cercidium* spp.), white thorn acacia (*Acacia constricta*), saguaro cactus (*Carnegie gigantea*), prickly pear (*Opuntia phaeacantha*), cane cholla (*Opuntia versicolor*), mesquite (*Prosopis juliflora*), ironwood (*Olneya tesota*), and triangle leaf bursage (*Ambrosia deltoidea*). No symbiotic relationship is known for the Tumamoc globe-berry; however, it is usually found under trees and shrubs (nurse plants), which provide shade and protection, as well as support for the vine. The nurse plants for *Tumamoca maddougali* include creosote bush, triangle leaf bursage, white thorn acacia, all-scale, palo-verde, and pencil cholla (Reichenbacher 1984).

In the **Federal Register** of December 15, 1980 (45 FR 82480), the Service published a notice of review covering plants being considered for classification as endangered or threatened. In that notice, *Tumamoca maddougali* was included in category 1. That category comprises taxa for which the Service has sufficient biological information to support the appropriateness of their being proposed to be listed as endangered or threatened species.

The Endangered Species Act Amendments of 1982 required that all petitions pending as of October 13, 1982, be treated as having been newly submitted on that date. The species covered in the December 15, 1980, notice of review were considered to be petitioned, and the deadline for a finding on those species, including *Tumamoca maddougali*, was October 13, 1983. On October 13, 1983, and again on October 12, 1984, the petition finding was made that listing *Tumamoca maddougali* was warranted but precluded by other pending listing actions, in accordance with section 4(b)(3)(B)(iii) of the Act. Such a finding requires a recycling of the petition, pursuant to section 4(b)(3)(C)(i) of the Act. A proposed rule published May 20, 1985 (50 FR 20806), constituted the next required finding that the petitioned action was warranted in accordance with section 4(b)(3)(B)(ii) of the Act.

A survey of the Papago Indian Reservation (Reichenbacher 1985b) and field investigations carried out during

the summer and fall of 1985 by F.W. Reichenbacher and Associates have provided new biological data that are included in this final rule. These new data include documentation of present threats and further information on the population status of the species.

Summary of Comments and Recommendations

In the May 20, 1985, proposed rule (50 FR 20806) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice was published in the *Arizona Daily Star* on Tuesday, June 18, 1985, which invited general public comment. Twelve letters were received in support of the proposal and five commentors provided information but expressed neither support nor opposition. These seventeen written comments on the proposal, together with the Service's responses, are summarized and discussed below. No public hearing was requested or held.

Support for the proposal was received from the International Union for Conservation of Nature and Natural Resources, Smithsonian Institution National Museum of Natural History, and World Wildlife Fund—TRAFFIC (U.S.A.). The Arizona Game and Fish Department commented that the proposal is ". . . an accurate reflection of the distributional status of the species."

The Bureau of Indian Affairs (BIA), Papago Agency, provided the legal description for the locality on the Papago Indian Reservation which was discovered in the summer of 1984. The BIA indicated it has no idea what the size of the population is but would be available to assist the Service in taking a census. The Service is developing plans to conduct a census of the population on the Papago Reservation in 1986 and appreciates the cooperative efforts of the BIA.

The National Park Service (NPS) supports the proposal for listing *Tumamoca macedougallii* as endangered and supports the decision not to declare critical habitat for the species. In addition, NPS informed the Service of a locality on Saguaro National Monument. The Service is aware of this population and had included it in the population numbers in the proposal. The NPS also stated that Organ Pipe Cactus National Monument had been searched in 1984

for *Tumamoca macedougallii* but the plant population formerly known there was not relocated.

The U.S.D.A. Forest Service (FS) supports the proposal and states that project clearance surveys need to be conducted during June to December. The Service realizes the importance of field survey timing and will assume the responsibility of informing all agencies of the necessity to survey for this species during the summer and early fall. The FS also discussed several recovery measures for the species and recommended additional surveys. This information will be addressed in the recovery plan which will be written for the species following listing.

The Arizona Wildlife Federation (AWF) supports the proposal and states that "any projects on Federal lands should be planned so as to offer the least or no disturbance to the species." In addition, AWF also suggested that plants should be moved to protected areas of the Muleshoe Ranch or Buenos Aires Refuge. It is the policy of the Service to protect species within their natural habitat and not to introduce species out of their historic range. The Muleshoe Ranch is outside the known historic range of the species and the Buenos Aires Refuge is in the Semidesert Grassland Biotic Community, which is a different biotic community than the one in which *Tumamoca macedougallii* has been found. However, both Buenos Aires and the Cabeza Prieta Wildlife Refuges will be surveyed for the plant.

Dr. D.H. Wright, of the University of Georgia and a member of F.W. Reichenbacher and Associates field survey team, supports the proposal. However, he feels that the critical number reported in the proposal is the 355 adults, and that the 1,627 juveniles should not be included as part of the viable population estimate because only a small fraction of the juveniles are likely to become adults. Dr. Wright also points out that the species has a tenuous hold on population maintenance because of predation and the lack of a dispersal mechanism. In addition, Dr. Wright discusses the potential value of *Tumamoca macedougallii* as a genetic resource in breeding or genetic engineering, for example, conferring drought tolerance, fruit characteristics, tuber production or pest and disease resistance to domestic cucurbit species. Dr. Wright suggests an active management course be taken for this species. The Service realizes that *Tumamoca macedougallii* has a high rate of seedling mortality and has included this information in this final rule. Also,

the Service uses the number of adults as the critical number when considering the status of the species. The Service intends to implement an active management course for *Tumamoca macedougallii* and will address this in the recovery plan which will be written following listing.

Ms. Linda Leigh, botanist and member of F.W. Reichenbacher and Associates field survey team, supports the proposal, and comments that the proposal contained incorrect information on the flowering period, which actually begins before the summer rains. This information has been incorporated into the final rule. Ms. Leigh also noted that a 100 percent survey of the CAP corridor has not been done in the Avra Valley and that the number of plants impacted by CAP is most probably understated. The Service is aware of this and will take it into consideration when working with the Bureau of Reclamation (BR) on CAP impacts to *Tumamoca macedougallii*.

Mr. Scott Wilson, member of F.W. Reichenbacher and Associates field survey team, supports the proposal and comments that most known populations occur in small washes and water drainages, and that if development in the vicinity of these populations is allowed, existing drainage patterns may be altered. He points out that ". . . more than just the immediate area surrounding these populations should be considered in future protection or development plans." The Service takes into consideration both direct and indirect impacts of any Federal project which may affect a listed species. Wilson notes that evidence of successful reproduction (i.e. fruits) was not found for most of the adult individuals and additional information on reproduction by adults is necessary. The Service will incorporate requirements for population biology and ecological studies into the recovery plan which will be developed following the listing of the species. In addition, Mr. Wilson also indicated a similar concern as that of Ms. Leigh, that a complete survey of *Tumamoca macedougallii* along the CAP route has not been done, and the number of plants along the route as presently indicated is an underestimate.

Ms. M.H. Wilkins, botanist and member of F.W. Reichenbacher and Associates field survey team, supports the proposal and submits the following comments: The vining habit and nature of the foliage make it difficult for *Tumamoca macedougallii* to survive in the early growth stages. Ms. Wilkins suggested we ". . . transplant any known populations from areas in

question to parks, gardens, museums . . . which can accommodate and cultivate them . . ." It is the policy of the Service to protect the species in its natural habitat. However, if the Service finds it necessary to move plants, scientific and educational facilities would be contacted.

Dr. T.F. Daniel, Curator, Arizona State University Herbarium, supports the proposal and submits the following comments based on his knowledge of the species and review of the most recent comprehensive field survey of *Tumamoca macdougallii* (Reichenbacher 1985a): Dr. Daniel contends that though the study, "The Status and Distribution of the Tumamoc Globe-Berry (Reichenbacher 1985) . . . comprised an admirable amount of field surveys, many of its conclusions are highly speculative and misleading." In particular, Dr. Daniel believes the extrapolated estimate of 46,971 live plants of *Tumamoca macdougallii* in 783 populations is misleading and not supported by the surveys cited in the study. The Service is aware of the method used to arrive at the estimates and in making its decision to list it is using only those numbers of observed plants. The Service will take this into consideration in working with BR on CAP impacts to the species. Dr. Daniel points out that additional inventories are necessary in western Pima County, Arizona, and eastern Sonora, Mexico, in order to make a biologically meaningful assessment of the status of *Tumamoca macdougallii*. Dr. Daniel believes it is especially important to note that the preferred route of the CAP would bisect the largest known population of *Tumamoca macdougallii* and because we know virtually nothing of the effects of transplanting individuals on the population dynamics of the species, the most beneficial conservation measure for the species would be for the CAP to avoid the largest population. The Service is cognizant of the lack of data on the effect of transplantation and is considering this in cooperating with BR on the CAP.

Dr. H.S. Gentry, Research Director, Desert Botanical Garden (DBG), supports the proposal and indicates the Desert Botanical Garden's continued interest in cooperating with the Service on threatened and endangered plants. The Service appreciates the active interest of the DBG and we will keep DBG informed of the status of this and other plant species we are working with.

The Soil Conservation Service (SCS) informed the Service of a population they discovered on the Papago Indian Reservation while conducting a soil and

range survey for BIA. The SCS observed predation on the plants in the area by javelina (a pig-like mammal). The SCS also indicated that the people working on the soil survey are aware of the species and will be looking for it while out in the field. The Service is aware of the population and appreciates being kept informed of any new localities.

The Bureau of Reclamation (BR) commented that salvage may be necessary for *Tumamoca* plants in the CAP construction corridor. The Service will work with the BR to minimize impacts to *Tumamoca* and to the CAP project. Transplantation (salvage) of plants to avoid conflict is not the most desirable method for resolving species/project conflicts, but can be considered along with other alternatives. BR and the Service are working closely on the CAP to minimize impacts to the *Tumamoca* and all species which may be affected. The BR also provided Reichenbacher's (1985) extrapolated population estimates. As stated earlier, the Service bases its decisions to list on known observed population estimates. Rare species usually do not occur uniformly or continuously throughout the habitat types that they occupy. Therefore, extrapolated numbers rarely reflect accurate estimates where rare species are concerned. The Service will base its recommendations to BR on known observed population numbers. BR also provided Reichenbacher's (1985) data on *Tumamoca*'s preferred habitat type, javelina predation, nurse plant association and diversity, and geographical distribution. This information has been incorporated into the final rule. The Service will continue to work closely with BR to provide protection for the *Tumamoca* and to achieve proper planning for the CAP.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Tumamoca macdougallii* should be classified as an endangered species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (50 CFR Part 424) were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Tumamoca macdougallii* J.N. Rose (Tumamoc globe-berry) are as follows:

A. *The present or threatened destruction, modification, or curtailment*

of its habitat or range. The historic range of the Tumamoc globe-berry extended about 193 kilometers (120 miles) west of Tucson, Arizona, to Gunsight, Arizona, and approximately 483 kilometers (300 miles) south to Guaymas, Sonora, Mexico. Much of the former range of *Tumamoca macdougallii* is presently being modified by agricultural development (near Carbo, Sonora, and in the Avra Valley, Pima County, Arizona) and urban expansion (on the west side of Tucson, Arizona). The formerly known population at Organ Pipe Cactus National Monument has not been relocated.

Presently, there are 30 known U.S. populations containing approximately 433 adults and 1,867 juveniles. Nine populations of *Tumamoca macdougallii* occur on private land; eight on city, county, State, and university administered land; and 13 are under Federal administration. Seventy-five percent of the plants occupy habitat on non-Federal land and modification of the habitat could occur and result in destruction or damage to these populations. During 1984, 53,500 acres of land in Avra Valley were surveyed for *Tumamoca macdougallii* and Reichenbacher (1985a) believes there is little chance of any other large populations being found in Avra Valley.

The State of Arizona has applied for the transfer to State ownership of 2,540 hectares (6,274 acres) of Bureau of Land Management (BLM) administered land in the Avra Valley. Some of this land has already been transferred to the State, including portions of two sections that contain two populations of *Tumamoca macdougallii*. All lands obtained under the State indemnity land selections are subject to disposal to generate revenue for the State. Thus, these lands are expected to undergo development; however, before the State leases to anyone with the intention of disturbing the surface, a botanical review is done by the Arizona Agriculture and Horticulture Commission (Randy Brenner, Arizona State Land Department, pers. comm., 1984).

The city of Tucson owns a parcel of land containing 31 plants of *Tumamoca macdougallii*. The land is administered by the Tucson Parks and Recreation Department and is scheduled to become a Native District Park by March, 1986. The Tucson Parks and Recreation Department (TPRD) is aware of the species and indicates it will be taken into consideration in the park planning process (Glen Dixon, TPRD, pers. comm., 1985). Development of this park will affect the species' habitat through

an increase in number of people using the area.

Currently, 22 adult plants and 71 juveniles are scattered throughout developed and undeveloped areas of the West Campus of Pima Community College. Erosion threatens some of the plants located on an embankment adjacent to the school's firing range. With the continuing growth of the Tucson area and the anticipated growth of the Community College, development of this *Tumamoca macdougallii* habitat could occur.

The Pan Quemado population of *Tumamoca macdougallii* on BLM administered land is in the vicinity of a land imprinting and seeding project on the Aqua Blanco Ranch. The project will avoid drainage areas; however, it will imprint the creosote-bush areas between the drainages. Suitable habitat for the globe-berry exists throughout the sections of land proposed for the project (Mary Butterwick, BLM, pers. comm., 1984). An inventory of 122 hectares (301 acres) disclosed a population of 33 plants on this BLM administered habitat (Reichenbacher 1985a). Five plants excavated and eaten by animals, presumably javelina, were also observed at the Pan Quemado site.

The US identified a small population, 9 adults and 32 juveniles, on the Coronado National Forest, east of the Santa Cruz River. This population occurs in the middle of a picnic area which, fortunately, receives little use in the summer and fall when the plants are growing (Reichenbacher 1985a).

An additional threat to *Tumamoca macdougallii* and its habitat is the proposed construction of the CAP aqueduct, a BR water diversion project. Six adult plants were found in the proposed alignment during a 1983 field survey (Reichenbacher 1984). Intensive field surveys were conducted August–November of 1984 and 1985 to search the project area where the 6 adults were found in 1983. These surveys located a total of 736 plants with 102 adults (the largest known population) on land to be impacted by the CAP (Reichenbacher, pers. comm. 1985).

On the San Xavier and Papago Indian Reservations, habitat is also being lost to agricultural and housing development. The CAP includes allocation of water to farm 1,215 hectares (3,000 acres) on the Papago Reservation and 4,453 hectares (11,000 acres) on the San Xavier Reservation (Tom Gatz, BR, pers. comm. 1983).

The Papago Indian Tribe contracted with Franzoy Corey Engineers, Phoenix, Arizona to survey 28,000 acres for *Tumamoca macdougallii* in 1984. Three

51 juveniles were found in the area planned for agricultural and, possibly, housing development (Reichenbacher 1985b).

Tumamoc Hill, the type locality of *Tumamoca macdougallii*, is a natural resource site administered by the University of Arizona. There are 35 adult plants and 143 juveniles on this property (Reichenbacher 1985a). This population was thought to be the most secure because the site was designated a National Historic Landmark in 1975, a National Environmental Study Area in 1976, and a State Scientific and Educational Natural Area in 1981 (Tumamoc Hill Planning Committee 1982). However, people have excavated plants from this site (Reichenbacher 1985a). In addition, with the population of the surrounding area growing, so too will the adverse impacts. Damage from dogs and four-wheel drive vehicles has been minor in the past, but with an increasing number of people in the area the damage may intensify.

B. Overutilization for commercial, recreational, scientific, or educational purposes. *Tumamoca macdougallii* is not known to be sought for commercial, recreational or educational purposes; however, the species is sought for scientific purposes. Several plants as well as a large number of seeds have been collected. To date, this has not been shown to be a significant problem but the potential problem is great. This species is very vulnerable because of low plant numbers and any taking would be detrimental to the populations. Due to its easily accessible locations, vandalism poses an additional threat to *Tumamoca macdougallii*.

C. Disease or predation. It has been observed that antelope jackrabbits (*Lepus alleni*) clip the stems, leaves, flowers, and fruits of *Tumamoca macdougallii* (Reichenbacher 1984). Although not observed, rodents are also suspected to browsing the plant (Toolin 1982). Reichenbacher (1985a) identified 54 plants excavated by javelina during the 1984 field survey. Javelina foraging pressure varies from population to population. During an August, 1985, general reconnaissance of an area on the Papago Indian Reservation south of Gu Komelik, javelina foraging was observed to be causing extensive mortality to the *Tumamoca macdougallii* population. This population occurs in an area that BIA included in a riparian management program in 1960. The intent of this program was to increase grasses along the Santa Rosa Wash by chaining (Bob Klink, BIA, pers. comm. 1985). Undoubtedly, this changed the local vegetational composition and it is

javelina. The javelina population in the area has expanded and is putting considerable pressure on the *Tumamoca macdougallii* population.

Livestock grazing may not directly affect the Tumamoc globe-berry; however, livestock take shelter under trees on warm days and could possibly trample plants which are located in the shade of trees or shrubs.

D. The inadequacy of existing regulatory mechanisms. Presently, there is no Federal or Arizona State law protecting *Tumamoca macdougallii*. The Tumamoc globe-berry is on the BLM Sensitive Species List and it is BLM policy to include Federal candidate species for consideration in its environmental assessments. Existing Federal regulations in 36 CFR 261.9 prohibit taking of this species in the Coronado National Forest. The Endangered Species Act would provide additional protection for this plant through section 7 (interagency cooperation) requirements and through section 9, which prohibits removal and reduction to possession of endangered species on Federal lands.

E. Other natural or manmade factors affecting its continued existence. The low number (493 adult plants and 1,867 juveniles) and limited distribution of *Tumamoca macdougallii* increase the species' vulnerability to natural or man-caused stresses. Although the reproductive biology is not fully understood, survival of all seedlings to maturity is doubtful, because the absence of well-developed root systems on young plants makes them vulnerable to periodic droughts common in the species' range (Toolin 1982). This seedling mortality is well illustrated by the present ratio of adults to seedlings.

The Service has carefully assessed the best scientific and commercial information available regarding the present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list *Tumamoca macdougallii* as endangered without critical habitat. Endangered status is appropriate because all populations except one are facing imminent threat from urban and agricultural expansion. Thus, *Tumamoca macdougallii* is in danger of extinction throughout a significant portion of its range and may soon disappear unless appropriate protection is extended. The reasons for not designating critical habitat are discussed below.

Critical Habitat

Section 4(a)(3) of the Act, as amended

prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for *Tumamoca macdougallii* because its restricted distribution and accessibility make it vulnerable to threats from taking. Publication of critical habitat descriptions and maps would call attention to this species, making it more vulnerable to taking and vandalism. Therefore, it would not be prudent to determine critical habitat for *Tumamoca macdougallii* at this time. The location of populations of this plant have been brought to the attention of appropriate agencies and other involved parties through regular communication. No benefit would accrue from designating critical habitat for this species.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402, and are now under revision (see proposal at 48 FR 29990; June 29, 1983). Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. The usual results of section 7 consultation, if jeopardy is found, are modification and not cancellation of a proposed action.

The CAP—Tucson Aqueduct Phase B Alignment will affect the Tumamoc globe-berry. The preferred route of the CAP aqueduct would cross the largest known population of *Tumamoca*. This population contains 102 adult and 634 juvenile plants. Of the 102 adult plants, 42 are in the aqueduct right-of-way, 29 are below the right-of-way, 11 are in the inundation zone and 20 are above the inundation zone. Juveniles in the population would receive the same impacts as the nearby adults. The BR is working with the Service to determine the status of *Tumamoca macdougallii* on the CAP route. The known population as well as potential habitat on BLM administered lands may be impacted by the land imprinting and seeding project or by the possibility of land transfers from BLM to State or private interests. Adequate surveys at appropriate times of the year need to be conducted prior to transfer of land from BLM to non-Federal interests. Urban and agricultural development on the Papago Indian Reservation could possibly impact 310 plants. Surveys have been conducted on the reservation. The BIA, BLM, and BR are all aware of the species on their lands and are actively planning for it. No other Federal activities are known or expected to affect this species.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general trade prohibitions and exceptions that apply to all endangered plant species. With respect to *Tumamoca macdougallii*, all trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale this species in interstate or foreign commerce, or to remove and reduce to possession the species from areas under Federal jurisdiction. Certain exceptions can apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances. International and interstate commercial trade in *Tumamoca macdougallii* is not known to exist. It is anticipated that few permits would ever be sought or issued since the species is not common in cultivation or in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Federal Wildlife Permit Office, U.S. Fish

and Wildlife Service, Washington, DC 20240 (703/235-1903).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

References Cited

- Reichenbacher, F.W. 1984. Rare plants of the Central Arizona Project Aqueduct Phase B, final report. Arizona Game and Fish Department, Phoenix, Arizona. 81 pp.
- Reichenbacher, F.W. 1985a. Status and distribution of the Tumamoc globe-berry (*Tumamoca macdougallii*). F.W. Reichenbacher and Associates, Tucson, Arizona. 83 pp.
- Reichenbacher, F.W. 1985b. Rare plant survey of the Papago Indian Reservation, draft final report. F.W. Reichenbacher and Associates, Tucson, Arizona. 57 pp.
- Rose, J.N. 1912. *Tumamoca*, a new genus of Cucurbitaceae. Contributions from the U.S. National Herbarium 16:21.
- Toolin, L.J. 1982. Status report on *Tumamoca macdougallii*. U.S. Fish and Wildlife Service, Office of Endangered Species, Albuquerque, New Mexico. 11 pp.
- Tumamoc Hill Advisory Committee. 1982. Tumamoc Hill Policy Plan. University of Arizona, Tucson, Arizona. 70 pp.

Author

The primary author of this final rule is Peggy Olwell, Endangered Species Office, U.S. Fish and Wildlife Service, Department of the Interior, P.O. Box 1306, Albuquerque, New Mexico 87103 (505/766-3972 or FTS 474-3972). The editor is LaVerne Smith, Office of Endangered Species, Washington, DC 20240 (703/235-1975 or FTS 235-1975). Status information was provided by Dr. L. J. Toolin, Arizona Natural Heritage Program, Tucson, Arizona, and by Frank Reichenbacher, F.W. Reichenbacher and Associates, Tucson, Arizona.

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for Part 17 continues to read as follows:

 Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 95 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-

304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).
 2. Amend § 17.12(h) by adding the following, in alphabetical order under the family Cucurbitaceae to the List of Endangered and Threatened Plants:

§ 17.12 **Endangered and threatened plants.**
 * * * * *
 (h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Cucurbitaceae—Gourd family:						
<i>Tumamoca macdougalii</i>	Tumamoc globe-berry	U.S.A. (AZ), Mexico (Sonora)	E	226	NA	NA

Dated: April 3, 1986.
 Susan Rocca,
 Deputy Assistant Secretary for Fish and
 Wildlife and Parks.
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