

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Dododo	Snake R. (U.S.A.: ID, OR, WA) (mainstem and the following subbasins: Tucannon R., Grande Ronde R., Imnaha R., Salmon R., and Clearwater R.) fall run, natural population(s), wherever found.	T	516	NA	227.21

Dated: September 9, 1993.
Richard N. Smith,
 Acting Director, Fish and Wildlife Service.
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 BILLING CODE 4310-55-P

50 CFR Part 17

RIN 1018-AB83

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Delhi Sands Flower-loving Fly

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Fish and Wildlife Service (Service) determines the Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) to be an endangered species throughout its range in northwestern Riverside and southwestern San Bernardino Counties, California, pursuant to the Endangered Species Act of 1973, as amended (Act). This species is in imminent danger of extinction due to extensive habitat loss and degradation that has reduced its range by over 97 percent. Only five populations of the Delhi Sands flower-loving fly exist; all are threatened by urban development activities. This rule implements Federal protection provided by the Act for the Delhi Sands flower-loving fly.

EFFECTIVE DATE: This rule is effective on September 22, 1993.

ADDRESSES: The complete file for this rule is available for public inspection, by appointment, during normal business hours at the Carlsbad Field Office, U.S. Fish and Wildlife Service, 2730 Loker Avenue West, Carlsbad, California 92008.

FOR FURTHER INFORMATION CONTACT: Peter Stine, Acting Field Supervisor, at the address listed above (telephone 619/431-9440).

SUPPLEMENTARY INFORMATION:

Background

The Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) is a large insect in the Dipteran family Apiceridae. It has an elongate body, much like that of a robber fly (Asilidae), but unlike asilids, it has a long tubular proboscis, used, as in butterflies, for extracting nectar from flowers. The flower-loving fly is approximately 2.5 centimeters (1 inch) long, orange-brown in color, and has dark brown oval spots on the upper surface of the abdomen. This species is a strong flier, and, like a hummingbird, is capable of stationary, hovering flight.

Rhaphiomidas terminatus consists of two subspecies: the El Segundo flower-loving fly (*Rhaphiomidas terminatus terminatus*) and the Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*). Specimens of *R. terminatus* were misidentified as *Rhaphiomidas episcopus* by D.W. Coquillett, based upon material he collected in 1891 from Los Angeles, California. Townsend (1895) referred to these specimens as *Rhaphiomidas mellifex*. Cazier (1941) noted that both of these identifications were in error and used the specimens collected by Coquillett to describe *R. terminatus* as a new species. Later in the same publication, the Delhi Sands flower-loving fly was described as *Rhaphiomidas abdominalis*, based upon an adult male collected in August 1888, in Colton, California. In 1941, when both *R. terminatus* and *R. abdominalis* were described, Cazier had only two specimens of each taxon available for examination, and these individuals appeared to represent distinct species. However, when the genus was revised (Cazier 1985), it was determined that *abdominalis* is a subspecies of *R. terminatus*, based on abdominal maculations and other morphological characters. *Rhaphiomidas terminatus terminatus* is presumed extinct; thus *Rhaphiomidas terminatus abdominalis* is the only extant representative of this

species. A complete description and illustration of these subspecies can be found in Cazier (1985).

The other subspecies of *R. terminatus*, the El Segundo flower-loving fly, historically occurred in coastal dunes of southwestern Los Angeles County, California (Cazier 1985). All known localities for this animal were on coastal sand dunes. Surveys conducted during 1987, 1988, 1990, and 1991 at the Airport Dunes, the largest remaining coastal sand dune system south of Point Conception in California, did not locate any El Segundo flower-loving flies, and apparently other known sites for the subspecies are no longer suitable habitat due to urbanization (G. Ballmer, *in litt.*, 1989; R. Mattoni, private entomologist, pers. comm. to Chris D. Nagano, Fish and Wildlife Service, 1991). There are no extant sites known for this subspecies.

The Delhi Sands flower-loving fly currently occurs at five locations in southern California: Four in southwestern San Bernardino County and one in Riverside County, just south of the San Bernardino County line. All known colonies occur on privately owned land within an 8-mile radius circle.

The most characteristic feature of all collection sites for this animal is the presence of fine, sandy soils, often with wholly or partly consolidated dunes. These soil types are generally classified as the "Delhi" series (primarily Delhi fine sand). Delhi series soils cover approximately 40 square miles in several irregular patches, extending from the cities of Colton to Ontario and Chino in northwestern Riverside and southwestern San Bernardino Counties (U.S. Department of Agriculture 1971, 1980). Much of the area of Delhi soils has been used for agriculture (chiefly grapes and citrus) since the 1800's. More recently, this area has been used for dairies, housing tracts, and commercial/industrial sites. The documented distribution of the Delhi Sands flower-loving fly extends from the eastern margin of the Delhi fine sand

formation in Colton to near its western limit in Mira Loma. This distribution strongly suggests that this species once occurred throughout much or all of the 40 square miles of Delhi fine sand soil. The validity of this assumption is reinforced by the historic distribution of the closely related El Segundo flower-loving fly (now believed extinct), farther west in the coastal dunes of Los Angeles County.

Ballmer (1989) reported the results of searches for the Delhi Sands flower-loving fly in potential habitat (undeveloped or abandoned areas of Delhi sand). No additional sites for the species were found; these absences were variously attributed to a lack of native vegetation (possibly associated with intensive off-road vehicle use), degradation by past agricultural use, solid waste disposal, freeway construction, and conversion to housing. It may be possible to restore the habitat in some of these areas for future reintroduction of the fly. The results of extensive searches by Ballmer and others indicate that the Delhi Sands flower-loving fly now occupies less than 2.5 percent of the total area of Delhi fine sands. Thus, it appears that over 97 percent of the habitat of the fly has been eliminated.

The life history of the Delhi Sands flower-loving fly is not well known, but is probably similar to that of other members of this genus (Cazier 1985). All members of the genus *Rhaphiomidas* inhabit arid or semi-arid regions, and many occur in sparsely vegetated sand dune habitats. Adults of some species, probably including *R. t. abdominalis*, take nectar from flowers by means of an elongate proboscis. The preference of *Rhaphiomidas* for sparsely vegetated areas may be related to the insect's behavior of flying low, usually a meter (3 feet) or less above the ground, and frequently landing on the surface (Ballmer 1989). Cazier (1985) suggested that vegetation may aid in the selection of oviposition (egg-laying) sites as in *Apiocera*, another apiocerid fly genus.

Collection records for the Delhi Sands flower-loving fly indicate a single annual flight period during August and September. A skewed ratio of males to females (about 2:1) suggests that, as with many other insect species, males are more active, spending much of their time flying and investigating vegetation or the sand surface for resting females. Mating behavior of the Delhi Sands flower-loving fly has not been observed, but it is known that eggs are deposited in sand. In captivity, one female survived for 10 days and produced over 50 eggs (Ballmer 1989). Larval development apparently also takes place

in the sand. The single annual flight suggests that development to metamorphosis takes a full year. Pupae work their way to the surface prior to emergence as adults. Hogue (1967) describes the emergence of an El Segundo flower-loving fly from a pupal case in a remnant coastal dune in Manhattan Beach, California. Additional observations on the natural history of this and other species within the genus *Rhaphiomidas* are reported by Rogers and Mattoni (1993).

Circumstantial evidence suggests that sparse native vegetation is important in the biology of *R. t. abdominalis* although specific plant associations that may be required by this species are not known. Dominant native plant species in its habitat include wild buckwheat (*Eriogonum fasciculatum*), croton (*Croton californicus*), and telegraph weed (*Heterotheca grandiflora*) (Ballmer 1989). Additional native plants found within habitat of *R. t. abdominalis* include *Ambrosia acanthocarpa*, *Amsinckia intermedia*, *Eriastrum sapphirinum*, *Eriogonum thurberi*, and *Lessingia glandulifera*. Cazier (1985) reported that several specimens of *Rhaphiomidas terminatus terminatus* had been collected in association with a member of the phlox family (*Eriastrum filifolium*).

Previous Federal Action

On October 30, 1989, the Fish and Wildlife Service received a petition (dated October 18, 1989) from Mr. Greg Ballmer, an entomologist affiliated with the University of California at Riverside, to list the Delhi Sands flower-loving fly as an endangered species. Mr. Ballmer had also submitted a similar petition (dated October 18, 1989) to the California Fish and Game Commission (Commission). The State petition was referred to the California Department of Fish and Game (CDFG), which found that the petitioned action may be warranted. The State petition was later voluntarily withdrawn when the petitioner learned that it could be rejected by the Commission, because CDFG had not yet determined whether it had authority under the California Endangered Species Act to list insects. On July 19, 1990, the Service received a letter (dated July 16, 1990) from Mr. Ballmer requesting again that the Delhi Sands flower-loving fly be listed as endangered. In accordance with section 4(b)(3)(A) of the Endangered Species Act of 1973 as amended (16 U.S.C. 1531 *et seq.*), the Service found that substantial information had been presented to indicate that the petitioned action may be warranted on October 30, 1990. This finding was published in the

Federal Register on December 24, 1990 (55 FR 52852). On November 21, 1991, the Delhi Sands flower-loving fly was included as a category 1 candidate species in the Animal Notice of Review which was published in the **Federal Register** (56 FR 58804). Category 1 comprises those taxa for which the Service has on file sufficient information to support proposals for endangered or threatened status. On March 25, 1992, Mr. Ballmer petitioned the Service to list the Delhi Sands flower-loving fly as an endangered species on an emergency basis due to ongoing and anticipated construction projects within its habitat. This petition was regarded as a third request for the same action and a separate finding was not made. A proposed rule to list the fly as endangered was published in the **Federal Register** on November 19, 1992 (57 FR 54547).

Summary of Comments and Recommendations

In the November 19, 1992, proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule for the Delhi Sands flower-loving fly. The Governor of California, one State assemblyman, 2 Federal agencies, 8 State agencies, 2 county and 3 city governments, 8 county and 3 city agencies, 5 scientific organizations, 4 conservation groups, and 30 other interested parties were contacted and requested to comment. A legal notice announcing the proposal and inviting general public comment was published in the San Bernardino County Sun on November 23, 1992, and in the Riverside Press Enterprise on November 30, 1992. A legal notice announcing a public hearing and inviting general public comment on the proposal was published in the same two newspapers on December 18, 1992. A notice announcing the date of the public hearing was published in the **Federal Register** on December 18, 1992 (57 FR 60159). The public hearing was held on January 5, 1993, at the San Bernardino County Government Center.

A total of 57 comments was received on the proposed rule. (Multiple comments from the same party on the same date are regarded as one comment.) Of these, 9 (16 percent) supported the listing, 46 (81 percent) opposed the listing, and 2 (3 percent) neither supported nor opposed listing. In addition, a petition containing 48 signatures opposed the listing.

Four elected officials, the City of Rialto, the Board of Supervisors for the County of San Bernardino, the Riverside

County Farm Bureau, the Riverside County Habitat Conservation Agency, and the Agua Mansa Industrial Growth Association opposed listing. One conservation organization and eight individuals supported listing.

The Service has reviewed all of the written and oral comments referenced above. Based on this review, nine relevant issues have been identified and are discussed below. These issues are representative of the comments questioning or opposing the proposed listing action.

Issue 1: The Service should consider economic effects in determining whether to list the Delhi Sands flower-loving fly under the Endangered Species Act.

Service Response: In accordance with 16 U.S.C. 1533(b)(1)(A) and 50 CFR 424.11(b), listing decisions are made solely on the basis of the best scientific and commercial data available.

In adding the word "solely" to the statutory criteria for listing a species, Congress specifically addressed this issue in 1982 amendments to the Act. The legislative history of the 1982 amendments states: "The addition of the word 'solely' is intended to remove from the process of the listing or delisting of species any factor not related to the biological status of the species. The Committee strongly believes that economic considerations have no relevance to determinations regarding the status of species and intends that the economic analysis requirements of Executive Order 12291, and such statutes as the Regulatory Flexibility Act and the Paperwork Reduction Act, not apply* * *. Applying economic criteria to the analysis of these alternatives and to any phase of the species listing process is applying economics to the determinations made under section 4 of the Act and is specifically rejected by the inclusion of the word 'solely' in this legislation." H.R. Rep. No. 567, Part I, 97th Cong., 2d Sess. 20 (1982).

Issue 2: Listing the Delhi Sands flower-loving fly as endangered should be postponed until local efforts to conserve this species (e.g., the Agua Mansa Industrial Growth Association (AMIGA) Habitat Conservation Plan (HCP)) are completed and can be evaluated by the Service. These actions will eliminate the need for listing by adequately providing for conservation of the fly while also permitting beneficial economic growth in the region.

Service Response: The Service acknowledges the efforts by several landowners associated with AMIGA to cooperate with the Service in developing conservation measures (such

as habitat set-asides and habitat restoration programs) for the fly. However, no definitive habitat conservation plan has been prepared, approved, funded, and implemented at this time, and no protection is currently afforded to the fly or its habitat. Since the proposed rule was published, about 45 acres of occupied habitat have been destroyed (G. Ballmer, pers. comm., 1993). That represents a loss of 6 to 13 percent of the Delhi Sands flower-loving fly habitat that existed at the time the proposed rule was published. In addition, the county of San Bernardino has informed the Service of its intention to destroy about 7 acres of occupied, high quality habitat and 69 acres of degraded, unoccupied habitat (Linda R. Dawes, Fish and Wildlife Service, pers. comm., 1993). The destruction of this site would sever an important link between adjacent patches of occupied habitat. The fly is in imminent danger of extinction and warrants immediate protection under the Act. Listing the fly as endangered will not hamper the ability of local entities to continue working on an HCP for this species. If voluntary conservation planning efforts referenced above are completed in a timely manner, that should diminish adverse effects of a listing action on affected parties and promote the recovery of the fly.

Issue 3: The Service should designate critical habitat for the fly because it is readily definable and would be beneficial to the species.

Service Response: For the reasons discussed in the "Critical Habitat" section of this rule, the Service concludes that designation of critical habitat is not prudent for the Delhi Sands flower-loving fly at this time.

Issue 4: The Service should explain the basis for its conclusions that: (1) Only a fraction of the historical habitat for the fly remains; and (2) it is endemic to Delhi sand soils.

Service Response: Historical and current distribution limits of the fly are based on field collections, surveys, land use patterns, and analysis of soil types (Ballmer 1989). There is no scientific evidence to indicate that the Delhi Sands flower-loving fly occurs on any substrate other than Delhi sands (Ballmer 1989, Rogers and Mattoni 1993). Although other flower-loving flies occur within its range, *R. t. abdominalis* has never been collected or observed on other soil types (Ballmer 1989, Rogers and Mattoni 1993). Based on the best available scientific and commercial information, the Service concludes that this species is endemic to Delhi sands which historically occupied an area encompassing about

40 square miles (Ballmer 1989). The Service calculated historical habitat loss based on the correlation between soil type and presence of the fly, and the historic and current distribution of the Delhi sands soil series.

Issue 5: The status surveys conducted for this species are inadequate.

Service Response: All known surveys from 1941 to the present were conducted during the months of August and September when *R. t. abdominalis* is most active. Potential habitat areas were initially identified by examining soil, topographic, and street maps. Sites with potentially suitable habitat (based on location, soil type, vegetation, and degree of disturbance) were then surveyed by ground reconnaissance. Marginal habitat areas were also examined. The presence of sand-dwelling insects (e.g., certain species of native bees, wasps, beetles, and flies) and native vegetation were used as a general indicator of habitat quality. The Service finds that the survey methodology described above is adequate to determine the status of this species.

Issue 6: The Service has underestimated the amount of available and potential habitat for the fly. The ability of the Delhi Sands flower-loving fly to recolonize previously occupied areas is unknown. Certain land uses may actually be compatible with the conservation of this species. For example, agriculture does not alter the soil type of Delhi sand, so once agricultural activity ceases, the fly may be able to recolonize the area.

Service Response: Based on the best available scientific information, there is no reason for concluding that the Delhi Sands flower-loving fly will use previously farmed areas. Agricultural fields may return or be restored to suitable habitat over time; however, the potential of this species to recolonize degraded sites is unknown although this behavior may be pivotal to its recovery.

The use of pesticides in agricultural areas and their persistence in the soil may have deleterious effects on this species. Furthermore, the level of disturbance at a given site may favor exotic over native vegetation, which may preclude the use of that area by the fly.

For these reasons, the Service concludes that the amount of available habitat for the Delhi Sands flower-loving fly is limited. Thus, it is essential to avoid or minimize the effects of human activities on remaining suitable habitat areas, and to provide a means to restore degraded habitat to the greatest extent possible so that it may be utilized by this species in the future. These and

other appropriate conservation measures will be addressed during the recovery process.

Issue 7: Because there is a general lack of knowledge on the ecology of this taxon, the Service used data on related species in its description of the life history and behavior of the Delhi Sands flower-loving fly. The Delhi Sands flower-loving fly should not be considered for listing until more specific scientific information is available.

Service Response: The Service is required to make listing decisions solely on the basis of the best available scientific and commercial information regarding the taxonomy and status of a particular species. In the case of the Delhi Sands flower-loving fly, the Service finds that substantial information exists with respect to these factors to indicate that listing is warranted. The Service acknowledges that more precise scientific information will benefit the fly's recovery, but is not a legitimate basis for postponing a listing decision.

Issue 8: The Service made unsubstantiated conclusions in the proposed rule regarding the threat of stochastic extinction. One commenter also suggested that, although most of the known habitat of this species is currently for sale, that has no bearing on the intended land use and therefore does not constitute a threat to the species.

Service Response: Stochastic events can threaten the continued existence of species with small, fragmented populations (Soulé 1986, 1987). For example, the dusky seaside sparrow (*Ammodramus maritimus nigrescens*) became extinct as a result of wildfires that destroyed its habitat and eliminated females from a small remnant population. The Service considers the unprotected status of private lands zoned for development (irrespective of their ownership status) to be a significant threat to the continued existence of the fly.

Issue 9: Because there are only five sites remaining that provide habitat for this subspecies, listing of the flower-loving fly and designating critical habitat are equivalent. Therefore, the Service should prepare an economic analysis of the impacts of listing the subspecies.

Service Response: As discussed in the "Critical Habitat" section of this rule, the Service has concluded that designation of critical habitat would not benefit the Delhi Sands flower-loving fly. Given the restricted distribution and small population sizes of this subspecies, it is unlikely that the

economic costs of designating critical habitat would be appreciably higher than the costs associated with listing. Also refer to the Service's response to Issue 1 regarding the consideration of economic effects in determining whether or not to list this subspecies.

In summary, no information was received indicating that the species is more widespread or under lesser threat than previously thought.

Summary of Factors Affecting the Species

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

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

The major threats to the Delhi Sands flower-loving fly are habitat loss and degradation. Historic and recent agricultural, residential, and commercial development have significantly reduced suitable habitat for this species.

Most of the former habitat for the Delhi Sands flower-loving fly was destroyed by agricultural conversion in the 1800's. The remaining fragments of suitable habitat continue to be destroyed by the construction of homes, businesses, and associated roads and infrastructure. Based on the distribution of the Delhi Sands soil type, the present distribution of the Delhi Sands flower-loving fly most likely represents 2 to 3 percent of its former range; the amount of habitat existing today is approximately one-half of what existed in 1975 (Ballmer 1989).

The five remaining sites occupied by the Delhi Sands flower-loving fly occur within an 8-mile radius circle on private land, totalling between 350 and 700 acres. These sites are divided approximately equally by Interstate 10 (I-10) and adjacent Southern Pacific Railroad tracks. The portion north of I-10 is undergoing rapid and intensive urbanization. The largest site in this area, encompassing 70 acres, was destroyed sometime after 1990 by the

construction of a shopping center. Another area north of I-10 that once supported the largest population of the Delhi Sands flower-loving fly was bisected and reduced in size by a county park in 1988. The resultant two sites and a third small site north of I-10 are threatened by adjacent urban development, invasion of exotic vegetation, removal of native vegetation for fire prevention, dumping, and off-road vehicle use. All three remaining habitat parcels north of I-10 are offered for sale, and one already has roads and streetlights installed (Ballmer 1992).

A significant amount of habitat for the Delhi Sands flower-loving fly is located south of I-10 in the city of Colton. The owner of this site has sold some adjacent property and has plans to develop the area containing habitat for the flower-loving fly (G. Ballmer, pers. comm., 1992). This habitat is surrounded by petroleum facilities, railroad storage yards, a landfill, a cement quarry, and a sewage treatment plant. An adjoining parcel, which contained the greatest concentration of the Delhi Sands flower-loving fly observed in 1991, was sand-mined some time between September 1991 and March 1992. The only other San Bernardino County site south of I-10 known to support this species occurs within a powerline right-of-way and adjacent to a major road. Portions of this area are also being advertised for sale.

All of the sites in San Bernardino County south of I-10 containing suitable habitat for the Delhi Sands flower-loving fly are within the Agua Mansa Enterprise Zone (County of San Bernardino 1986). This is a joint project of the cities of Colton, Rialto, and Riverside, and the counties of Riverside and San Bernardino. Its purpose is to encourage industrial development of the area through various tax and other economic incentives. The few remaining colonies of the Delhi Sands flower-loving fly would quickly be eliminated from increased development in this region.

In 1990, a small site in Riverside County, just south of the San Bernardino County line, was found to be occupied by the Delhi Sands flower-loving fly. However, this site may now be too small to persist; residential units were recently constructed on land adjacent to this location. As with most of the other sites occupied by this species, this area too is being degraded, as described below.

All of the sites known to be occupied by the Delhi Sands flower-loving fly are presently being degraded by ongoing soil disturbances, caused by grading, plowing, discing to remove vegetation

for fire control, and off-road vehicle use. The Delhi Sands flower-loving fly is rare to absent in areas where these activities occur. Service biologists noted, during a 1991 survey, that this species tended to occupy portions of habitat least disturbed by these activities. The use of off-road vehicles in the areas containing the fly's remaining habitat may contribute to the loss of native vegetation and subsequent invasion of weedy, non-native species. Illegal dumping of abandoned automobiles and other trash has also contributed to habitat degradation.

In summary, one colony of the Delhi Sands flower-loving fly has been lost due to urban development since 1990, one was partially destroyed by sand-mining some time between late 1991 and early 1992, and four colony sites are currently offered for sale. Given the rate and interest in residential and commercial development in this area and the added incentive of the Agua Mansa Enterprise Zone plan, these sites are likely to be purchased and developed in the immediate future. Finally, virtually all of the sites presently occupied by this fly are being degraded by soil-disturbing activities that reduce native vegetation and promote the invasion of non-native, weedy species.

Since the proposed rule was published, about 45 acres of occupied habitat have been destroyed (G. Ballmer, pers. comm., 1993). This represents a loss of 6 to 13 percent of the Delhi Sands flower-loving fly habitat that existed at the time the proposed rule was published. In addition, the county of San Bernardino has informed the Service of its intention to destroy about 7 acres of occupied, high quality habitat and 69 acres of degraded, unoccupied habitat (L.R. Dawes, pers. comm., 1993). The destruction of this site will sever an important link between adjacent patches of occupied habitat.

B. Overutilization for Commercial, Recreational, Scientific or Educational Purposes

Although flies in general are not especially popular with collectors (Pyle et al. 1981), *Rhaphiomidas* flies are prized because of their unusual size, coloration, and rarity (C.D. Nagano, pers. comm., 1992). A dedicated collector or collectors could readily eliminate the Delhi Sands flower-loving fly, given its small, isolated populations. Even scientific collecting, or repeated handling and marking (particularly of females and/or in years of low abundance) could eliminate or seriously damage the populations through loss of genetic variability. Collection of females

dispersing from a colony could also reduce the probability that new colonies will be established.

C. Disease or Predation

Not known to be applicable.

D. The Inadequacy of Existing Regulatory Mechanisms

The Delhi Sands flower-loving fly and its habitat are not currently protected under any Federal, State or local laws. CDFG has determined that it is unable to protect insects under current State regulations (Bontadelli 1990).

In December 1992, a coalition of agencies and landowners (including the counties of Riverside and San Bernardino; the cities of Colton, Fontana, Rialto, and Riverside; the Riverside County Habitat Conservation Agency; and the University of California at Riverside) initiated a process to prepare a habitat conservation plan for the Delhi Sands flower-loving fly and other species that is intended to satisfy the standards established under section 10(a) of the Act for the incidental take of listed species. The Service is providing technical assistance to this planning effort. The agencies listed above are currently working to develop procedures to prevent destruction of the Delhi Sands habitat during the planning period. However, as noted under Factor A above, habitat loss and fragmentation have continued to occur since the proposed rule was published and further losses are imminent.

Although the Service encourages and supports these kinds of planning efforts, it is unable to conclude at this time that the planning process described above is adequately providing for the conservation of the Delhi Sands flower-loving fly. Considering the precarious status of this species and the ecosystem in which it occurs, and the imminent threat of habitat loss, the Service concludes that existing regulatory mechanisms are inadequate to protect this species and its habitat.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

The small colony sizes of the Delhi Sands flower-loving fly and the high degree of fragmentation of its habitat make this taxon especially vulnerable to stochastic events and to loss of genetic variability. Small population size increases rates of inbreeding and may allow the expression of any deleterious recessive genes occurring in the population (known as "inbreeding depression"). Loss of genetic variability, through random genetic drift, reduces the ability of small populations to respond successfully to environmental

stresses. In the remaining vestiges of its former habitat and with its reduced genetic variability, the Delhi Sands flower-loving fly is vulnerable to random fluctuations or variation of annual weather patterns, availability of food, and other environmental stresses.

The absence of these insects from disturbed habitat may be due to the direct effects of the disturbance or to the growth of tumbleweeds (*Salsola kali*) and other non-native vegetation such as European grasses (chiefly *Avena* spp. and *Bromus* spp.) that increase in abundance following soil disturbance. Tumbleweeds often form dense thickets covering extensive areas of previously open sand and grow to more than 1 meter (3 feet) high. Tumbleweeds occur to some extent at every extant fly location. Introduced grasses may also eliminate open areas of sand by forming dense patches.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the Delhi Sands flower-loving fly in determining to make this rule final. As described under the "Summary of Factors Affecting the Species" section above, the available information indicates that one subspecies of *Rhaphiomidas terminatus* is already extinct. Over 97 percent of the historic habitat of the Delhi Sands flower-loving fly has been eliminated. The five fragments of its remaining habitat are imminently threatened by urban development, unauthorized trash dumping, off-road vehicle use, and stochastic events. This species and its habitat currently receive no protection at any location. Based on this information, the Service concludes that the Delhi Sands flower-loving fly is in imminent danger of extinction throughout the remainder of its range and warrants immediate protection under the Act. As provided by 5 U.S.C. 553(d), the Service has determined that good cause exists to make the effective date of this rule immediate. Delay in implementation of the effective date would place the habitat of the species at risk.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires critical habitat to be designated to the maximum extent prudent and determinable at the time a species is listed as endangered or threatened. The Service finds that the designation of critical habitat is not prudent for the Delhi Sands flower-loving fly at this time. The Service's regulations (50 CFR 424.12(a)(1)) state that designation of critical habitat is not

prudent when one or both of the following situations exist: (1) The species is imperiled by taking or other human activity, and identification of critical habitat can be expected to increase the degree of such threat to the species; or (2) such designation of critical habitat would not be beneficial to the species.

In the case of the Delhi Sands flower-loving fly, both criteria are met. As discussed under the "Summary of Factors Affecting the Species" section of this rule, the fly is especially vulnerable to the removal of specimens for scientific or personal collections, an activity that could be carried out by a few people, and would be very difficult to regulate or control. The precise pinpointing of localities that would result from publication of critical habitat descriptions and maps in the **Federal Register** would render the species more vulnerable to collecting. Furthermore, such maps and associated information would increase the threat of vandalism to these sites. For these reasons, the Service finds that publication of critical habitat descriptions and maps would likely make the fly more vulnerable to activities prohibited under section 9 of the Act.

All populations of the Delhi Sands flower-loving fly are found on private lands where Federal involvement in land-use activities does not generally occur. Additional protection resulting from critical habitat designation is achieved through the section 7 consultation process. Since section 7 is not expected to apply to land-use activities occurring within any areas that might be designated as critical habitat, its designation would not appreciably benefit the species.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such activities may be initiated following listing. The protection required of Federal agencies and the prohibitions against taking and harm 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. Section 7(a)(2) of the Act requires Federal agencies to insure that activities they authorize, fund, or carry out, are not likely to jeopardize the continued existence of listed species or result in destruction or adverse modification of critical habitat. If a proposed Federal agency action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. No Federal involvement is expected for activities occurring within habitats currently occupied by the Delhi Sands flower-loving fly.

The Act and implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (including harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt any such conduct), import or export, transport in interstate or foreign commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, for incidental take in connection with otherwise lawful activities, and economic hardship in certain circumstances. *Rhaphiomidas terminatus abdominalis* spends all but a short flight period between August and September in close association with sandy soil, and under such circumstances destruction of the species habitat could be interpreted to constitute take. Applicants may apply for incidental take permits under such circumstances where grading or other activities may result in take.

Requests for copies of the regulations on listed wildlife and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, room 432,

4401 North Fairfax Drive, Arlington, Virginia 22203 (703/358-2104).

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).

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1825 Virginia Street, Annapolis, Maryland 21401), Lynn Wilson Oldt, (Ventura Field Office, 2140 Eastman Avenue, Suite 100, Ventura, California 93003, 805/644-1766), and Chris Nagano (Sacramento Field Office, 2800 Cottage Way, Room E-1823, Sacramento, California 95825, 916/978-4866).

Regulations, is amended as set forth below:

PART 17—[AMENDED]

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

Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1543; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500, unless otherwise noted.

2. Amend § 17.11(h) by adding the following in alphabetical order under Insects to the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *
 (h) * * *

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal

Authors

This rule was prepared by Ecological Services staff from the Carlsbad Field Office of the U.S. Fish and Wildlife Service, 2730 Loker Avenue West, Carlsbad, California 92008. It is based largely on the proposed rule prepared by Judy Jacobs (Annapolis Field Office,

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Insects							
Fly, Delhi Sands flower-loving.	<i>Rhaphiomidas terminatus abdominalis</i>	U.S.A. (CA)	NA	E	517	NA	NA

Dated: September 14, 1993.
 Richard N. Smith,
 Acting Director, U.S. Fish and Wildlife Service.
 [FR Doc. 93-23163 Filed 9-22-93; 8:45 am]
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