Silvery Legless Lizard (*Anniella pulchra pulchra*)

Status

State: Species of Concern
Federal: None

Population Trend

Global: Declining
State: Declining
Within Inventory Area: Unknown

Data Characterization

The location database for the silvery legless lizard (*Anniella pulchra pulchra)* within its known range in California includes 14 data records dated from 1988 to 2000. Of these records, 12 were documented within the past 10 years; of these, 9 are of high precision and may be accurately located. One of these records is located within the inventory area, at the East Bay Regional Park District Legless Lizard Preserve.

A small amount of literature is available for the silvery legless lizard because of its cryptic behavior and general difficulty to find. Most of the available literature pertains to natural history and reproductive patterns.

Range

The silvery legless lizard is nearly endemic to California. It ranges from Antioch in Contra Costa County south through the Coast, Transverse, and Peninsular Ranges, along the western edge of the Sierra Nevada Mountains and parts of the San Joaquin Valley and Mojave Desert to El Consuelo in Baja California (Hunt 1983, Jennings and Hayes 1994). Its elevation range extends from near sea level on the Monterey Peninsula to approximately 1,800 meters above sea level in the Sierra Nevada foothills.

Occurrences within the ECC HCP Inventory Area

The East Bay Regional Park District Legless Lizard Preserve is located east of the intersection of Highway 4 and Big Break Road north of Oakely. This is the only California Natural Diversity Database record for this species in the inventory area, but other occurrences are likely to exist within the inventory area due to the presence of suitable habitat.

Biology

Habitat

Silvery legless lizards occur primarily in areas with sandy or loose loamy soils such as under sparse vegetation of beaches, chaparral, or pine-oak woodland; or near sycamores, cottonwoods, or oaks that grow on stream terraces (Gorman 1957, Cunnignham 1959), Banta and Morafka 1968, Stebbins 1985, Jennings and Hayes 1994). The sandy loam soils of stabilized dunes seem to be especially favorable habitat (Grinnel and Camp 1917, Miller 1944, Smith 1946, Bury 1985). The species is often found under or in the close vicinity of logs, rocks, old boards, and the compacted debris of woodrat nests (Jennings and Hayes 1994). Rocky soils or areas disturbed by agriculture, sand mining, or other human uses are not suitable for legless lizards (Miller 1944, Bury 1972, Hunt 1983, Stebbins 1985). Soil moisture is essential for legless lizards to conserve energy at high temperatures; it also allows shedding to occur (Jennings and Hayes 1994).

Foraging Requirements

Adult and juvenile lizards are insectivorous and subsist largely on larval insects (especially moths and beetles), adult beetles, termites, and spiders (Jennings and Hayes 1994).

Reproduction

Silvery legless lizards are live-bearing and are believed to breed between early spring and July (Goldberg and Miller 1985). Oviductal eggs are observed in females from July through October (Goldberg and Miller 1985), and litters of 1 to 4 (normally 2) young are born from September to November (Miller 1944). Gestation lasts about 4 months (Goldberg and Miller 1985). Young lizards typically reach sexual maturity in 2 to 3 years (for males and females, respectively).

Demography

The longevity of the silvery legless lizard populations in the wild is unknown. However, sexually mature adults have lived for almost 6 years under laboratory conditions (Jennings and Hayes 1994).

Behavior

Legless lizards are fossorial animals that construct burrows in loose sandy soil (Miller 1944, Stebbins 1954). They appear to be active mostly during the morning and evening, when they rest just beneath the surface of sunlight-warmed

substrate. They may also be active on the surface at night when substrate temperatures remain warm for extended intervals.

Ecological Relationships

Known predators of legless lizards include ring neck snakes (*Diadophis punctatus*), common king snakes (*Lampropeltis getulus*), deer mice (*Peromyscus maniculatus*), long-tailed weasels (*Mustela frenata*), domestic cats (*Felis sylvestris*), California thrashers (*Toxostomea redivivum*), American robins (*Turdus migratorius*), and loggerhead shrikes (*Lanius ludovicianus*) (Jennings and Hayes 1994).

Threats

The legless lizard's specialization for a fossorial existence in substrates with a high sand fraction makes it vulnerable to many types of habitat loss and disturbance. Legless lizards cannot survive in urbanized, agricultural, or other areas where a loose substrate in which to burrow has been removed or altered (e.g., disturbed by blowing or bulldozing) (Jennings and Hayes 1994). Other factors can alter the substrate such that the species cannot survive in the area any longer. These factors include livestock grazing, off-road vehicles activities, sand mining, beach erosion, excessive recreational use of coastal dunes, and the introduction of exotic plant species, such as ice plants (*Carpobrotus edulis* and *Mesembryanthemum crystallinum*), Marram grass (*Ammophila arenaria*), veldt grass (*Ehrharata calycina*) and eucalyptus trees (*Eucalyptus* spp.). These factors decrease soil moisture or alter the conformation of the substrate, which may act to limit the food base or make the substrate physically unsuitable for legless lizards (Jennings and Hayes 1994). Pesticides may also threaten legless lizards because of the species' insectivorous diet (Honegger 1975). Increasing numbers of feral cats associated with residential areas also threaten extant populations of this species (Miller 1944, Jennings and Hayes 1994).

Conservation and Management

Detailed studies of legless lizard habitat requirements need to be conducted to determine the distribution and ecological needs of this species more precisely.

Modeled Species Distribution

Model Description

Model Assumptions

Suitable Habitat: Sandy to sandy loam soil areas[1] (Soil Conservation Service 1977) in chaparral/scrub, oak woodland, ruderal, and riparian woodland/scrub land-cover types.

Rationale

Silvery legless lizards occur primarily in areas with sandy or loose loamy soils such as under sparse vegetation of beaches, chaparral, or oak woodland; or near sycamores, cottonwoods, or oaks that grow on stream terraces (Gorman 1957, Cunnignham 1959, Banta and Morafka 1968, Stebbins 1985, Jennings and Hayes 1994). The sandy loam soils of stabilized dunes seem to be especially favorable habitat (Grinnel and Camp 1917, Miller 1944, Smith 1946, Bury 1985). See the profile on this species in the final HCP/NCCP for more details on its ecology.

Results

Figure 2 shows the modeled potential habitat of the silvery legless lizard within the inventory area. The habitat is largely defined by the presence of suitable soils within chaparral/scrub, oak woodland, riparian woodland land cover areas. The only documented occurrence of this species in the inventory area is at the East Bay Regional Park District Legless Lizard Preserve east of the intersection of Highway 4 and Big Break Road in Oakley. This record is included in modeled habitat.

Literature Cited

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[1] Any soil type that mentioned "sand" or "sand and loam" was considered a sandy loam soil potentially suitable for silvery legless lizard.

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