

**U.S. Fish and Wildlife Service**  
**Sand and Bluetail Mole Skink Conservation Guidelines**  
**September 6, 2000**

**Background**

Sand skinks (*Neoseps reynoldsi*) and bluetail mole skinks (*Eumeces egregius lividus*) are found in interior peninsular Florida. Both species are most commonly associated with habitat dominated by xeric vegetation such as oak-dominated scrub, turkey oak barrens, high pine, and xeric hammocks. Suitable bluetail mole skink habitat is restricted to xeric uplands within the Lake Wales Ridge in Highlands, Osceola, and Polk counties. Sand skink habitat occurs within the Lake Wales Ridge but is also found on the Winter Haven Ridge in Polk County and the Mount Dora Ridge in Lake, Marion, Orange, and Putnam counties.

Due to their small size and semi-fossorial to fossorial habits, both species are difficult to detect. This fact is evidenced by the paucity of locality records for these species. As of 1999, the Florida Natural Areas Inventory (FNAI) database indicated bluetail mole skinks were known from 36 locations while sand skinks were recorded at 115 sites. However, experienced herpetologists and researchers acknowledge that skinks are more widely distributed than the locality records indicate and that if searched sufficiently, most suitable habitat would yield additional records for these species.

To model potential distribution of sand skinks and bluetail mole skinks soils data gathered by the Natural Resource Conservation Service was used to delineate soil substrates capable of supporting xeric vegetative communities known to contain skink populations. Figure 1 represents the distribution of Apopka, Aradondo, Archbold, Astatula, Candler, Daytona, Duette, Florahome, Gainesville, Hague, Kendrick, Lake, Millhopper, Orsino, Paola, Pemello, Satellite, St. Lucie, Tavares, and Zubar soil series in interior peninsular Florida, within the known range of both species. This map provides a course filter showing the area in which suitable skink habitat may be found throughout their range.

The distribution of soils does not necessarily depict currently available skink habitat. Substantial losses of native xeric vegetative communities have resulted from urban and agricultural development. While the soils may still be present, other essential elements of suitable skink habitat may be lacking. For instance, the soil series beneath citrus groves has not changed due to the agricultural conversion, but in active groves, fertilization, irrigation, and application of pesticides typically result in unsuitable habitat conditions. On the contrary, application of herbicides in highly maintained citrus groves may enhance physical soil conditions through suppression of groundcover. However, areas lacking groundcover may not allow sufficient detritus accumulation necessary for the creation of microhabitats for prey resources or thermal refugia. In these cases, the overall suitability of habitat conditions may have declined to the extent that occupation by skinks is unlikely.

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Areas identified in Figure 1 containing suitable soils and native xeric vegetation have the potential to be occupied by skinks. The destruction or significant alteration of suitable, native habitat may result in the take of sand and bluetail mole skinks and require coordination with the Service to ensure compliance with the Endangered Species Act of 1973, as amended (U.S.C. 1531 *et. seq.*).

**Impact Assessment**

Site-specific assessments of parcels proposed for development are necessary to determine the relative risks of taking sand skinks and bluetail mole skinks. The following survey protocols are recommended to help identify these risks.

**Pedestrian Survey** (optional, but recommended) - Pedestrian surveys should be conducted initially to determine if skinks are present. Pedestrian surveys should be conducted throughout all suitable skink habitat, focusing on bare sand patches within the survey area. Sand skinks leave distinctive sinusoidal tracks in bare sand (Figure 2). These tracks can be detected under appropriate environmental conditions. Pedestrian surveys for sand skink tracks are most effective if conducted between March 1 and May 15, however they can be conducted throughout the year. Surveys should be avoided during periods when tracks are not likely to be observed, including after rainfall (tracks washed out), when the soil is moist (tracks not left), or during excessively windy conditions (tracks obliterated).

If the results of pedestrian surveys successfully detect sand skink tracks, presence of sand skinks is confirmed and no further survey is required. If the pedestrian survey did not locate sand skink tracks, more intensive coverboard surveys must be undertaken.

**Coverboard Survey** (detects sand skinks, bluetail mole skink presence assumed from sand skink results)

**Timing:** Surveys must be conducted between March 1 and May 15. Negative survey results (no skink tracks) found during surveys conducted outside of this survey window will not be considered.

**Duration:** Surveys must be conducted for a minimum of four (4) consecutive weeks within the survey window described above.

**Materials:** Two foot by two foot (2' X 2") coverboards may be constructed of ½ inch or greater thickness plywood, masonite, rigid insulation board (without metallic sheathing), or other rigid material of the same dimensions.

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Coverboard Placement: Coverboards should be placed within suitable habitat at a minimum density of 40 coverboards per acre. Coverboards should be placed in areas of bare sand or sparse vegetation adjacent to leaf litter or other detritus, ensuring full contact of the coverboard with the soil surface. Raking or grading of the soil may be needed to ensure full contact of the coverboard with the soil surface. Placement of soil from surrounding areas may be necessary under some coverboards where stems or roots preclude full contact of the coverboard with the soil surface. If insulation board is used as the coverboards, a shovel full of sand may need to be placed on top of the to prevent movement due to wind. While preparing coverboard sites, minimize impacts to federally listed plants.

Sampling: Coverboards must be lifted and checked for tracks a minimum of once per week. Upon lifting each coverboard, check for tracks and then lightly rake the top several inches of soil with fingers or hand-held garden trowel to expose skinks, if present. After checking for tracks and skinks, smooth the soil surface with the edge of the coverboard and replace coverboard. During each site visit, look for and note tracks in sandy patches between coverboard locations.

Survey Results: Positive findings from one or more coverboards indicates presence of sand skinks and bluetail mole skinks. Habitat alteration is likely to have a high risk of taking skinks within the surveyed area and contiguous suitable habitat. Absence of skink tracts within the surveyed area suggests a decreased risk of taking skinks.

Other Considerations: The use of gloves during sampling is highly recommended as coverboards often attract venomous insects and reptiles.

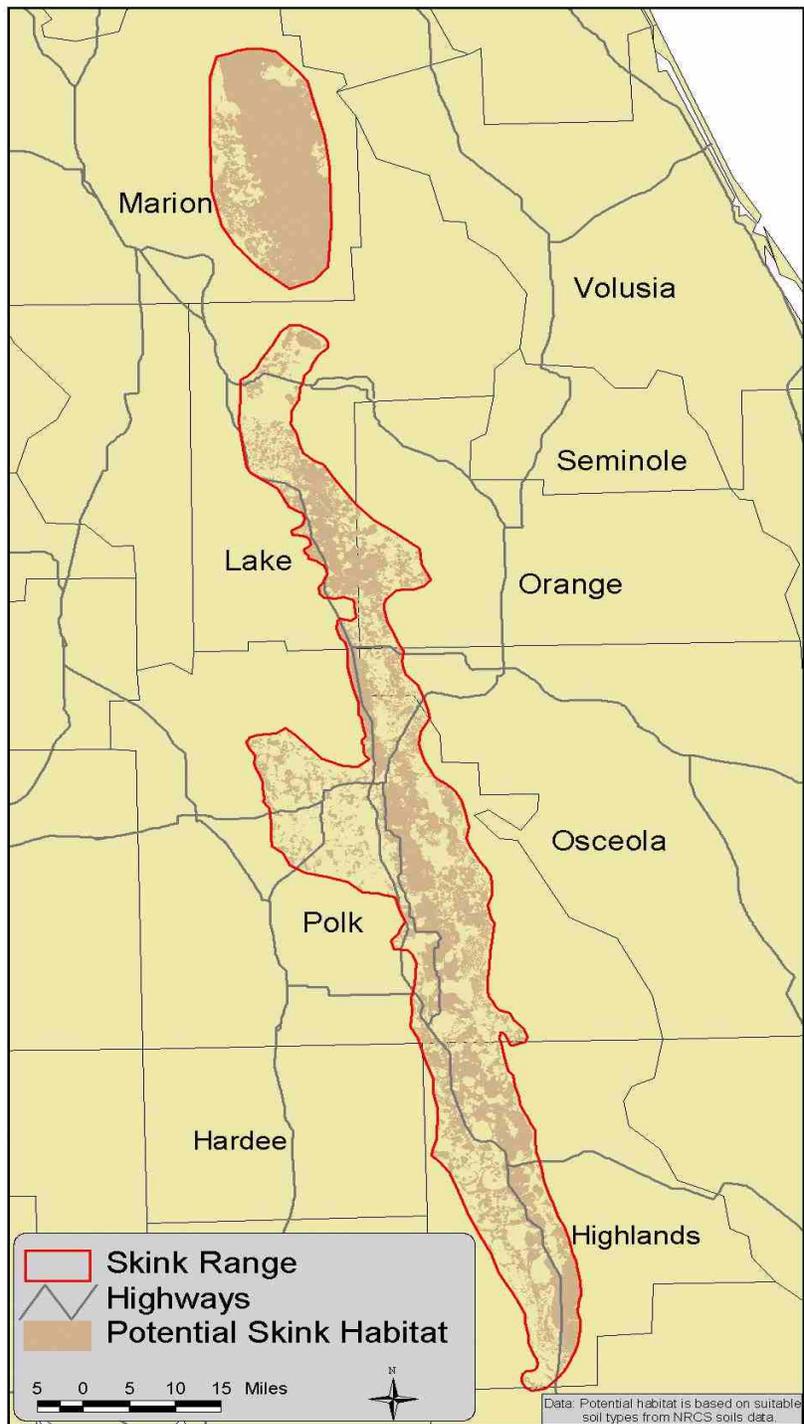


Figure 1. Distribution of xeric soils within the known range of sand skinks and bluetail mole skinks in peninsular Florida. [Click Here for High Resolution Map](#)

Figure 2. Typical sinusoidal track of the sand skink (photographs courtesy of Randy Mejur; Glatting Jackson Kercher Anglin Lopez Rinehart, Inc; 2000)(following page).

