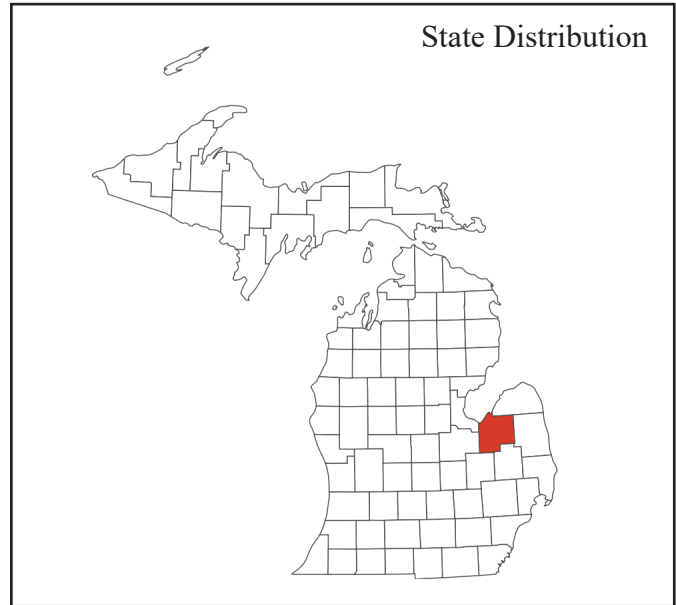
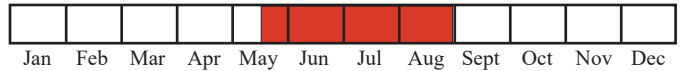




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Best Survey Period



Legal Status: State threatened

Global and State Rank: G5 (Secure) /S1 (Critically imperiled)

Other Common Name(s): six-lined race runner, eastern six-lined racerunner, prairie racerunner

Family: Teiidae (whiptail lizards)

Synonyms: *Aspidoscelis sexlineata*, *Cnemidophorus sexlineatus*

Taxonomy: Reeder et al. (2002) examined phylogenetic or evolutionary relationships of the whiptail lizards in the genus *Cnemidophorus* based on a combined analysis of mitochondrial DNA, morphology, and allozymes (NatureServe 2026). They determined that *Cnemidophorus* in the traditional sense is paraphyletic (i.e., the species in the group come from a single common ancestor but the group does not contain all descendants from this ancestor) and thus in need of nomenclatural revision (Reed et al. 2002). They proposed a split that placed the North American “*Cnemidophorus*” clade in the monophyletic genus *Aspidoscelis* and the South American taxa remained in the genus *Cnemidophorus*.

(Reed et al. 2002). Queroz and Chan (2025) changed the ending of several of the names of *Aspidoscelis* species to their masculine forms (i.e., from *A. sexlineata* to *A. sexlineatus*) as a result of Tucker et al. (2016) interpreting the gender of the genus name *Aspidoscelis* as masculine rather than feminine. Some authors have suggested affinity between the Michigan population and the prairie form historically referred to as *A. sexlineatus viridis*, but treatment at the species level is sufficient here (Moon 2023, Sharif 2008).

Total Range: The six-lined racerunner occurs broadly across the eastern and central United States, with the main range extending from the Atlantic Coastal Plain and southeastern states westward into the south-central Great Plains. The species occupies a wide latitudinal range but is most closely associated with warm, open habitats on well-drained soils (Reeder et al. 2002).

State Distribution: In Michigan, the six-lined racerunner is known from a single disjunct population in Tuscola County. This population is geographically isolated from the nearest known occurrences in Indiana by more than 300 km (186 mi) and appears restricted to a small area of suitable



habitat. Michigan's occurrence is of conservation interest because it represents the only known extant population in the state and lies well north of the species' core range.

Recognition: The six-lined racerunner is a slender, fast-moving lizard with a long tail, narrow head, and smooth to velvety-looking scales. As the common name suggests, most individuals show **six pale longitudinal stripes running from the neck onto the tail** over a darker brown, black, or olive background (Mitchell 1994). Six-lined racerunners have slim bodies, pointed snouts, and tails that make up 70 percent of their total body length. Males are larger than females. In adults, especially males, **the neck and front part of the body may be green or blue-green. The belly is generally white, but in males, it is blue.** Adult total lengths range from 15-27 cm (6 to 10.5 in), with maximum body or snout-vent length of 8.6 cm (3.4 in) (Harding and Mifsud 2017).

The species is distinguished from sympatric skinks by its more slender build, extremely rapid terrestrial movements, and the absence of the glossy, heavy-bodied appearance typical of many skinks. In Michigan, the six-lined racerunner is most likely to be confused only with the common five-lined skink (*Plestiodon fasciatus*), the only other lizard known to occur in the state. The scales on six-lined racerunners are rougher than on skinks and are small on the dorsum and become larger and more rectangular on the belly. There is a patch of enlarged scales on both forearms of the racerunner and the scalation on the tail is larger and ridged, giving the tail a rougher feeling instead of smooth as in skinks.

Best Survey Time/Phenology: In the northern part of its range, the six-lined racerunner is active primarily from spring through early fall, with surface activity concentrated during warm, sunny weather in late spring and summer. The best way to survey for this species is to conduct visual encounter surveys by slowly walking through suitable habitat and visually searching for this species on the surface and under cover objects (Karns 1986, Graeter et al. 2013). Michigan observations indicate an

active season extending roughly from May into August, with peak visibility often occurring during the hottest parts of the day when individuals forage or bask in open sandy areas. Detectability is strongly influenced by weather, substrate temperature, and solar exposure. Surveys are most productive on clear, warm days in habitats with open ground and sparse vegetation (Yoder 2007). At night or on cool, cloudy days, six-lined racerunners remain in burrows or under cover (e.g., woody debris, leaf litter, rocks).

Habitat: Throughout its range, the six-lined racerunner is associated with open, xeric to dry-mesic habitats that provide high solar exposure, sparse or patchy vegetation, and loose or friable soils (e.g., sandy soils) suitable for burrowing. Across its range, this species occurs in both natural and human-modified habitats including prairies, savannas, sand barrens, open dunes, old fields, rights-of-way, vacant lots, riverbanks, and fire-maintained open woodlands (Harding and Mifsud 2017, NatureServe 2026). The species is especially characteristic of sites with exposed sand or sandy-loam substrates and low to moderate vegetative cover that allows for rapid movement and effective thermoregulation.

In Michigan, occupied habitat consists of a small area with open sandy pockets and relatively sparse vegetation embedded within a human-modified and disturbance-dependent landscape. Available evidence suggests that habitat suitability is maintained by processes that reduce canopy closure and limit dense ground-layer vegetation, including fire and other forms of disturbance. As elsewhere in the range, individuals use burrows or shallow retreats in loose soil for shelter, overwintering, and predator avoidance (Warner 2000).

Biology: In Michigan, the six-lined racerunner is typically active from May through September (NatureServe 2026), although they may be active earlier in the spring or later in the fall depending on local annual weather conditions. The six-lined racerunner is a diurnal, actively foraging lizard that relies heavily on speed, visual detection of prey, and behavioral thermoregulation. It is one of the most conspicuously active lizards in suitable habitat and



is frequently observed making short, rapid movements between open patches and cover. Seasonal activity is closely tied to thermal conditions, and the species generally favors higher body temperatures than many other temperate-zone reptiles. Six-lined racerunners may live up to six years in the wild, with an average life expectancy of about two years (Clark 1976, Harding and Mifsud 2017, Bonavita 2019).

Reproduction occurs in late spring and early summer (primarily May-June) (Harding and Mifsud 2017, NatureServe 2026), although reproductive timing varies geographically with climate. In northern populations, the active and reproductive season is compressed relative to populations farther south. After fertilization, six-lined racerunner eggs develop within the mother for approximately 38 days (Trauth 1983). Females deposit two to eight eggs (potentially up to 12-18 eggs particularly in warmer climates) primarily in June and July in the northern part of its range (Harding and Mifsud 2017, Bonavita 2019, NatureServe 2026). The eggs are deposited from 8-30 cm (3-12 in) deep in underground burrows or nests dug in soft soil or under logs or other cover objects (Harding and Mifsud 2017, NatureServe 2026). The eggs are oval, roughly 1-1.7 cm (0.4-0.7 in) long when deposited, and consist of soft, flexible shells (Harding and Mifsud 2017, Bonavita 2019). They continue to develop for 2 months, with most hatchlings emerging in August or September (Harding and Mifsud 2017, Bonavita 2019, NatureServe 2026). Hatchlings are roughly 3 cm (1.2 in) in length (Trauth 1983). Age class is determined by snout-vent length (SVL); those below 6.0 cm (2.4 in) SVL are considered juveniles (Bonavita 2019). Sexual maturity occurs at a SVL above 7.0 cm (2.6 in) and is reached within one to two years (Trauth 1983, Harding and Mifsud 2017). These lizards exhibit indeterminate growth (Bonavita 2019).

Diet consists primarily of arthropods and other small invertebrates such as crickets, grasshoppers, beetles, spiders and caterpillars, and prey capture appears to be strongly tied to active searching in warm open microhabitats (Paulissen 1987). Like many small lizards of open habitats, the species

experiences substantial predation pressure from birds, snakes, and small mammals, and tail loss is common. The long tail contributes importantly to locomotor performance and predator escape, allowing them to reach speeds of up to 18 miles per hour (Vogt 1981). They can readily detach their tails regenerating a new one and use this to escape from predators, such as hawks and racer snake species. In addition, fire ants (*Solenopsis invicta*) attack egg clutches in burrows while embryos are developing (Mount et al. 1981).

Six-lined racerunners will hibernate during cold weather, typically remaining dormant from mid-October to early May. They burrow into loose soil or sand to escape freezing temperatures (Paulissen 1988).

Conservation/Management: The principal conservation concern for this species in Michigan is its extremely limited known distribution in the state. A single small, isolated population is inherently vulnerable to habitat degradation, succession, stochastic events, demographic instability, and loss of genetic diversity. Because the species depends on open, warm habitats with sparse vegetation and exposed sandy soils, management should emphasize the maintenance or restoration of early-successional structure and open-canopy conditions.

To sustain this population into the foreseeable future, suitable habitat for this species will need to be maintained. Canopy closure, woody encroachment, intensive site disturbance during the active season, and activities that compact soils or eliminate burrowing opportunities may all reduce habitat quality. Maintaining open, sparsely vegetated, sandy habitat conditions at this site through prescribed fire, manual removal, and other restoration practices may be beneficial when applied in ways that preserve refugia and avoid excessive mortality during periods of peak activity or nesting (Greenberg 1994, Yoder 2007). Management activities should occur during times of the year when the lizards are inactive or less active (e.g., Oct-Apr) to minimize the potential for adverse impacts to the species. Pesticide use which could reduce insect prey abundance should be limited or avoided within or near the known



population of this species in Michigan. Protection of the occupied site, maintenance of habitat heterogeneity, and long-term monitoring are central management needs for this species in Michigan.

Comments: Although it remains unclear whether the one known population of six-lined racerunners in Michigan is a natural or introduced population, given its isolated and disjunct nature from the rest of the species' range and reports of introductions of non-native species in the area of the known population, this population should be protected and maintained until this can be determined with further research.

Research Needs: Additional work is needed to clarify the long-term viability, effective population size, habitat dynamics, and demographic trends of Michigan's isolated population (Kortenhoven et al. 2017). Important research needs include repeated population surveys, better characterization of nesting and overwintering microhabitats, and evaluation of how disturbance regimes influence occupancy and recruitment. Further genetic work would also be useful for understanding provenance, connectivity to other Midwestern populations, and the conservation implications of the population's apparent isolation.

Related Abstracts: Oak openings, dry mesic prairie, dry sand prairie, gray rat snake

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Abstract Citation

Boyer, M. J. and Y. Lee. 2026. Species Abstract for *Aspidoscelis sexlineatus* (Six-lined racerunner). Michigan Natural Features Inventory, Lansing, Michigan, USA.

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Funding for this project was through the Michigan Department of Natural Resources' State Wildlife Grant T-9-T in cooperation with the U.S. Fish and Wildlife Service, Office of Conservation Investment.



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