

attended by female. Hatchlings are ca. 22 mm SVL. **CONSERVATION/REMARKS** State Threatened. Historical and ongoing habitat impacts include road construction, mining, and wildland fires. Parts of State Highway 140 in the Merced River Canyon leading to Yosemite National Park traverse geologically unstable slopes susceptible to rockslides and slope collapse. Subsequent construction/repair activities involve removal of significant habitat. This is likely to be an ongoing problem, given the inherent instability of these slopes, and it will be resolved only if the state permanently reroutes portions of the highway to the opposite side of the canyon. Most known sites lie on public lands administered by the CA Dept. of Fish and Wildlife (Limestone Salamander Ecological Reserve), Sierra National Forest, or the U.S. Bureau of Land Management.

MOUNT LYELL SALAMANDER—*Hydromantes platycephalus* (Camp, 1916) ENDEMIC
Map p. 437, Plates pp. 264, 265

IDENTIFICATION A moderate-sized salamander (males to 2.8 in./72 mm SVL, females to 3.0 in./75 mm SVL), with partly webbed feet. Dorsal coloration of adults varies considerably across the range, much less so within a population; ground color gray, brown, or black, overlaid with gold, silver, or black spots or patches, often matching the local rock. One variant from eastern slope of Sierra Nevada is pinkish gray. Venter dark and unmarked. Eyes dark, with yellow or gold highlights at top. Body dorsoventrally flattened; tail is short and muscular, with blunt tip. Webbing on hind feet more extensive than in other species of *Hydromantes*. Hatchlings black, overlaid with dense network of gold or gold-copper flecking. **SIMILAR SPECIES** This is the only species of *Hydromantes* within its range. Limestone Salamander (*H. brunus*) occurs at lower elevations in Merced River Canyon west of Yosemite National Park, ca. 12 airline mi./19 km from nearest population of *H. platycephalus*. Compared to *brunus*, *platycephalus* has clearly different dorsal pattern; shorter, broader head; and better-developed webbing on hind feet. Sympatric with Kern Plateau Salamander (*Batrachoseps robustus*) in eastern Sierra Nevada at Olancha Canyon, Inyo Co.; these 2 species may be distinguished by presence of webbing and 5 toes on hind feet of *H. platycephalus*. **HABITAT** Closely associated with exposed granitic or basaltic outcrops, talus piles, or flat rocks resting on wet rock or decomposed granite. Also found under moss-covered rocks at margins of snowmelt streams or seepages bordered by willows, ferns, or sedges. At lowest-elevation sites in Yosemite Valley, it can be found among rock rubble in the spray zone from waterfalls. If surface conditions are too dry or cold, seeks refuge deep within talus layers or crevices in rock outcrops. In eastern Sierra Nevada mostly restricted to deep, fully shaded canyons along willow-lined streams. **RANGE/ELEVATION** Sierra Nevada at high elevations, mainly from Sonora Pass (Tuolumne Co.) south to Little Kern River drainage (Tulare Co.). Isolated populations in northern Sierra at Blackwood Canyon in Tahoe Basin (Placer Co.), Smith Lake (El Dorado Co.), and Sierra Buttes (Sierra Co.), and in eastern Sierra in Mono and Inyo counties, extending south to Olancha Creek (Inyo Co.). Elevational range from 4000 ft/1220 m, in Yosemite Valley (Mariposa Co.), to 12,000 ft/3658 m, at Potluck Pass (Fresno Co.). **ACTIVITY/BEHAVIOR** Seasonal activity for most high-elevation populations is poorly known because these remote sites are inaccessible for much of the year, but salamanders are observed most often in summer once mountain trails and roads are free of snow. They have been found under cover objects from late March (at low-elevation sites in eastern Sierra) to early October. Mostly nocturnal but may be seen in daytime in deep shade or after rain. Excellent climber, aided by webbed feet and blunt tail. Multiple individuals may seek shelter under a single rock or log. Defensive responses include immobility, coiling, raising the tail, and rapid movement to cover; tightly coiled individuals have been observed to roll down rocky slopes. Skin secretions have caused eye irritation and temporary visual impairment in humans. **DIET** Terrestrial insects and other invertebrates, captured with rapid tongue projection. Sit and wait predator. **REPRODUCTION** Terrestrial breeder. Timing of breeding unknown. Eggs are likely laid deep in talus or crevices in spring, with nest attended by female. Hatchlings are ca. 19 mm SVL/35 mm TL. **CONSERVATION/REMARKS** Compared with other species of *Hydromantes*, *platycephalus* is relatively widespread, and it is likely that many additional populations await discovery in wilderness areas well away from roads. Climate change

is likely to have an impact on lower-elevation sites, especially those isolated from the main body of the range, such as at Sierra Buttes. Eastern Sierra Nevada localities have been subject to earthquake-induced avalanches, fires, and catastrophic post-fire flood-scouring, but populations seem to persist. Genetic studies have revealed a deep north-south division in the central Sierra Nevada, marked by the Middle Fork of the San Joaquin River. A 1952 sight record of a salamander from the North Fork of Perry Aiken Canyon at 10,600 ft/3231 m elev. in the remote White Mts (Inyo Co.) of far eastern CA remains unconfirmed, despite several search efforts in recent decades. If a salamander does occur at high elevation in that range, it is likely to be a species of *Hydromantes*.

MILLERTON CAVE SALAMANDER—*Hydromantes* sp.

ENDEMIC

Map p. 437, Plate p. 268

IDENTIFICATION A moderate-sized salamander (males to 2.8 in./70 mm SVL and 4.6 in./117 mm TL; females to 3.0 in./75 mm SVL and 5.0 in./128 mm TL), with partly webbed feet. Dorsal color of adults black to dark gray, overlaid with gold, greenish-gold, or tan blotches that may be fused to create an overall frosted appearance. These lighter markings extend onto limbs and reach maximum density on tail. Some individuals have markings that are greatly reduced or confined to tail. Venter dark and unmarked. Dark eyes moderately protuberant, with gold pigment at upper margins. Hatchlings black, densely covered by gold or greenish gold markings from snout to tip of tail, as well as on limbs and feet. **SIMILAR SPECIES** Closely related to and possibly conspecific with Mount Lyell Salamander (*H. platycephalus*) but differs from that species in morphology and ecology and is geographically isolated. Millerton Cave Salamander has a distinctly different color pattern, an overall leaner form, and less webbing on hind feet, and it lacks the pronounced dorsoventral flattening and broad head of *H. platycephalus*. Additionally, the ranges of these species are widely separated by distance and elevation. **HABITAT** The Millerton Lake Caves system lies in a xeric Oak Woodland community—Gray Pine, Blue Oak, Interior Live Oak, and California Buckeye—that experiences very high summer temperatures (frequently greater than 105°F/41°C) and averages less than 12 in./31 cm of rainfall a year. The caves are located in a massive granite boulder-strewn corridor on a north-facing slope. The cave system contains scattered openings at its margins that allow some light to penetrate, but sections of the interior are entirely dark. A stream flows through the caves on granite bedrock, with water levels ranging from very low in late summer to high-velocity torrents following major winter-storm runoff, when the stream can rise by 15 ft/4.5 m. The interior of the cave system consists of polished granite, with salamanders largely confined to crevices well above the cave floor. Rarely, individuals have been observed above ground, under rocks or logs, in the immediate vicinity of the caves. **RANGE/ELEVATION** Known only from the central Sierra Nevada foothills at Millerton Lake Caves, on south side of San Joaquin River, Fresno Co. The cave system extends for ca. 4300 ft/1300 m at elevations of 560–980 ft/171–300 m, with salamanders at elevations as low as 618 ft/188 m. **ACTIVITY/BEHAVIOR** This species has been observed year-round, although it seems to be less active during the coldest periods in winter, perhaps reflecting a reduction in insect prey. Individuals have been observed outside the cave on rainy nights. Within the cave system, salamanders may be active day or night. Adults are seldom encountered far from crevices or other refugia. They are reactive to light, and if attacked they may coil or slip about erratically. They may also quickly form a tight ball and roll down a rock face. **DIET** In the warm summer months, the cave system harbors abundant insect life in addition to cave spiders and other invertebrates. **REPRODUCTION** Terrestrial breeder, but reproductive biology unknown. Females likely deposit eggs in horizontal crevices above the high-water mark in the caves. Hatchlings have been observed in late December and measured 17–18 mm SVL, while another group of very small juveniles (not measured) were observed in early August. **CONSERVATION/REMARKS** This recently discovered form has one of the smallest ranges of any North American salamander, estimated at 6.2 acres/2.5 ha. Most of this is federal land administered by the U.S. Bureau of Land Management. Threats include the proposed construction of a new reservoir on the San Joaquin River at Temperance Flat; this would inundate the entire Millerton

Placer Co.



Tuolumne Co.



Juvenile



MOUNT LYELL SALAMANDER
(northern form)
Hydromantes platycephalus



Fresno Co. (West Slope Sierra Nevada)

Inyo Co. (East Slope Sierra Nevada)



Juvenile



MOUNT LYELL SALAMANDER
(southern form)
Hydromantes platycephalus