RHYACOTRITON VARIEGATUS (Southern Torrent Salamander).
NEST SITE. The reproductive ecology of *R. variegatus* remains poorly known. Here I report the first *R. variegatus* nest from California with information on oviposition and development timing. On 28 September 1995, a *R. variegatus* nest was found in McDonald Creek drainage ca. 10 km S of Orick, Humboldt County, California, USA. The nest was discovered in a stream riffle ca. 30 m above a road culvert. An adult male *R. variegatus* was found with the eggs beneath the boulder. The nest site occurred in a 1st-order stream on managed forestland. The stream had a NW aspect with 12% gradient and was 0.5 m wide. Large cobble characterized the substrate, and woody debris was abundant within and near the stream channel. Overstory vegetation was primarily 50-70 year-old coast redwood *(Sequoia sempervirens)*, Douglas-fir *(Pseudotsuga menziesii)*, and grand fir *(Abies grandis)*, with 97% canopy closure.

The clutch consisted of 11 large (mean diameter = 5.6 mm, SD = 0.39, exclusive of jelly layers), cream-colored eggs, deposited singly beneath a small boulder (28 cm x 20 cm) near the center of the stream channel. One egg was lost in the current when the site was disturbed. Ten remaining eggs were placed in a small perforated plastic container, submerged near the location of the original nest site, and anchored in the stream with rebar and large boulders. When possible, the site was visited weekly. The eggs were checked with a hand lens, but embryological development was difficult to document due to the location of the nest and poor lighting conditions. The forelimbs began developing before the hindlimbs, with forelimbs first obvious at 110 days after discovery and hindlimbs at 120 days, external gills were first visible at 132 days. Two eggs decomposed within the first two months of observation and were removed from the container. Seven of the eight eggs in the container hatched between 9 April and 15 May 1996 (193-229 days after discovery), and the last egg hatched between 15 May and 13 June 1996.

Although it is unknown if any predation of eggs occurred before their discovery, the clutch size (N = 11) is similar to that reported for *Rhyacotriton* spp. in Oregon and Washington. A *R. variegatus* nest found in Tillamook County, Oregon contained 34 eggs and likely contained three clutches (mean = 11.3 eggs per clutch) (Nussbaum 1969. Herpetologica 25:277-278). Nussbaum *(op. cit.)* discovered a nest of the Columbia torrent salamander *(R. kezeri)* in Wahkiakum County, Washington which contained 75 eggs and determined the eggs were laid by at least 8 females (mean = 9.4 eggs per clutch). Oviposition timing was estimated as mid-August for the Washington clutch and late October or early November for the Oregon clutch. No embryological development was evident when the California clutch was found, suggesting that oviposition occurred in mid- to late September.

Although a male *R. variegatus* was found beneath the rock at the nest site, I believe the salamander's presence was coincidental. Parental care in *R. variegatus* is unlikely due to the relatively long incubation period of the ova. Additionally, the small size of *R. variegatus* compared to a potential predator, the Pacific giant salamander *(Dicamptodon tenebrosus)*, would limit the species' ability to defend nests.

The location of the California nest site is probably not typical for *Rhyacotriton* spp. The two nests described by Nussbaum (op.cit.) were communal nests found in the wetted cracks of sandstone, while the California nest was in the middle of the stream channel. Winter storms during the subsequent year altered the stream channel considerably, and boulders of the size covering the nest were moved in the storms. A nest located in mid-stream, like the California nest, would have been disturbed, and the eggs washed downstream.

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