

CAUDATA

AMBYSTOMA GRACILE GRACILE (Brown Salamander). **WINTER ACTIVITY.** On 5 January 1984, at 2120 hr, an adult male *Ambystoma gracile* was collected as it crossed a road at the Wind River Experimental Forest, 8 km N Carson, Skamania Co., Washington. The air temperature at time of capture was 1°C. Ten measurements of snow depth were taken at 3 m intervals on both the W and E sides of the road. On the W side was a small residential area. A large silviculture field on the E side of the road was completely exposed. The mean snow depth was 35.8 cm. The late fall and early winter months prior to capture were abnormally cold, with temperatures down to -22°C, and maximum December temperatures near freezing. On 3 January, temperatures warmed up, and a small, shallow reservoir of Trout Creek (185 m away) known to harbor *A. gracile* larvae, partially thawed. On 5 January the maximum air temperature was 5°C.

Nussbaum et al. (1983). Amphibians and reptiles of the Pacific Northwest, University Press of Idaho) indicate that terrestrial adults of *A. gracile* tend to be active only during warm spring and fall rains, especially during the spring breeding season. In winter and summer, they reportedly reside in subterranean retreats. The new record indicates that this species may have a longer period of yearly activity and a greater tolerance of cold temperatures than previously thought. This observation is one of a few records for temperate non-plethodontid salamanders found at a temperature near freezing (Feder and Lynch, 1982. *Ecology*, 63:1657-1664).

I thank J. Buchanan, R. Lundquist and D. Zirjacks for assistance gathering data, and R. B. Bury for commenting on the text. The specimen will be deposited in the National Museum of Natural History (USNM). Contribution number 15 of the Old Growth Wildlife Habitat Program, U.S. Forest Service.

Submitted by **LAWRENCE L. C. JONES**, Denver Wildlife Research Center, 1300 Blue Spruce Drive, Fort Collins, Colorado 80524, U.S.A.

DICAMPTODON ENSATUS (Pacific Giant Salamander). **COLORATION.** On 4 September 1983, an albino Pacific giant salamander was collected in a tributary of Panther Creek, 12.8 km N Carson, Skamania County, Washington. The larva was found in 3 mm of water under a 50 x 38 mm rock on a small island between two riffles of the creek. The water temperature was 7.5°C at the time of capture (1620 h). The salamander measured 38 mm SVL and 67 mm TL, and weighed 1.9 g.

The specimen is yellowish, with no indication of pigment. The end of the tail, which is black in normally pigmented individuals, appears light grey, but lacks melanin. Other normally pigmented areas of the body also appear light grey, or are colorless. The cornified tips of the toes are black. The gills are light orange. The internal organs are visible through the white venter.

Nussbaum (1976, *Misc. Publ. Mus. Zool. Univ. Michigan*, 149:1-94) discussed three partial albinos from a single creek in Benton

Co., Oregon. These specimens were not considered albinistic because they had dark eyes. Our specimen appears to have dark eyes in normal light, but the eyes appear deep red under bright light. Nussbaum et al. (1983, *Amphibians and Reptiles of the Pacific Northwest*, University Press of Idaho, 332 pp.) show a photograph of a *D. ensatus* larva also from Benton Co., Oregon. It is called an albino in the caption, but is not described in the text. We are unaware of any other reports of albino *D. ensatus* (Dyrkacz 1981. *SSAR Herpetol. Circ.* 11:1-32; Hensley 1959. *Publ. Mus., Mich. St. Univ.* 1:133-159).

The salamander is being raised to a larger size in captivity. (Contribution number 14 of the Old Growth Wildlife Habitat Program, USDA Forest Service.)

Submitted by **LAWRENCE L. C. JONES** and **R. BRUCE BURY**, U.S. Fish and Wildlife Service, Denver Wildlife Research Center, 1300 Blue Spruce Drive, Fort Collins, Colorado 80524, U.S.A.

ENSATINA ESCHSCHOLTZII OREGONENSIS (Oregon ensatina). **REPRODUCTION.** Much of what is known about the reproductive biology of western plethodontid salamanders is based on preserved specimens or laboratory observations. Although the ensatina (*Ensatina eschscholtzii*) is the most widespread, and often most abundant, western plethodontid, only a few descriptions of egg masses in nature are available (review by Stebbins, 1954. *Univ. Calif. Publ. Zool.* 54:47-124; Norman and Norman, 1980. *Bull. Chicago Herp. Soc.* 15:99-100). Oviposition has only been observed twice, and both were laboratory records (Stebbins, 1954). Stebbins (1954) indicates that female ensatinas are capable of moving the egg mass after it has been deposited, and thus the locations where eggs have been found are not necessarily the sites where egg deposition occurred. Here, we describe the first observation of oviposition by *E. eschscholtzii* under natural conditions.

On 1 May 1984, a large female *E. eschscholtzii oregonensis* (109 mm TL, 63 mm SVL) was found in the central Cascade Mountains of Washington (5.6 km S, 1.5 km W of Packwood, Lewis County, T12N, R9E, Sec. 4, SW 1/4; elev. 700 m) in the act of egg deposition. Ten eggs had been laid in a gelatinous grape-like cluster as described by Stebbins (1954). The last egg protruded from her vent, but was still attached by a strand of jelly. No remaining eggs were visible in her abdomen. The salamander was observed for about 10 min, and remained motionless throughout this period in a twisted, prone position (Fig. 1). Her position was similar to that described and illustrated by Stebbins (1954, p. 93) for *E. e. picta-oregonensis* intergrades under laboratory conditions, but differed in several ways. She was lying on her left side, rather than her right, exposing the lower right portion of her abdomen. Because of this, her right front foot was stretched back, whereas her left front foot rested on the surface of the cavity. Her hind feet were spread widely apart, not pressed against the egg mass, and her tail was outstretched rather than curled. As was

noted by Stebbins (1954), the gular region pulsed intermittently.



Figure 1. Position of female *Ensatina eschscholtzii oregonensis* during oviposition.

The salamander was found inside a downed red cedar (*Thuja plicata*) log, measuring 36 cm in diameter and 10 m in length. The log still retained its original shape, but the bark was gone and the sapwood had begun to decompose (= decay class 3; Maser et al. 1979. *In* Thomas. *Wildlife habitats in managed forests: the Blue Mountains of Oregon and Washington*. USDA For. Serv., Agric. Hndbk. No. 553, pp. 78-95). The ensatina was in a small cavity 8 cm beneath the surface of the log. The surrounding vegetation consisted of a dense stand of second growth coniferous forest resulting from a fire about 65 years ago. Dominant species were Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), and red cedar, with little understory. It was raining lightly at the time of capture (1527 hr) and the air temperature was 5°C. The log was located on a fairly steep (41%) slope, facing northeast (44°). *E. eschscholtzii* was the only species of salamander found during a four person-hour search of the stand. Ten individuals were collected, including five adult males, four adult females, and one juvenile.

Two eggs measuring 6.2 mm in diameter were collected as vouchers and deposited in the Museum of Vertebrate Zoology at the University of California, Berkeley (MVZ 190828).

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Submitted by **LAWRENCE L. C. JONES** and **KEITH B. AUBRY**, College of Forest Resources, AR-10, University of Washington, Seattle, Washington 98195, U.S.A.

Present address: P.O. Box 527, Welches, Oregon 97067, U.S.A.

CROCODILIA

CROCODYLUS ACUTUS (American crocodile). **AGGRESSIVE BEHAVIOR.** During a night survey in the dam of Pueblo Viejo, 30 km west of Maracaibo Lake, State of Zulia, Venezuela, on 13 June 1984, we tried to catch by hand a juvenile American crocodile (*Crocodylus acutus*). The first attempt was unsuccessful, but we observed that this animal was gripping in its jaws a hatchling of *C. acutus*. The disturbance apparently caused the juvenile to release the hatchling, which showed some injuries on the neck and lower jaw and died a few minutes later. After three further attempts we were able to capture the juvenile, which was 628 mm total length (324 mm

snout-vent length) and weighed 580 g. The hatchling was 267 mm total length (130 mm snout-vent length) and weighed 40 g. Both animals, especially the hatchling, seemed to be very lean. We had the same impression with five other hatchlings of *C. acutus* and two juveniles of *Caiman crocodylus* that were caught in the same dam. We suspect that this aggressive behavior of the juvenile (probably a two year old) may have been cannibalism. Cannibalism has been reported for many species of crocodylians, but in most instances has been reported for adults against juveniles or hatchlings (Staton and Dixon 1975. *Mem. Soc. Cienc. Nat. La Salle* 101(35):237-265; Medem 1981. *Los Crocodylia de Sur America* Vol. 1. *Los Crocodylia de Colombia*. Ed. Carrera, Bogota, pp. 140 and 175).

This behavior of *C. acutus* might be considered as exceptional and provoked by the scarcity of food in the dam, the borders of which had lost their marginal aquatic plants because of a severe drought in the area. It could also have been aggravated by the ecological disturbance created by the introduction of a fish, *Cichla ocellaris* (Pisces:Cichlidae), in the reservoir.

Submitted by **ANDRÉS E. SEIJAS**, **DAVID G. CORDERO** and **RAMÓN RIVERO**, Servicio Nacional de Fauna Silvestre, MARNR, Apartado 184, Maracay, Venezuela.

PALEOSUCHUS PALPEBROSUS (Dwarf Caiman). **MIGRATION.** From 1976 to the present the authors have been accumulating field data for evidence of terrestrial migrations in the crocodylian *Paleosuchus palpebrosus*. Previous references regarding aquatic or terrestrial, and passive or active migrations for other alligatorid genera in South America were summarized by Medem (1981, 1983. *Los Crocodylia de Sur America*, Vols. I-II, Colciencias, Bogotá, Colombia).

Details of our six records in the Guayana region of Venezuela are as follows: (1) Guri Airstrip, near the Río Tocomita, Estado Bolívar (07°46'N-63°06'W); a juvenile found on the airstrip in 1976, with a 220 mm snout-vent length (SVL). (2) Puerto Ordaz, Estado Bolívar (08°18'N-62°49'W); a juvenile found in a partially constructed drainage ditch on the job-site of an aluminum factory, adjacent to the Orinoco River, on 11 July 1976, with a 310 mm SVL. (3) El Manteco, Estado Bolívar (07°21'N-62°32'W); a juvenile found on a road beside the airstrip in 1978, with a 155 mm SVL. (4) Hato El Diamante, 16 km SE of El Manteco, Estado Bolívar (07°15'N-62°27'W); a male found on a savanna track on 15 July 1980, with a 595 mm SVL. (5) Gavilán, 40 km SSE of Puerto Ayacucho, Territorio Federal Amazonas (05°34'N-63°22'W); a juvenile (EBRG 1795) found in a small puddle on a forest road in November 1980, with a 340 mm SVL. (6) Granja Santa Bárbara, 4 km E of San Félix, Estado Bolívar (08°23'N-62°37'W); a male found in the swimming pool of a farmhouse on 3 February 1981, with a 560 mm SVL.

The recorded sites were as far as 4 km to the nearest evident bodies of water and the encounters with crocodylians were made both during the day and at night. The preferred habitats of *P. palpebrosus* in Venezuela are

ivers and "morichales" (palm swamps), but it is probable that they also occupy seasonal lagoons flooded by large rivers, even though we have never found this species in such circumstances.

Terrestrial migrations were observed in both tropical seasons (dry and rainy), suggesting that such behavior in these crocodylians occurs throughout the year. This type of migration seems not to be related to age, since both young and adult crocodylians were recorded migrating. The relationships of the terrestrial migration with ecological factors remain unknown at the present time in *P. palpebrosus*, but they could be partially associated with occasional searching for food, as evidenced in the alligatorid *Caiman crocodylus* (Gorzula 1978. *Oecologia*(Berl.) 35:21-34) from the northern savannas of the Venezuelan Guayana.

Submitted by **ALFREDO PAOLILLO O.**, Instituto de Zoología Tropical, Universidad Central de Venezuela, Apartado 47599, Chaguaramos 1041-A, Caracas, Venezuela and **STEFAN GORZULA**, División de Cuencas e Hidrología, C.V.G. Electrificación del Caroní C.A., Apartado 62413, Caracas, Venezuela.

SAURIA

CNEMIDOPHORUS SEXLINEATUS VIRIDIS (Prairie-lined Racerunner). **ARBOREALITY.** On 17 May 1984 we witnessed an unusual escape behavior of a female prairie-lined racerunner at a sandy open area bordered by a woodlot 5.5 miles N of Lake Texoma on U.S. Hwy 377, Marshall county, Oklahoma. At 1830 CDT we dug the lizard out of its over-night burrow in the sandy area and chased it approximately 12 m to the edge of the woodlot. It ran another 3 m to the base of a post oak tree (diam. approx. 15 cm). As BUNCH approached, the lizard climbed the trunk of the tree using a wriggling motion similar to that of a skink. It moved from the south to the north side of the tree as it climbed and reached a height of 2 m before it was captured.

This behavior is unusual because this species is strictly terrestrial and typically escapes danger by dashing into a burrow or a clump of vegetation (Fitch 1958. *Univ. Ks. Publ. Mus. Nat. Hist.* 11:11-62; Hardy 1962. *Univ. Ks. Sci. Bull.* 43:1-73) although it has been reported to dive into water when threatened (Stille 1947. *Copeia* 1947:143). Young racerunners commonly climb to heights of nearly 1 m in bushes to forage (MAP, pers. obs.) but this type of climbing has never been noted as an escape behavior. Tree-climbing probably represents an escape method that racerunners use when other means of escape are unavailable.

The lizard (SVL 72 mm, total 170 mm) is presently housed at the Animal Behavior Lab, University of Oklahoma.

Submitted by **MARK A. PAULISSEN** and **BRET C. HARVEY**, Department of Zoology, University of Oklahoma, Norman, Oklahoma 73019, U.S.A.

EUMECES CALLICEPHALUS (Mound Skink). **REPRODUCTION.** The mound skink, *Eumeces callicephalus*, barely ran into the United States. In Arizona, it is known from the Pajarito, Baboquivari, Santa I and Huachuca Mountains (Stebbins, 196 field guide to Western reptiles and amphibians; Smith and Brodie, 1982. *Reptiles North America*). Little is known concerning reproduction in this species. However, it is reported to be oviparous (Fitch, 1970. *IV Publ. Univ. Kansas Mus. Nat. Hist.* 52.).

On 2 June 1983, an adult female (15 total length) was collected by Pete Mayr Pena Blanca Canyon, Santa Cruz Cou Arizona at 1649 hr. The specimen was kept in a 19 l aquarium with leaf litter as a substrate. After several weeks it was apparent that specimen was gravid, as indicated by creased girth. At this time it was placed in a plastic shoe box with damp mulch and rocks. The box was checked daily, and on 8 August, one neonate was found in the box. On 14 August, a second, dead neonate was seen protruding from the female's cloaca. This specimen was born tail-first.

The neonates were vividly colored but ill in pattern to the adult. They measured approximately 1.5 cm total length. The neonate died after a few days. Both are served in the collection of Arizona State University (ASU 22808, 09).

Additional females will have to be collected to determine if this is an isolated occurrence or if all northern populations of *E. callicephalus* are ovoviviparous.

Submitted by **TOM TAYLOR**, 1433 1/2 Huntingdon Drive, Tempe, Arizona 85288, U.S.A.

SCINELLA LATERALIS (Ground Skink). **PREDATION.** On 9 April and 23 April 1983 senior author (MK) collected 16 and 19 eastern meadowlarks (*Sturnella magna*), respectively, in tallgrass prairie habitat in Pawnee County, Oklahoma. All birds were collected between 0930 and 1030 hr. Esophageal gizzards contents were removed and preserved in 70% isopropyl alcohol. Food samples from one adult male and two adult females (8 of the birds sampled) contained lizard remains. Two contained unidentifiable skink tails; the third sample contained one *Scinella lateralis* (SVL = ca 46 mm).

Previous meadowlark food habit studies have not shown lizards to be a component meadowlark diets (Beal 1926. *Some corn birds useful to the farmer*. U.S.D.A. *Far Bull.* 630 (rev.). 27 pp.; Beal, McAttee, Kaibach, 1927. *Common birds of southern United States in relation to agriculture*. U.S.D.A. *Farmer's Bull.* 755. 39 pp.; 1958. *Life history of blackbirds, tanagers, orioles*. U.S. Nat. Mus. *Bull.* 211:67-70; tin, Zim and Nelson. 1951. *American wild plants: A guide to wildlife food*. Dover Press, New York, pp. 167-168) findings are not surprising in light of that Terres (1956. *Auk* 73:289-290) reported meadowlark feeding on a road-killed titmouse (*Parus bicolor*) and Redelfs (comm.) reported that a meadowlark and a house sparrow (*Passer domesticus*). Since *S. lateralis* is a relatively