OBSERVATIONS OF THE SHORT-HORNED LIZARD IN SOUTHEASTERN ALBERTA

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The spring and early summer of 1980 in southeastern Alberta was unusually warm, dry and windy. As a result, many hibernating animals were out from their hibernacula and active several weeks earlier than normal. By mid-April, the ground was completely free of snow, and in many places, very dry and dusty. Between 27-29 April, the nightly average low was 18°C and the daily average high was about 32°C.

Both of our observation sites for the short-horned lizard (*Phrynosoma douglassi brevirostre*) appear to be new to the literature, but inside the range shown for the species by Lewin and Showalter.[3,6] The comment by Milner that the lizards are found in the ". . . southeastern portions of the Red Deer River" is incorrect, as they have not (yet) been found there, or elsewhere that far north.[4] Butler did not indicate much about distribution of the short-horned lizard in Alberta other than that it is at ". . . its northern-most distribution in Alberta."[1]

Within its range in Alberta, the short-horned lizard appears, or is

Fig. 1. Habitat of short-horned lizard. Most lizards were found from the top of the bank down to about 4-5 m from the top.

Fig. 2. An adult female short-horned lizard shortly after spring emergence.

found, only in very selected spots.

In the late afternoon and early evening of 27 April, one large, old female short-horned lizard, and one prairie rattlesnake (*Crotalus viridus viridus*) were observed on the uppermost edges of the north banks of the South Saskatchewan River. The site is on the ranch owned by Dick and Janet Rose, and is approximately 20 km south of Suffield. To the best of our knowledge, this was the earliest sighting ever made for a short-horned lizard in Canada (L. Powell, pers. comm.).

The following morning (28 April) at our camp, which was about one-half km from the north banks of the South Saskatchewan River on the Rose's Ranch, we found one more rattlesnake travelling "cross-country." This indicated to us that the rattlesnakes had probably been out for a week or so, had mated, and were now dispersing to the summer feeding areas. (Local residents feel that rattlesnakes which hibernate along the north banks of the South Saskatchewan River move as much as 30 km north to the summer feeding areas, and back again by fall.)

During the morning of 28 April, two more rattlesnakes and two bull snakes (*Pituophis melanoleucus sayi*) were encountered. All the snakes found were plump and appeared to be in excellent condition. Later during the summer on 25 July, one large rattlesnake about 1.4 m long and about 9.0 cm diameter was found 4 km north of Jenner's Ferry. According to a rancher just north of Jenner's Ferry at Big Stone, rattlesnakes are not known to be north of the Red Deer River in that area.

On 1 May, a male short-horned lizard was found approximately 8 km due south of the Onefour research station on the north banks of the Milk River.

On 27 July, we observed a female short-horned lizard from the Rose's Ranch give birth to seven live young. The young were born either head first or tail first in a sac from which they wriggled free in 30 seconds or less. The first four babies were born in 20 minutes (about five minute intervals),

Fig. 3. Young of year short-horned lizard in its feeding habitat.

and the remaining three in 42 minutes (at 12-15 minute intervals). The baby lizards were each about 30 mm long, and were actively eating very small ants about an hour after birth. (The births were recorded on 16 mm motion picture film.)

Both Stebbins and Conant stated that ants form a major or favorite part of the diet of horned lizards.[7,2] Our observations indicate that almost any insect that can be subdued will be eaten, including adult crickets, immature grasshoppers, carabid beetles, lygaeid bugs, and ants. Powell (*in litt.*, 10 June 1980) found the following when he used a stomach pump on short-horned lizards: mostly ants, beetles (including tiger beetles), assassin bugs; less frequent were grasshoppers, crickets and ". . . odd grubs and other peculiarities." The above-named are the most commonly encountered insects in the habitats frequented by horned lizards.

We observed that an adult female short-horned lizard can eat at least three crickets and a number of ants each day; a male can eat one cricket and from six to 10 ants each day. Female horned lizards are considerably larger than the males.

Once grasped in the mouths of the lizards, large crickets and beetles are

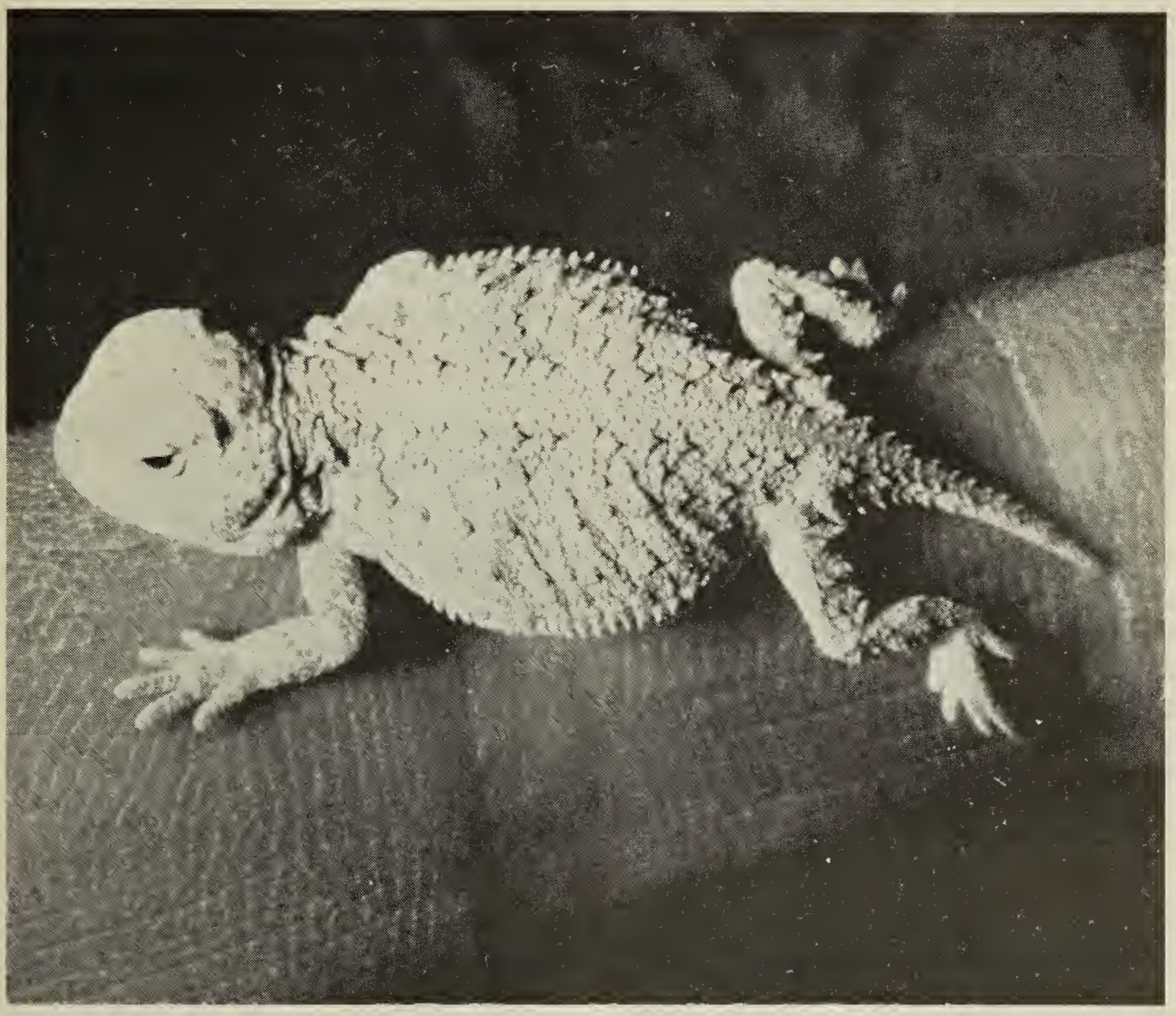

Fig. 4. Young of year short-horned lizard on index finger of second author. The lizard is about 30 mm long.

always smashed against the ground by the lizards, presumably in an effort to kill them before swallowing. Often wings and legs are knocked off the insects during these smashings. (Members of the closely related genus *Sceloporus* have also been observed, by the second author, smashing larger insect prey in the same manner.) Larger insects are always eaten head first.

Short-horned lizards have several very different reactions when confronted by many ants at one time. Often ants will crawl all over the lizards, in which case the lizards close their eyes and "freeze." However, if the ants start biting, the lizards panic — legs flail in an effort to dislodge the ants, then a very hasty departure is made from that vicinity. On one occasion, we observed a male lizard being attacked. His reaction was to bury himself partially, especially that part of him where the ants were attached and biting (*ie.*, legs and toes).

Short-horned lizards seem to prefer to position themselves where ants can be encountered in ones and twos, whereupon they are snapped up singly and quickly.

We observed that when it is warm (22° to 25°C or more), but cloudy, the short-horned lizards do not seem to feed readily, even when prey walk by within easy striking distance. However, when it is hot and sunny, they do feed readily. We are not sure

if this behavioral difference is that they cannot see well unless the sun is shining, or whether there is a slight temperature difference (thus greater activity on the part of the lizard) in direct sun. Insects that are in the shade, or that are even slightly camouflaged, are not readily preyed upon. On the other hand, dark or distinctly colored insects are readily preyed upon.

Stebbins stated, ". . . fine loose soil for burial seems to be essential" for horned lizards.[7] This comment is in reference to self-burial by horned lizards at night. Our observations are that short-horned lizards bury themselves each night in soft, sandy soil. The time of evening burial and morning arousal seems to be temperature-related — the warmer the evening, the later the burial, and the warmer the morning the earlier the arousal. Generally, they bury themselves between 1800-2000 and arise between 0700-1000, although we have seen early arousals at about 0630. We suggest that it is also possible that barometric lows will retard the lizard's arousals, and that highs will advance them (possible temperature relationship, too?).

Most often short-horned lizards bury themselves completely with up to a centimetre of sand covering the entire body. If the sand is not too deep, or is a bit crusty or clay-bearing, the tail and some of the central area of the back may remain uncovered.

We have observed many horned lizard "burials," and the manner of burial seems to be related to the size and strength of the lizard, and to the hardness of the soil. Larger lizards can "burrow in" headfirst, using fish-like wiggles and their hind legs (but not the fore legs) to help, whereas smaller lizards frequently use their fore and hind legs to help with the burrowing in. The lizards arch their body slightly as they burrow in so that only the front of the head and the body about the hip region are touching the ground. The burial action usually takes no more than about 10 to 20 seconds. Burial can occur in as little as 5 cm, but more usually in about 15 cm, horizontal distance.

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[1]BUTLER, J., 1980. Amphibians and Reptiles. *in* A nature guide to Alberta, pp. 56-59. Prov. Mus. Alta. Publ. No. 5. Hurtig Publishers.

[2]CONANT, R., 1975. A field guide to reptiles and amphibians of eastern and central North America. Houghton Mifflin Co., Boston. 429 pp.

[3]LEWIN, V., 1963. The herpetofauna of southeastern Alberta. Can. Field Naturalist 77(4):203-214.

[4]MILNER, B. J., 1979. Northern short-horned lizard in southeastern Alberta. Alta. Naturalist 9(2):90-92.

[5]POWELL, L. Letter dated 10 June 1980.

[6]SHOWALTER, D. B., 1979. New distribution records of the horned lizard in Alberta. Blue Jay 37(1):26-27.

[7]STEBBINS, R. C., 1966. A field guide to western reptiles and amphibians. Houghton Mifflin Co., Boston. 279 pp.