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A CONTRIBUTION ON THE LIFE HISTORY OF THE LIZARD *SCINCELLA LATERALE* (SAY) [1]

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The objectives of this research were threefold: to determine size at sexual maturity, the seasonal reproductive cycle, and the reproductive potential of the scincid lizard *Scincella laterale* (Say). Data to accomplish these objectives were obtained by laboratory examination of fresh and preserved material, the latter from the research collections of the Department of Zoology of Tulane University.

Blount (1929), Breckenridge (1943), and Reynolds (1943) present data obtained from histological examinations of gonads of *Phrynosoma solare, Eumeces s. septentrionalis* and *Eumeces fasciatus* respectively. Each of these lizards exhibits essentially the same morphological and physiological sequences of the gonads. The appearance of spermatozoa in January and February is associated with growth of the testes to maximal size; spermatozoa are present in the gonadal ducts through August; disappearance of spermatozoa is concurrent with regression of testes to minimal size in October and November. The ovaries follow the same sequences except for a more rapid enlargement in early spring and a more sudden regression in late summer. *Scincella laterale* parallels the above lizards as regards these phenomena.

MATERIALS AND METHODS

Four hundred and sixty-two specimens (229 males, 233 females) were examined during this investigation. The majority of the specimens had been preserved prior to this study.

Klauber (1943: 20) discusses shrinkage of linear dimensions of snakes in preservative. As a standard procedure is observed for entering specimens in the Tulane University collections, it is assumed that the amount of shrinkage for the same parts of different individuals was the same, if any. If such an assumption is true, then experimental error would not be significant (Simpson and Roe, 1939).

Data obtained from each lizard were: measurements of axilla-groin and snout-vent lengths to the nearest 0.1 mm; counts of dorsal and midbody scale rows as prescribed by Smith (1946: 27, 29, 30); counts and measurements of ovarian follicles and oviducal eggs; the absence or presence of spermatozoa in the testes and/or epididymis and vas deferens.

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[1] The generic name *Scincella* follows the nomenclature of Mittleman (1950).

[2] A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science of the Graduate School of Tulane University.

Testes and gonadal ducts were crushed on a slide and examined under a compound microscope. Filamentous structures converging from the periphery to the center of seminiferous tubules were interpreted as tails of spermatozoa. Tadpole-like structures in the epididymis and vas deferens were accepted as evidence of mature spermatozoa. The presence of spermatozoa in either the testes or gonadal ducts was accepted as a criterion of sexual maturity (Cagle, 1948a: 108; 1948b: 1). Sexually active males are those containing spermatozoa in the epididymis and vas deferens (Cagle, 1948b: 1).

Measurements of ovarian follicles and oviducal eggs were obtained with an ocular micrometer. The former were measured for greatest diameter, the latter for greatest length and width. After being measured each egg was opened for inspection. All oviducal eggs observed during this study were enclosed in leathery shells with fine longitudinally oriented striations.

Tail lengths were used in the study of sexual dimorphism of males and females of series Tulane 14108. Only tails showing no interruption of symmetry of scalation, except for deletion of scale rows, and not showing signs of regeneration were considered. Because of the high frequency of incomplete or regenerated tails in series Tulane 14108, this measurement was subsequently abandoned.

Of the 32 males and 37 females in this series, 20 males (62.5%) and 23 females (62.2%) had broken or regenerated tails. There was no indication of correlation between snout-vent length and the frequency of tail injury. The loss of the tail may be ascribed to injury as a result of contact with members of the same species (Carr, 1940; Lewis, 1951) and/or predation. This author has observed captives of *Scincella* seize and attempt to eat the tails of cage mates.

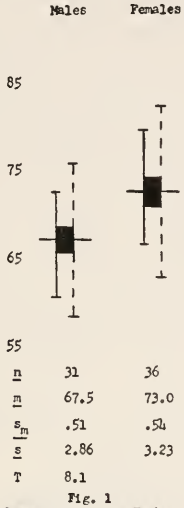
To obtain estimates of growth rates, size groups of 4 mm were selected. The range between minimum and maximum snout-vent lengths of hatchlings was 4 mm. The bias of collecting and possibly the method of selecting size classes may introduce error in the estimate of growth rate.

The method of plotting Figures 1-5, 7-10, is adapted from Cazier and Bacon (1949). In these figures the horizontal bar is the mean, the solid rectangle is the mean plus-and-minus three standard errors, the dashed line the mean plus-and-minus three standard deviations, and the solid line the range of observations. Abbreviations and statistical symbols employed are: b, regression coefficient; m, sample mean; n, number of observations; s, standard deviation; s_m, standard error (Snedecor, 1946); T, value of significance of difference between any two statistics (Peatman, 1947).

SEXUAL DIMORPHISM

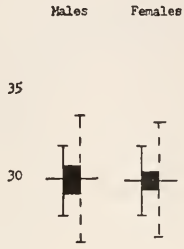
Series Tulane 14108 from Bonnet Carré Spillway, St. Charles Parish, Louisiana, collected February 12, 1950, was used as the standard to determine sexual dimorphism. The following data were employed:

snout-vent lengths; axilla-groin/snout - vent length; snout - vent/tail



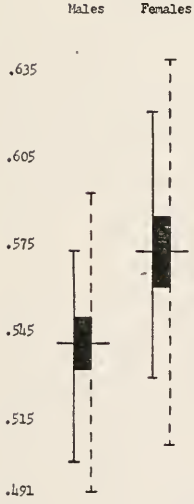
	Males	Females
n	31	36
m	67.5	73.0
s_m	.51	.54
s	2.86	3.23
T	8.1	

Fig. 1
Comparison of the Number of Dorsal Scale Rows of Tulane Series 14108.



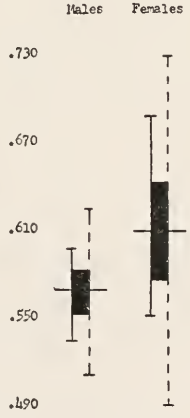
	Males	Females
n	29	36
m	30.1	30.0
s_m	.22	.18
s	1.20	1.07
T	0.00	

Fig. 2.
Comparison of the Number of Midbody Scale Rows of Series Tulane 14108



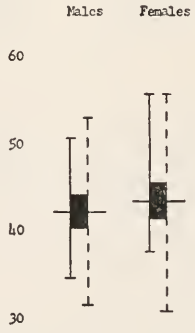
	Males	Females
n	32	37
m	.543	.574
s_m	.003	.004
s	.017	.022
T	6.2	

Fig. 3.
Comparison of Axilla-Groin/Snout-Vent Ratios of Series Tulane 14108.



	Males	Females
n	12	14
m	.570	.612
s_m	.005	.011
s	.019	.040
T	3.5	

Fig. 4.
Comparison of Snout-Vent/Tail Length Ratios of Series Tulane 14108.



	Males	Females
n	32	37
m	42.7	43.8
s_m	.63	.67
s	3.58	4.06
T	1.3	

Fig. 5.
Comparison of Snout-Vent Lengths of Series Tulane 14108

length; dorsal and midbody scale row counts. Pigmentation of the gular region and lower labials was also studied.

These males and females differ significantly [T greater than 2.5 (Peatman, 1947)] with respect to dorsal scale row counts, axilla-groin/snout-vent length ratios, and snout-vent/tail length ratios (figs. 1, 3, 4). The larger values for dorsal scale row counts and axilla-groin/snout-vent length ratios for females might be correlated with capacity for egg production as suggested for snakes by Blanchard (1921: 6) and Ortenburger (1928: 10-11). The males and females did not differ significantly with respect to midbody scale row counts and snout-vent lengths (figs. 2, 5), but the females possessed the greatest snout-vent length. All of these specimens are 35 mm or more in snout-vent length. It is evident that sexual dimorphism does exist for specimens of this size with males having fewer dorsal scale rows, smaller axilla-groin/snout-vent ratio, and smaller snout-vent/tail length ratio (*i. e.,* longer tails).

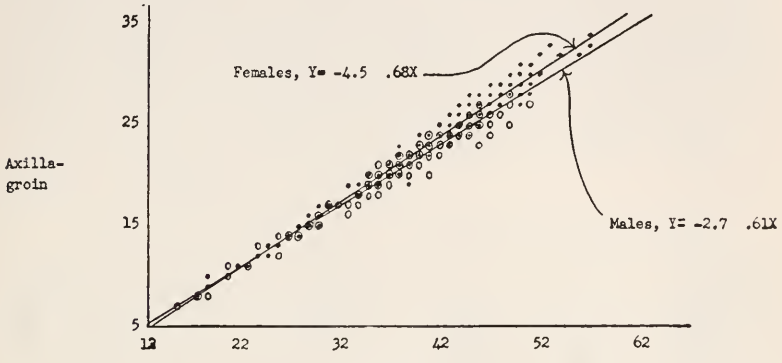
Identification of sex, verified by dissection, is not possible on the basis of pigmentation. Gular pigmentation is most intense in those individuals having the darkest overall coloration.

Klauber (1937: 12, 16; 1943: 31) has shown sexual dimorphism to exist in juveniles of certain species of snakes. To test for sexual dimorphism in juvenile *Scincella,* a series of 16 males and 8 females less than 35 mm snout-vent length were utilized. As discussed below, 35 mm snout-vent length is the lower limit of sexually mature individuals. The males ranged from 16.5 mm to 34.8 mm, the females from 18.9 mm to 34.8 mm. For the character of axilla-groin/snout-vent length ratio these males and females could be considered significantly different, T=2.4; males: m, .489, s_m, .003; females: m, .526, s_m, .003. The T-value is probably high as a result of the small numbers of individuals compared and of the difference in average age as indicated by the difference in average snout-vent lengths; males: m, 22.4 mm, s_m, .45 mm; females; m. 27.2, s_m, .66 mm; T=2. Sexual dimorphism is shown in figure 6 to begin at about 24 mm snout-vent, but is not definitely shown by the series under discussion. Rather, this series may show changed body proportions in young of different age groups. The inclusion of nearly mature individuals in the upper limits of snout-vent length may also contribute to this apparent difference (Klauber, 1943). These males and females differed significantly as regards dorsal scale counts: male, m, 68; females: m, 74, T=3.3, but not from the counts of males and females respectively of series Tulane 14108. They did not differ significantly from each other, nor from males and females of the latter series, as regards midbody scale row counts.

Coefficients of regression of axilla-groin on snout-vent of 66 males and 85 females are .93 and .98 respectively (fig. 6). Lewis (1951) and Smith (1946) do not give criteria for distinguishing sexes.

Descriptions of *Scincella* refer to it as a smooth-scaled lizard. Scales

on the sides of the neck, ventrolateral body surfaces, posterior limb surfaces, and the basal tail region each possess three to four small keels. A few specimens also have keels on the dorsal scales. No keels



	Males ♂		Females	
	Axilla-groin	Snout-vent	Axilla-groin	Snout-vent
n	66		85	
$\bar{x}$	19.8	37.1	22.8	40.4
$s_{\bar{x}}$	.65	1.04	.72	1.04
s	5.29	8.48	6.60	9.58

Fig. 6.
Correlation of Axilla-Groin to Snout-Vent Lengths of Males and Females

occur on the scales of the venter. The sexes cannot be distinguished by the absence, presence, or distribution of these keels. The only correlation suggested was with age. The smallest individuals possess the most conspicuous keels and are most frequently the individuals with keeled dorsal scales.

GEOGRAPHIC VARIATION

The wide distribution of *Scincella* offers the possibility for geographic subspeciation (Smith, *op. cit.*). Mittleman (1947) considers the Mississippi River and Lake Pontchartrain in Louisiana as a line of demarcation between subspecies of the salamander *Manculus quadridigitatus*. Samples of *Scincella* from selected areas within the state were compared for possible geographic variation in certain morphological characters.

Three groups of specimens were compared. These were selected for homogeneity of size class, sex, and locality of collection. The 69 specimens, series Tulane 14108, described above were used as the standard to represent central Louisiana. A series of 25 males and 22 females from Grand Isle, Jefferson Parish, and Plaquemines Parish, was selected to represent southern Louisiana. Fourteen males and 11 females from adjacent parishes north of Lake Pontchartrain were selected as the northern sample. These series were compared, sexes separately,

with respect to axilla-groin/snout-vent length and dorsal scale row counts (figs. 7-10) and midbody scale rows. Tests for significance of difference were negative for these characters among the three regions. Midbody scale row counts, means plus-and-minus three standard errors, of the northern and southern samples, [males, 29.1±.32 and 29.4±.27 respectively, and females, 29.2±.30 and 30.2±.37 respectively] are well within the limits of the males and females of series Tulane 14108

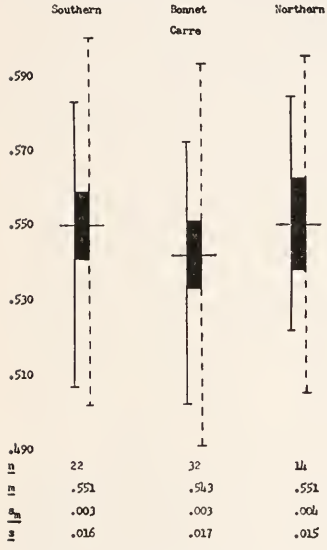


Fig. 7.
Comparison of Axilla-Groin/Snout-Vent Length Ratios of Three Series of Males.

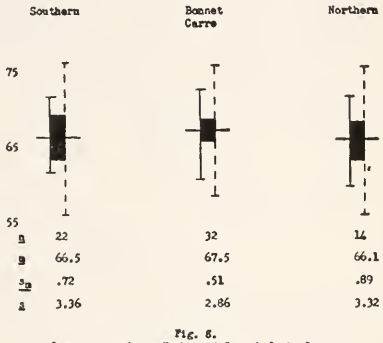


Fig. 8.
Comparison of the Number of Dorsal Scale Rows of Three Series of Males.

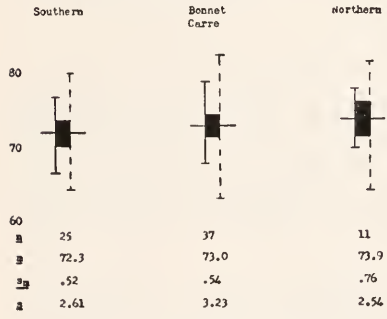


Fig. 10.
Comparison of the Number of Dorsal Scale Rows of Three Series of Females.

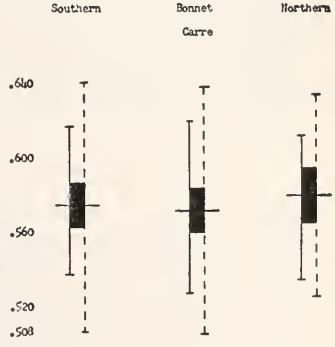


Fig. 9.
Comparison of Axilla-Groin/Snout-Vent Length Ratios of Three Series of Females.

(fig. 2). Lewis, *op. cit.*, lists 30 midbody scale rows and 61-71 dorsal scale rows for Texas specimens. These counts are in agreement with Louisiana specimens if the counts of the dorsal and midbody scale rows of males and females are combined.

Coloration was of no value in these comparisons as it is difficult to evaluate and showed no subjective geographic variation. Specimens from all three areas could be matched as regards extremes of intensity and color pattern.

As regards the morphological characters studied, the Louisiana *Scincella* may be considered as a single form. Thus, series of lizards from various parts of the state may be combined for purposes of this study. As there is a decided difference in the ecology of northern and southern Louisiana (Viosca, 1933), the possibility of physiological differences remains (Mayr, 1942).

SEXUAL MATURITY AND SEASONAL ACTIVITY

Males contained mature spermatozoa in the testes at a minimum class range of 32-35 mm (actually 35 mm) snout-vent length (fig. 11). Spermatozoa are present in the testes and/or gonadal ducts from January through August. Sexual activity thus prevails for eight months of the year. The absence of spermatozoa from the ducts, but their presence in the testes, of individuals in the lower class limits in February and March indicates that these individuals are entering their first season of sexually maturity. Complete absence of spermatozoa in the sexually mature size group individuals during the breeding season (January through August) occurred in only four instances. A February specimen is probably immature. The other three, two in March in the 40-47 mm size groups, one in August in the 44-47 mm size group, may be senile or otherwise physiologically incapacitated. The August specimen may have exhausted its spermatozoa. Spermatozoa are absent from all individuals of the sexually mature size groups from October to December. There are too few specimens from the month of September for any assumptions.

On the basis of the presence of oviducal eggs, the minimal size group for sexually mature females is 40-43 mm (actually 40 mm). Only two instances (December) of ovarian follicles equal to or greater than 1 mm in diameter are present during the period of sexual inactivity of males (October through December). On the basis of possessing follicles of 1 mm or more in diameter during the breeding season (*cf.* discussion of reproductive potential) females may be considered mature. The minimal size group exhibiting this criterion is 36-39 mm snout-vent. No individuals less than 35 mm snout-vent possessed follicles of this diameter at any time during the year. The presence of follicles of this diameter coincides with the presence of spermatozoa in the vas deferens of males. Oviducal eggs are present during the months of March through August, indicating potential egg deposition for those months. Literature reports of earliest dates for oviducal eggs are March 25, Mississippi (Cook, 1943: 19) and April 7, Texas (Lewis, *op. cit.*).

Assuming copulation to be concurrent with the presence of spermatozoa in the vas deferens and of ovarian follicles of 1 mm or more in

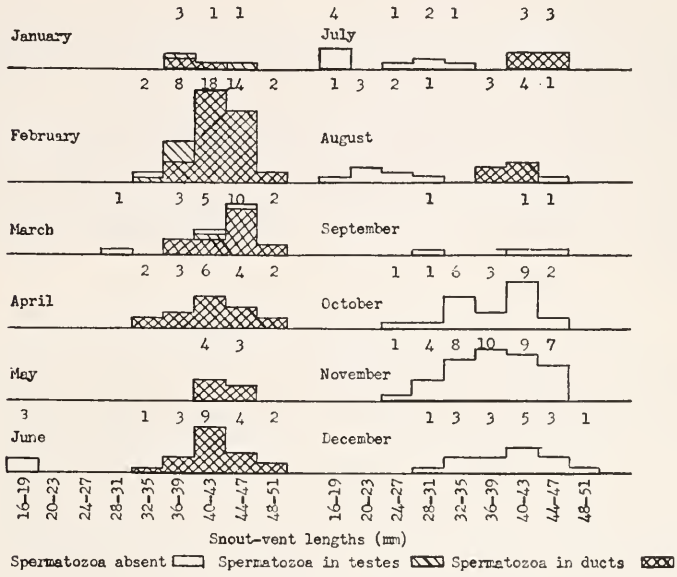


Fig. 11.
Seasonal Distribution of Males

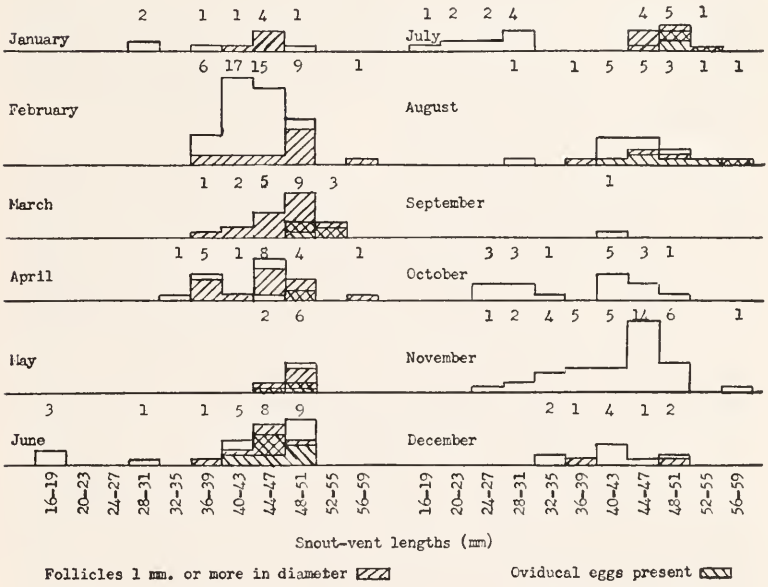


Fig. 12.
Seasonal Distribution of Females

diameter, a time lapse is indicated between copulation and ovulation (figs. 11, 12). It is established that copulation and ovulation are not concurrent in other reptiles (Blount, 1929; Breckenridge, 1943; Cieslak, 1949). Breckenridge, *op. cit.,* reports 35 days as the time between the last observed copulation and the first appearance of eggs. He does not specify oviducal or deposited eggs.

Only one instance of possible copulation was observed in the field. Copulation was not observed in the laboratory. On July 25, 1950, two *Scincella* were discovered beneath a board in a position similar to that pictured for *E. s. septentrionalis* (Breckenridge, *op. cit.,* 596). The position was retained for approximately 30 seconds after their discovery before they separated and ran into the grass. Reports of copulation were not found in the literature.

The earliest date for field collected eggs in Louisiana is May 12 (for this study), and is the earliest known date for any region. The latest date for field collected eggs in Louisiana is July 23. The occurrence of oviducal eggs in August indicates possible deposition in September in Louisiana. Cook, *op. cit.,* and Lewis, *op. cit.,* record clutches for August in Mississippi and Texas respectively.

REPRODUCTIVE POTENTIAL

Determination of the number of broods per female per season requires examination for oviducal eggs and of ovarian follicles. There was a total of 31 females with oviducal eggs from March through August. Two contained eggs only in the right oviduct. No female had eggs only in the left oviduct. The range of numbers of eggs per female was from one to five (two eggs in the left oviduct, three eggs in the right). The average number, plus-and-minus one standard error, of eggs for the right and left oviducts respectively is $1.9 \pm .06$ and $1.5 \pm .05$. This difference is significant, $T = 5.1$. The average number of eggs per female is $3.3 \pm .05$. The range of numbers of eggs per clutch recorded in the literature is from one to five.

A significant correlation of number of eggs to snout-vent length per female does not exist, $b = .069$ (fig. 13). Neither is there a correlation between average egg length and snout-vent length (fig. 14).

During the months of October through December, only two females contained ovarian follicles of a maximum diameter of 1 mm or more. Each of these individuals was collected in December. A female 49.3 mm snout-vent had follicles 1.09 mm and 1.13 mm in diameter; a female 38.8 mm snout-vent had a follicle 1.01 mm in diameter. (The follicle diameters above and subsequently reported are the maxima of left and right ovaries.) The maximum diameter of a follicle of a sexually mature female for October was 0.92 mm. The smallest follicle of maximum diameter of a female of sexually mature snout-vent length was 0.57 mm (November). The smallest female, 27.2 mm snout-vent, collected in November had a maximum follicle diameter of 0.50 mm. The average maxima, October, November, De-

cember, follicle diameters (right and left maxima combined) were: 0.79 mm, 0.80 mm, and 0.94 mm respectively for females 35 mm or more snout-vent, and 0.59 mm, 0.66 mm, and 0.85 mm respectively

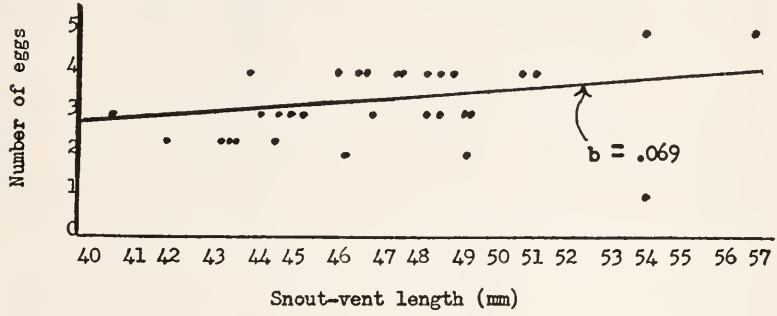


Fig. 13.
Correlation of Numbers of Oviducal Eggs with Snout-Vent Lengths

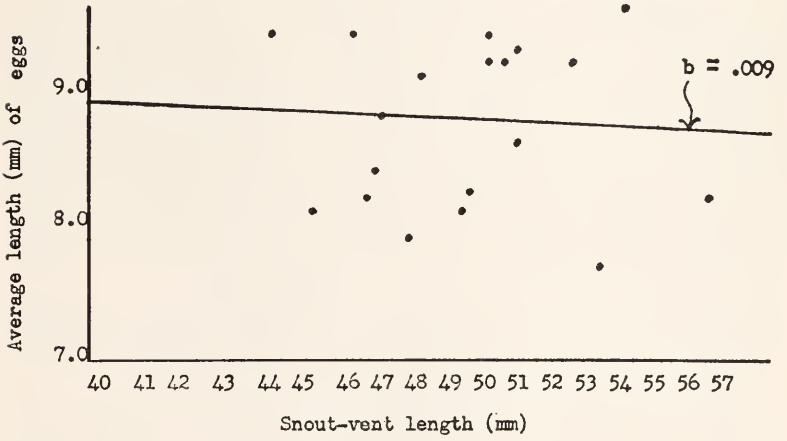


Fig. 14.
Correlation of Average Lengths of Eggs with Snout-Vent Lengths.

for females less than 35 mm snout-vent. The greater monthly average increase in follicle diameter for the latter group of females is probably a reflection of the approach of larger individuals to sexual maturity. Data are too few for September and January.

February collections contained no individuals with oviducal eggs, but the largest follicle diameters were observed among these individuals.

The largest follicles observed for February were in females 50.9 mm and 51.4 mm snout-vent. Respectively, these follicles were: 3.90 mm, 4.23 mm, and 4.50 mm, 4.66 mm in diameter. Presumably these are near ovulation. The smallest maximum follicles observed in sexually mature females were: 0.74 mm, 0.88 mm, and 0.77 mm, 0.92 mm respectively in females 38.9 mm and 39.8 mm snout-vent. The average maximum follicle diameter for February was 1.33 mm. No females less than 35 mm snout-vent were available for study.

March, April, and May are treated together because only one individual less than 35 mm snout-vent is present (April) and because oviducal eggs were present. The largest follicles (March) were those of two females 49.0 mm and 52.0 mm snout-vent. Respectively, these follicles were: 4.77 mm, 4.43 mm and 3.20 mm, 3.47 mm. One female contained two eggs in each oviduct. This female, 49.9 mm snout-vent, had the following follicle diameter maxima: 1.91 mm, 1.79 mm, 1.57 mm, and 3.70 mm, 3.05 mm. The smallest follicle diameter maxima for March were: 0.88 mm, 0.84 mm (female, 45.5 mm) and 0.80 mm (female, 49.8 mm). For April, the largest follicles were: 3.48 mm, 3.58 mm (female, 40.1 mm). The smallest follicle maxima for April were: 0.78 mm, 0.80 mm (female, 34.8 mm). Two females (47.8 mm and 50.6 mm snout-vent) contained oviducal eggs in April. Respectively, their follicle maxima were: 1.01 mm, 1.05 mm and 1.32 mm, 1.30 mm. Follicle diameter maxima for May were: 3.50 mm, 3.68 mm (female, 47.8 mm). Two females collected in May had oviducal eggs and had the following follicle diameter maxima: 1.27 mm, 1.34 mm (female, 49.4 mm) and 1.09 mm, 1.16 mm (female, 46.6 mm). The smallest follicle maxima were those of the latter female above. The average follicle diameter maxima for March, April, and May respectively, were: 1.60 mm, 1.68 mm, and 3.09 mm.

In the June, July, and August collections, four, four, and two females respectively contained oviducal eggs. These females had the following follicle diameter maxima: 2.12 mm, 2.22 mm (female, 44.9 mm), 1.72 mm, 1.76 mm (female, 47.0 mm), 2.49 mm, 2.52 mm (female, 44.3 mm), 1.76 mm, 1.91 mm (female, 46.3 mm) for June; 1.26 mm, 1.42 mm (female, 45.2 mm), 2.59 mm, 2.66 mm (female, 50.8 mm), 3.10 mm, 3.26 mm (female, 48.2 mm), 1.15 mm, 1.26 mm (female, 53.7 mm) for July; 2.20 mm, 2.29 mm (female, 56.8 mm), 1.11 mm, 1.15 mm (female, 52.2 mm) for August. The largest follicle diameter maxima for females not containing oviducal eggs were.—June: 5.07 mm, 5.15 mm (female, 44.2 mm); July: 3.62 mm, 3.77 mm (female, 45.3 mm); August: 3.24 mm, 3.33 mm (female, 47.2 mm). The smallest maximum follicle diameters for sexually mature females were.—June: 1.42 mm, 1.62 mm (female, 39.2 mm); July: 1.43 mm, 1.63 mm (female, 43.6 mm); August: 0.80 mm, 1.59 mm (female, 37.2 mm). The largest maximum follicle diameter for females less than 35 mm snout-vent were.—June: no data; July: 0.34 mm, 0.38 mm (female, 28.7 mm); August: 0.19 mm (female, 29.2 mm). The smallest follicle diameter maxima

for females of this group were.—June: no data; July: 0.19 mm (female, 22.5 mm); August: 0.19 mm (female, 29.2 mm). The average maximum follicle diameters, exclusive of females with oviducal eggs, for sexually mature females were.—June: 2.51 mm; July: 3.00 mm; August: 1.97 mm.

From the above data it is concluded that the egg laying season extends from March or April at least through August, reaching its peak in May, June, and July. Cagle (1948b) reports a similar prolonged period for *Anolis* in Louisiana. As the largest follicles observed were 5.15 mm and 5.07 mm in diameter, it is assumed that ovulation occurs when follicles approach this diameter. The absence of follicles of 1 mm or more in diameter during the months of October and December (except for two individuals, as noted above), but their presence during other months of the year, is presumptive evidence that such follicles are either ovulated or resorbed during the season of their occurrence. The fact that no females less than 35 mm snout-vent possessed follicles of this diameter at any time during the year, and especially during the breeding season, is the basis for using the criterion of follicles equal to or greater than 1 mm in diameter as evidence of sexual maturity. That occassional females may contain oviducal eggs and follicles of 2 mm and more in diameter suggests the possibility of such females having two broods per season. Futher study is necessary to establish this point. Atsatt (1953: 59) cites several distinct clutches in one season for the dwarf chameleon *Microsaura pumila pumila* (Daudin).

Hatchlings are first in evidence in June (figs. 11, 12). These individuals are in the 16-19 mm snout-vent size group. Davis (1945: 116) gives 21 mm (total length minus tail length) as the average snout-vent length of three hatchlings. All individuals of this size group contained remnants of the yolk sac. The absence of this size group in other months of the breeding season does not support the contention of two broods per season. There absence probably reflects the bias of collecting methods rather than the activities of the lizards.

Examination of the oviducal eggs disclosed the presence of an advanced embryo in each of 30 eggs of 10 females collected in March, June, July, and August. The embryos ranged from 1.54 mm to 3.10 mm in length. All were in the somite stage with brain and tail flexures. Weekes (1927a; 1927b) reports ovoviviparity for Old World species of *Lygosoma*.

GROWTH

Conclusive data for determination of growth rate are not available (figs. 15, 16). An estimate of growth rate is necessary to postulate age at which sexual maturity is attained. Except for a male in March and one female each in January and April, all individuals collected from January through May are of adult size (figs. 11, 12). From June through August three size groups are present: hatchlings, sexually

mature individuals, and an intermediate size group. This intermediate size group may be explained by one or both of two causes.

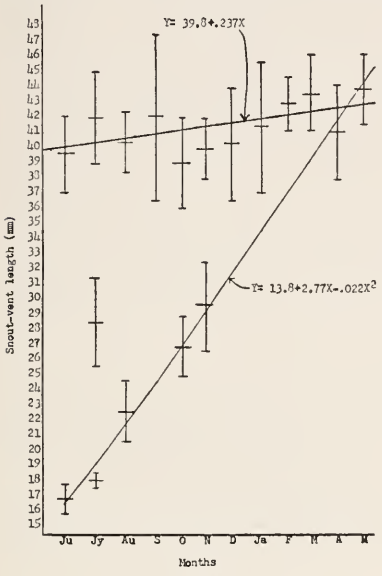


Fig. 15.
Correlation of Snout-Vent Lengths (Means ± Three Standard Errors) With Months (Males).

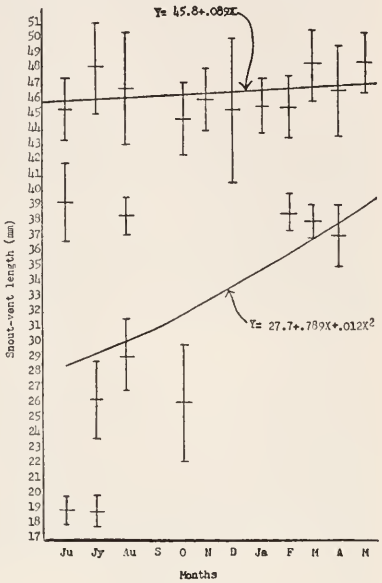


Fig. 16.
Correlation of Snout-Vent Lengths (Means ± Three Standard Errors) With Months (Females).

As mentioned above, no literature records of eggs collected in the field (or laboratory) prior to May were found. Inferring a minimum of four weeks for incubation (the interval from the date of earliest field collected eggs and the appearance of hatchlings), the intermediate size group is best explained as second brood or late single brood individuals of the previous season. These are immature yearlings. That this intermediate size group constitutes early (prior to May or June) hatchlings of the current season is a second less plausible explanation. In either event, most individuals from 24-25 mm snout-vent present in June (?), July, and August would not contribute to the current breeding population.

The distinct size groups present from June through October merge by November and constitute a single group with wide range of snout-vent length measurements. The individuals in the lower snout-vent length classes would be composed primarily of the current season's hatchlings. Late hatchers of the previous season cannot be distinguished. By January the limits of the snout-vent length measurements have been decreased as a result of the increase to mature snout-vent length size of the past season's hatchlings. On the basis of these data, it is assumed that sexual maturity may be attained by the season following hatching if that occurs in May through August. The

late hatchers (subsequent to August) may not contribute to the breeding population until very late the following season or even the second season following hatching. This problem cannot be resolved without further and more intensive study of growth rates.

Differential growth between males and females is evident. The most apparent difference is a longer axilla-groin length relative to snout-vent length for females (fig. 6). Females also attain a larger snout-vent length than males. In both males and females there is allometric growth of axilla-groin length and length of limbs. The adpressed limbs fail to meet in most males more than 35 mm snout-vent. Three males 41.1 mm, 44.9 mm, and 45.8 mm had overlap of the adpressed limbs. Among the females there were none in excess of 39 mm snout-vent having overlap of adpressed limbs. Similar allometric growth occurs in Mexican forms of this genus (Taylor, 1937).

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SUMMARY

1. Four hundred and sixty-two specimens of *Scincella laterale* (Say) were examined to determine size at sexual maturity, seasonal reproductive cycle, and reproductive potential.

2. A series of 32 males and 37 females (Tulane 14108) over 35 mm snout-vent lengths was examined to determine sexual dimorphism in selected characters. Sexual dimorphism is present as regards axilla-groin/snout-vent length, snout-vent/tail length, and dorsal scale row counts, with females having larger axilla-groin/snout-vent length ratio and dorsal scale row counts and males having a larger snout-vent/tail length ratio. No dimorphism exists for mid-body scale row counts or pigmentation.

3. Juveniles were observed to show sexual dimorphism only with respect to dorsal scale row counts as series Tulane 14108 above. Dimorphism with respect to axilla-groin/snout-vent length begins at about 24 mm snout-vent.

4. A positive correlation between axilla-groin and snout-vent lengths exists for both sexes. Males and females differ significantly in this character.

5. Males and females exhibit allometric growth of the axilla-groin length and limb lengths. Adpressed limbs of males less than 35 mm snout-vent and females less that 39 mm snout-vent overlap.

6. The scales on the sides of the neck, base of the tail, in the axilla and groin, and on the posterior surfaces of the limbs are keeled. Occasional individuals may have keels on the dorsal scales as well as the above areas. This is especially true of juveniles. No sexual dimorphism exists as regards these keels.

7. No geographic variation exists for the Louisiana population as regards certain selected morphological characters.

8. Males are sexually mature at 35 mm snout-vent length. Spermatozoa are present in the testes and vas deferens from January through August.

9. Females are sexually mature at a snout-vent length of 35 mm.

10. Ovarian follicles 1 mm or more in diameter are present from December through August. These follicles are assumed to indicate the extent of the breeding season for females. The concurrence of oviducal eggs and follicles of 2 mm or more in diameter is indicative of the possibility of two broods per season. Only females of 44 mm or more in snout-vent length show this potentiality. Oviducal eggs are present from March through August.

11. The average number of oviducal eggs per female is $3.3 \pm .05$, the range from one to five. Eggs were found in the right oviduct only, but not in the left oviduct only. The average number of eggs in the right oviduct, $1.9 \pm .06$, is significantly different from the average of the left oviduct, $1.5 \pm .05$.

12. Hatchlings are those individuals between 16-19 mm snout-vent. Individuals hatched from May to August may reach maturity by the spring following hatching. Late hatched individuals (subsequent to August) may not reach maturity until very late the following season or even until the second season following hatching.

13. Embryos advanced to the somite stage with brain and tail flexures were observed in 30 oviducal eggs from ten females collected in March, June, July, and August.

14. Field studies of egg laying activities, hatching dates, and growth rates are needed to corroborate the assumptions concerning these activities based on laboratory studies.

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