

Ortmann
1921

'14. Of three males and four gravid females, all with glochidia, two of them discharging, the soft parts have been preserved. The breeding season thus ends in May.

The anatomy is the same as that of the genus *Alusmidonta*, as described previously (Ann. Carn. Mus. 8, '12, p. 297), also with regard to color (inclining to yellowish and orange tints). It should be mentioned that the inner lamina of the inner gills is, in two males and two females, entirely connected with the abdominal sac (as is the case in *A. marginata*); but in one male and two females, it is free in the posterior half or one-third of the abdominal sac. The specimens with the inner lamina partly free are the smaller ones.

Glochidia as usual, triangular, with hooks, about as high as long, L. and H. from 0.29 to 0.32 mm. Thus they are smaller than those of *A. marginata*, where the L. is 0.33, the H. 0.36 mm.

PAGIAS FABULA (LEA). (Ortmann, l. c., p. 562.)

Anatomy described in NAUTIL. 28, '14, p. 65. *Gravid females*, with *glochidia*, were at hand, collected on Sept. 17, '12. An additional gravid female, with eggs, has been found on Sept. 7, '13. This indicates the beginning of the breeding season in September.

PTYCHOBANCHUS SUBTENTUM (SAY). (See: *Ellipsaria subt.*, Ortmann, l. c., p. 564.)

The soft parts have been described in Ann. Carn. Mus. 8, '12, p. 308, fig. 5. Many specimens have been secured subsequently, confirming this account. It should be added that large females show that the folds of the marsupium are more numerous, and occupy nearly the whole outer gill.

Gravid females have been found frequently from Sept. 5 to Sept. 21, but with eggs only, indicating the beginning of the season; on May 20, '13, females discharging placentae with glochidia have been observed, indicating the end of the season.

DROMUS DROMAS (LEA), D. DROMAS CAPERATUS (LEA). (l. c., p. 566.)

Anatomy: Ann. Carn. Mus. 8, '12, p. 315, figs. 18, 18a, 18b. The soft parts of the var. *caperatus* are absolutely identical



with those of the main species. The color of the marsupium is mostly red, more rarely white.

Gravid females of the variety have been found on Sept. 7, 8, '14; Sept. 16, 17, 21, '15, mostly with eggs, but already on the earliest date a specimen with *glochidia* was seen. The latter have the same shape as those of the main species, L. 0.18, H. 0.09 mm.

ACTINONAIAS PECTOROSA (CONRAD). (l. c., p. 569.)

Anatomy: Ann. Carn. Mus. S, '12, p. 325 (as *Nephronaias perdix*).

Gravid females have been found on Sept. 11, 15, '13; Sept. 15, '15; Sept. 17, '12; Sept. 17, '13, all with eggs. *Glochidia* have been found on May 12, '13, and May 20, '14, being discharged on the last date. Thus the breeding season is from September to May.

CARUNCULINA MOESTA (LEA). (See: *Toxolasma lividum* (Raf.) Ortmann, l. c., p. 578.)

This form is the upper Tennessee representative of *C. glans*, but I have a set of an absolutely identical form from the Ozark region (James River, Galena, Stone Co., Mo., collected by A. A. Hinkley), recorded by Hinkley (Proc. U. S. Mus. 49, '15, p. 588) as *Lampsilis glans*, and I shall include these specimens in the following report.

I have described (NAUTIL. 28, '15, p. 142) the anatomy of a sterile female of *C. glans*. Among the specimens of *C. moesta* from the Ozarks, there are males, sterile females, and one gravid female with glochidia, collected July 30, '14. From the upper Tennessee region, I also have males and sterile females, and a gravid female with glochidia, the latter collected on May 16, 15.

Thus the breeding season of this form is rather obscure. We should expect it to be bradyctictic, and the specimen collected in May would agree with this. However, the presence of glochidia at the end of July appears strange; this specimen was discharging, and it might be a case of belated discharge. On the other hand, the beginning of the preceding season can not fall very early in autumn, for among a considerable number of