

Report on Buffalo Gnats Arkansas and Mississippi 1934

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Mississippi

On February 22 and 23, 1934, a short trip was made to the regions in Mississippi which are infested with *Eusimilium pecuarum* Riley. Up to this time no reports of the presence of adult gnats in abundance had been made. At Webb, Mississippi a few gnats had been seen on warm days, and in the Tallahatchie River bottoms between Webb and Charleston a very few adults were noted in flight. At Prichard, Mississippi no adults could be found, but river men claimed to have seen a few on warm days. Examinations for larvae were made in the Tallahatchie River near Charleston and Money, in the Coldwater River at Prichard and in the Yalobusha River at Whaley. These rivers were all at a low stage. The debris and willows were found to be covered with gnat larvae. A few pupae and very few signs of emergence (cast pupal skins) were seen. It appeared at that time that a goodly infestation of gnats might occur when conditions for hatching became favorable.

During the period April 10 to 20 inclusive, the above regions were again visited and it was learned that only a light infestation of gnats had occurred thus far this season. River examinations were made and practically no larvae were found. The entire brood for the season apparently had emerged. To illustrate the scarcity of gnats this spring in Mississippi, it may be stated that Mr. Garber of the Quinn Drug Company of Greenwood, Mississippi informed the writer that their sales of "gnat oil" had been only 1000 gallons during the entire spring, whereas their sales sometimes run to 2000 gallons per week.

Although not well understood, the light infestation of gnats in Mississippi this year seems to be explained by a study of the water stages of the gnat breeding rivers. Fairly high river stages occurred during January. During February the rivers were very low and flood stage on the Tallahatchie was not reached until March 13, then followed two weeks of high water which subsided on March 28, the river stages continuing downward during the first part of April. It is known that during periods of high water the gnat larvae are spread over the flooded lowlands; larvae having been taken in previous years from bushes, cotton stalks, corn stalks, etc. in bottom lands over which water was flowing. Although no observations were made on this point this year, it seems possible that the rivers flooded sufficiently to cause this spread of larvae and that large numbers of them were left stranded by the receding waters early in February and again at the end of March, which condition would explain the scarcity of gnats in Mississippi this year.

Arkansas

An outbreak of Buffalo gnats occurred in Arkansas during the period April 21 to 25, during which a total of 527 mules were reported as being killed (Table 1).

Arkansas Areas Affected and Losses 1934		
County	Number of mules killed	Reporting type AL = actual loss E = estimate (county agent)
Cross	85	E (Mr. Shultz, County Agent)
Lee	116	AL (Mr. Chisholm)
Lonote	141	AL (Mr. Frasier, County Agent- Actual check by FERA Committee)
Monroe	75	E (Mr. Mimms, County Agent)
Phillips	110	AL (Mr. Chisholm, AAA representative)
Total	527	

This killing of mules led to a great deal of publicity being given the outbreak and the gnat stories appearing in the press certainly emphasized the lack of exact information on this pest.

On April 29 and May 1 the White River Bottoms in Monroe County were scouted and the breeding place of the gnats in this area was found to be in the network of sloughs, known as "bays", and lakes which occur in the area between Clarendon and St. Charles. These places receive water from the White River

at comparatively low water stages through an inlet just south of Clarendon, thus giving them a considerable current. It was learned on fairly competent authority that most of those waters have some movement throughout the year. The vegetation above the water was thickly covered in places with pupal skins of gnats showing that emergence had occurred during high water. NO larvae could be found.

At the time of my arrival in the gnat regions of Arkansas (April 28) the gnats did not appear to be present in particularly great abundance and no further stock losses were being reported. The writer has never been in an area when mules were actually dying from gnat attacks, but conversations indicate that the gnats are often as abundant during these periods than others, that is gnats are often as abundant during seasons when no killing occurs as they are when mules die from their attacks. The difference seems to be in the manner of arrival of the gnats.

The history of this outbreak seems to be pretty much the same as that during the spring of 1931 when about 500 mules were lost in Arkansas and 200 in Coahoma County, Mississippi. In that year the outbreak occurred during the first few days of April (3rd to 8th) after an unusually cold spring during which low water had prevailed in the rivers up until about three weeks preceding the outbreak. This year (1934) in Arkansas temperatures were subnormal during February and March and rivers were low until late in March when a flood stage occurred which lasted until about the middle of April when it began to subside (information from river men: Weather Bureau reports not yet received). Gnat pupal skins on vegetation indicated that the adults had emerged during this period of high water. In both 1931 and this year farmers seemed agreed that few or no gnats were present during early spring, but came in in unusual swarms and killed the mules before protective measures could be taken.

During the two intervening years, 1932 and 1933, observations on gnats were made in Mississippi, and in both of these years gnats were very abundant throughout the entire spring, with only isolated losses of stock being reported as due to gnat attacks. During both of these years flood conditions prevailed throughout the spring and the weather was unusually warm.

From the foregoing it would seem that temperature, coupled with river conditions, have a great deal to do with the time of gnat appearance and the occurrence of stock killing "outbreaks." In warm spring seasons, during which continuous high water stages occur, gnats emerge gradually and are present in abundance throughout the season, and no stock losses occur except in isolated instances, and in these the loss may not, of course, be due primarily to gnat attacks. In cold spring seasons during which flood stages do not occur in the rivers until late in the spring, gnat emergence is delayed and they are then likely to emerge all at once in great swarms which usually cause the death of livestock. This may be explained, of course, by the theory that animals subjected to light gnat attacks early in the year become immune to the gnat venom and can withstand gradually increasing doses of it. From information secured in previous years, however, it appears that this immunity is not carried over from one year to the next. The nature of the venom secreted by gnats is, of course, unknown but the symptoms of the poisoning seem to be well recognized. One of the peculiarities of a gnat outbreak seems to be that the first deaths are usually not attributed to gnats and veterinarians are called on to treat mules "down with the colic." If the gnats arrive in such enormous clouds as reports usually indicate, it would seem that there could be no doubt as to the cause of the trouble. As usual, newspaper reports attributed the stock losses to the gnats being so numerous that the gnats breathed them into the lungs and became smothered, but as has previously been the case, no person could be found who had actually conducted a post-mortem examination and found gnats in the lungs. This theory is firmly believed in by many, however, particularly negroes and one of their protective measures is to tie a flap of burlap, previously soaked in tar and oil, over the mules' noses, a procedure which must certainly add to the discomfort of the tortured animals.