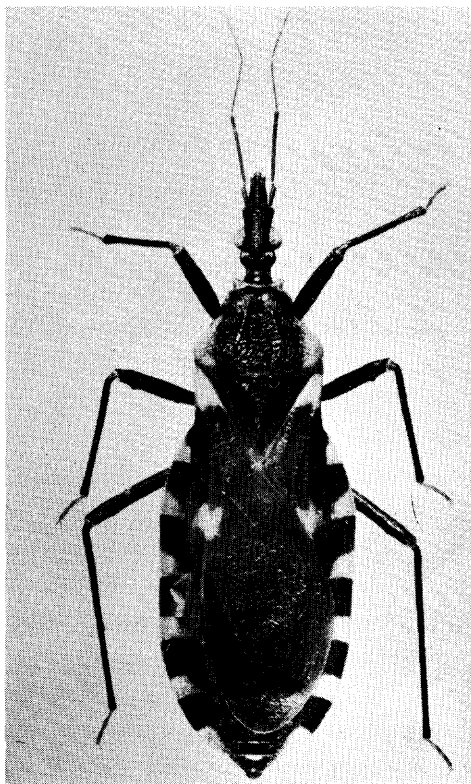


THE BLOOD-SUCKING CONENOSE¹
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MEDICAL IMPORTANCE: THE BLOOD-SUCKING CONENOSE, TRIAATOMA SANGUISUGA (LECONTE), OCCASIONALLY ENTERS HOMES AND SUCKS BLOOD FROM SLEEPING PERSONS, AND FOR THIS REASON IT IS SOMETIMES CALLED THE "BIG BED BUG" OR SOME OTHER LOCAL NAME. THE FEEDING BITES ARE USUALLY BENIGN, BUT INDIVIDUALS HAVING AN ALLERGIC SENSITIVITY MAY HAVE DIZZINESS, NAUSEA, BURNING PAIN, INTENSE ITCHING, AND MUCH SWELLING WITH RED BLOTCHES AND WELTS OVER THE BODY. THE EFFECT OF THE BITE MAY LAST FOR MONTHS; HOWEVER, IT USUALLY DISAPPEARS WITHIN A FEW DAYS. OF FURTHER CONCERN IS THE POTENTIAL ABILITY OF T. SANGUISUGA TO TRANSMIT THE SOMETIMES FATAL CHAGAS¹ DISEASE WHICH IS CAUSED BY A PROTOZOAN CALLED TRYPANOSOMA CRUZI (CHAGAS). THIS DISEASE PRIMARILY AFFECTS CHILDREN. IT OCCURS IN MOST OF SOUTH AND CENTRAL AMERICA FROM ARGENTINA TO MEXICO, BUT WAS NOT KNOWN IN THE UNITED STATES UNTIL 1955 WHEN TWO INDIGENOUS CASES IN THE CORPUS CHRISTI, TEXAS AREA WERE REPORTED. THERE IS SEROLOGIC EVIDENCE TO SUPPORT THE BELIEF THAT UNDIAGNOSED CASES HAVE OCCURRED IN THE SOUTHWEST. THE MOST APPARENT SYMPTOMS ARE FEVER AND SWELLING OF THE EYELIDS AND FACE. FARRAR ET AL (1963) TESTED BLOOD FROM A FEW HUNDRED RESIDENTS IN GEORGIA AND FOUND SOME OF THEM SEROPOSITIVE TO THE CORPUS CHRISTI STRAIN OF T. CRUZI. TWO PATIENTS HAVING POSITIVE SEROLOGIC REACTIONS ALSO HAD "DIFFUSE MYOCARDIAL DISEASE," SUGGESTING THAT SOME CASES OF UNEXPLAINED HEART FAILURE AMONG VICTIMS IN GEORGIA AND IN THE SOUTHERN U. S. MAY BE CAUSED BY T. CRUZI. MORE THAN 35 SPECIES OF "KISSING" BUGS IN THE AMERICAS HAVE BEEN FOUND NATURALLY INFECTED WITH T. CRUZI. THE VECTORS OBTAIN THE TRYPANOSOMES WHEN TAKING BLOOD FROM THE INFECTED HOSTS. THE TRYPANOSOMES MULTIPLY IN THE GUT OF THE BUG AND ARE DISCHARGED WITH THE FECES. INFECTION IN MAN TAKES PLACE PRIMARILY WHEN THE BUG DEFECATES WHILE FEEDING OR SOON AFTER, AND THE TRYPANOSOMES GAIN ACCESS TO THE BODY THROUGH SKIN ABRASIONS. ALSO, CONTAMINATING FLUIDS FROM RESERVOIR ANIMALS CAN ENTER THROUGH BREAKS IN THE SKIN OR DELICATE TISSUES OF THE EYE OR MOUTH. POPULATIONS OF TRIAATOMA SPP. ACROSS THE SOUTHERN UNITED STATES VARY AS TO PER CENT OF THE SAMPLE INFECTED WITH T. CRUZI. IN THE CALIFORNIA TO NEW MEXICO REGION, TYPICAL SAMPLES SHOWED 20% TO 26% OF



THE TRIATOMINES WERE INFECTED, AND IN TEXAS A SAMPLE OF TRIAATOMA GERSTAECKERI (STAL) WAS 92% INFECTED. DR. KIRBY L. HAYS² FOUND THAT 6% OF 181 SPECIMENS OF T. SANGUISUGA IN 9 ALABAMA COUNTIES WERE INFECTED. THURMAN ET AL (1948) REPORTED THAT NO NATURAL INFECTIONS OF T. CRUZI IN FLORIDA WERE KNOWN TO THEM FOR TRIAATOMA LECTICULARIUS (STAL) AND T. SANGUISUGA, THE ONLY SPECIES OF TRIAATOMA IN FLORIDA. PACKCHANIAN (1940) WAS ABLE TO EXPERIMENTALLY INFECT THE SUBSPECIES T. SANGUISUGA AMBIGUA (NEIVA) IN FLORIDA. THE VIRUS OF EQUINE ENCEPHALITIS WAS FOUND IN NATURALLY INFECTED T. SANGUISUGA IN KANSAS APPROXIMATELY 25 YEARS AGO.

HABITAT, RESERVOIR ANIMALS, LIFE HISTORY: IN DOMESTIC SITUATIONS T. SANGUISUGA MAY BE FOUND IN BEDDING, CRACKS IN FLOORS AND WALLS, UNDER FURNITURE, IN HEN HOUSES, outhouses, barns, and dog houses. NATURAL HABITATS INCLUDE HOLLOW TREES AND STUMPS, ON PALMETTO BOOTS AND TRUNKS, UNDER BARK OF OAK AND PINE, AND IN WOOD RAT (NEOTOMA) NESTS. BLOOD IS OBTAINED FROM INSECTS INCLUDING INDIVIDUALS OF ITS OWN SPECIES, TREE TOADS, FROGS, LIZARDS, AND A VARIETY OF MAMMALS INCLUDING RODENTS, DOGS, HORSES, AND MAN. IN ALABAMA, DR. HAYS TRAPPED SEVERAL KINDS OF ANIMALS BUT WAS ABLE TO ISOLATE T. CRUZI FROM OPPOSSUMS AND RACCOONS ONLY. DR. HAYS BELIEVES THE VARIOUS INVESTIGATIONS POINT TO THE OPPOSSUM AND RACCOON AS THE PRIMARY RESERVOIRS OF CHAGAS¹ DISEASE IN THE SOUTHEASTERN UNITED STATES. THE ORGANISM HAS BEEN RECOVERED FROM WILD MAMMALS IN MARYLAND, GEORGIA, FLORIDA,

FIG. 1. TRIAATOMA SANGUISUGA ♀
GAINESVILLE, FLA., LENGTH 18.3 MM

¹CONTRIBUTION No. 50, ENTOMOLOGY SECTION

²APPRECIATION IS EXTENDED TO DR. KIRBY L. HAYS, AUBURN UNIVERSITY, FOR PERMISSION TO USE DATA FROM HIS 1963 MIMEOGRAPHED REPORT ON "ECOLOGY OF VECTORS AND RESERVOIRS OF TRYPANOSOMA CRUZI."

LOUISIANA, AND ALABAMA AMONG SOUTHEASTERN STATES. NYMPHS AND ADULTS OF T. SANGUISUGA MAY BE FOUND ALMOST ANYTIME DURING THE YEAR IN FLORIDA. HOWEVER, NYMPHS USUALLY ARE TAKEN UNDER OAK BARK IN THE COOLER MONTHS, AND MOST ADULT FINDS ARE GREATER IN THE WARMER MONTHS. DR. HAYS FOUND THAT FEMALES REARED FROM FIELD-COLLECTED NYMPHS LIVED FROM 251 TO 609 DAYS WITH A MEAN LONGEVITY OF 456.5 DAYS. MALES LIVED FROM 345 TO 679 DAYS WITH A MEAN LONGEVITY OF 526 DAYS. HE POINTS OUT THAT AN ADULT LIFE OF ALMOST TWO YEARS INDICATES THAT ADULT BUGS IN THE WILD HAVE CONSIDERABLE OPPORTUNITY TO PARASITIZE A VARIETY OF ANIMALS AND TO EXPOSE THEM TO CHAGAS' DISEASE. FEMALES COLLECTED AS NYMPHS IN THE FIELD WILL DEPOSIT FROM 319 TO 1166 EGGS IN THEIR LIFETIME WITH AN AVERAGE OF 711 PER FEMALE, ACCORDING TO DR. HAYS. HE ALSO FOUND THAT FEMALES AVERAGED ABOUT 88 BLOOD MEALS AND MALES ABOUT 80 BLOOD MEALS IN A LIFETIME UNDER LABORATORY CONDITIONS.

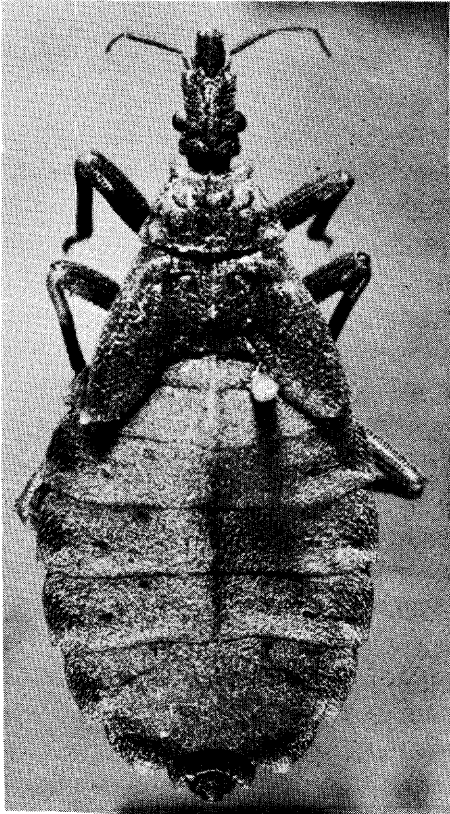


FIG. 2. TRITATOMA SANGUISUGA
5TH INSTAR NYMPH, 14.4 MM LONG

IDENTIFICATION AND DISTRIBUTION: FIVE SUBSPECIES OF T. SANGUISUGA ARE GENERALLY RECOGNIZED, ONLY TWO OF WHICH RANGE FROM TEXAS EASTWARD. THESE TWO ARE T. SANGUISUGA SANGUISUGA (LEC.) AND T. SANGUISUGA AMBIGUA (NEIVA). THE LATTER IS CALLED "A COMMON FLORIDA SUBSPECIES" BY USINGER (1944). APPARENTLY THE ONLY SUBSPECIES OF T. SANGUISUGA FOUND FROM THE LATITUDE OF TAMPA SOUTHWARD WOULD BE AMBIGUA, SINCE T. S. SANGUISUGA HAS NOT BEEN RECORDED SOUTH OF CITRUS COUNTY, FLORIDA. THE TYPICAL FORM RANGES NORTH TO NEW JERSEY, MARYLAND, AND SOUTHERN ILLINOIS, WEST TO KANSAS, AND SOUTHWEST TO TEXAS AND MEXICO. THE SUBSPECIES ARE SEPARATED BY MINOR DIFFERENCES. USINGER'S KEY GIVES AMBIGUA AS 16-17 MM IN LENGTH, AND SANGUISUGA AS 19-21 MM AND ALSO MENTIONS SLIGHT COLOR DIFFERENCES, AMBIGUA BEING DULLER. THE WRITER HAS EXAMINED 38 FLORIDA SPECIMENS OF BOTH SUBSPECIES IN THE FLORIDA STATE COLLECTION OF ARTHROPODS AND FOUND THAT THE LARGEST ♀ WAS 20.5 MM (MAYPORT) AND THE SMALLEST ♀, 17.4 MM (TAMPA). THE LARGEST ♂ WAS 19.0 (NASSAU COUNTY), THE SMALLEST ♂, 16.1 MM (GAINESVILLE). IN THE GAINESVILLE AREA, 11 MALES RANGED FROM 16.1 TO 18.8 MM AND AVERAGED 17.7 MM. TWELVE FEMALES RANGED FROM 18.2 TO 20.4 MM AND AVERAGED 19.1 MM (FIG. 1). IT SEEMS THAT GAINESVILLE LIES IN AN INTERGRADING ZONE AND THAT MUCH OF NORTH-CENTRAL FLORIDA YIELDS INTERMEDIATE FORMS. A LONG SERIES OF SPECIMENS FROM AROUND THE STATE IS NEEDED FOR A BETTER UNDERSTANDING OF THE FORMS. THE ONLY OTHER SPECIES OF TRITATOMA IN FLORIDA OR THE EASTERN U.S. IS LECTICULARIUS, AND IT IS EASILY DISTINGUISHED FROM T. SANGUISUGA BY THE HAIRY BEAK.

CONTROL: THE ADULTS ARE NIGHT FLYERS AND ARE ATTRACTED INTO OPEN WINDOWS BY LIGHTS; THEREFORE, USE ADEQUATE SCREENING. BREEDING PLACES SHOULD BE ELIMINATED. IN ROOMS APPLY AN AEROSOL WHEN POSSIBLE AND FOLLOW UP WITH A RESIDUAL SPRAY, USING COARSE DROPLETS. SOME OF THE RECOMMENDED INSECTICIDES ARE 1/2% LINDANE, 5% DDT, OR 2% TO 3% CHLORDANE. DO NOT USE CHLORDANE AS A SPACE SPRAY IN HOMES OR OTHER PLACES HOUSING CHILDREN OF CRAWLING AGE. APPLY THE SPRAYS TO ALL SUSPECTED HIDING PLACES IN THE HOUSEHOLD FURNISHINGS AND IN FLOOR AND WALL CRACKS. IF THE BUGS SHOULD ALIGHT ON THE PERSON, BRUSH THEM OFF QUICKLY. DO NOT TAKE HOLD OF THEM BECAUSE THE STRESS BITE IS PAINFUL.

REFERENCES:

- FARRAR, W.E., JR., I.G. KAGAN, F.D. EVERTON, AND T.F. SELLERS, JR. 1963. SEROLOGIC EVIDENCE OF HUMAN INFECTION WITH TRYPANOSOMA CRUZI IN GEORGIA. AM. J. HYG. 78(2):166-172.
- McKEEVER, S., G.W. GORMAN, AND LOIS NORMAN. 1958. OCCURRENCE OF A TRYPANOSOMA CRUZI-LIKE ORGANISM IN SOME MAMMALS FROM SOUTHWESTERN GEORGIA AND NORTHWESTERN FLORIDA. J. PARASITOL. 44(6):583-587.
- PACKCHANIAN, A. 1940. EXPERIMENTAL TRANSMISSION OF TRYPANOSOMA CRUZI INFECTION IN ANIMALS BY TRITATOMA SANGUISUGA. PUB. HEALTH REPT. 55:1526.
- THURMAN, D.C., JR., J.A. MULRENNAN, ERNESTINE BASHAM, AND DOYLE J. TAYLOR. 1948. KEY TO FLORIDA TRITATOMA WITH ADDITIONAL DISTRIBUTION RECORDS FOR THE SPECIES. FLA. ENT. 31(3):58-62.
- USINGER, R.L. 1944. THE TRIATOMINAE OF NORTH AND CENTRAL AMERICA AND THE WEST INDIES AND THEIR REPUBLIC HEALTH SIGNIFICANCE. PUB. HEALTH BULL. 288, 83 P.