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A DISTRIBUTIONAL CHEK-LIST OF NEBRASKA MOSQUITOES

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In 1944, Tate and Gates published the first comprehensive work on the mosquitoes of Nebraska. Their publication was based on specimens in the collection at the Entomology Department, University of Nebraska, and on specimens collected in light traps during the summers of 1942 and 1943. Since that time our knowledge of Nebraska mosquitoes has increased materially. During World War II the United States Public Health Service through its Division of Malaria Control in War Areas conducted many surveys around army posts, air fields, and prisoner of war camps. In addition the U.S. Army maintained the Seventh Service Command Medical Laboratory at Fort Omaha, and this organization conducted mosquito surveys on military bases in Nebraska. Olson and Keegan (1944 a, b) summarized the results of the Army's mosquito surveillance program in Nebraska. Following the war, the United States Public Health Service conducted surveys in many areas of Nebraska, where water resource development projects were proposed, and, during 1952 and 1953, maintained a field station at Mitchell to study mosquito production in irrigated areas. Since 1952, the Nebraska State Department of Health has conducted mosquito surveys throughout the state. This paper represents a summary of present knowledge of the Nebraska mosquito fauna.

ZOOGEOGRAPHY OF NEBRASKA

Nebraska's location in the center of a large continental land mass presents many perplexing problems in mosquito distribution. Although close to 90 per cent of the state lies in the grassland biome, there are many different ecological areas in the state. The western edge of the eastern deciduous forest biome is found along the Missouri River, for a short distance up the Platte River, and in the valleys of the Blue River, Elkhorn River and Loup River systems. Much of the deciduous forest in Nebraska represents an ecotone, often referred to as "oak parkland," a meeting of the true deciduous forest of the east and the grasslands of the west. The eastern portion, west of the deciduous forest is composed of the tall grass prairie; the central area is known as the mixed prairie; and the western part, the short grass prairie. The Sand Hill region is a distinct community in the short grass prairie region and is distinguished by rolling sandhills, numerous lakes, and marshes. In extreme northwestern Nebraska there is an eastern extension of the western coniferous forest biome. In the Pine Ridge areas of Sioux, Dawes, and Sheridan Counties there are large stands of ponderosa pine.

In May, 1955, the U.S. Department of the Interior, Fish and Wildlife Service at Billings, Montana, issued a publication entitled: "Wetlands Inventory of Nebraska." In this work they defined "wetlands" as: "Those

lands which contain too much soil moisture or are flooded too long during the growing season to permit their intensive use for the production of agricultural crops unless reclaimed by drainage, flood control, or other means." These areas represent the natural mosquito breeding areas of Nebraska. Approximately 652,000 acres of the state are considered to be wetlands. They are classified as 98 per cent fresh water and two per cent saline. The three principal wetland areas are (1) The Sand Hills, containing 640,000 acres, (2) The "rainwater basins" of Clay and Fillmore Counties, approximately 3,000 acres, and the North Platte Irrigation Project containing about 9,500 acres. Thus it can be seen that in spite of the fact that Nebraska is considered to be a dry land area there are large natural areas for mosquito production.

NEBRASKA MOSQUITOES

Anopheles Meigen

Anopheles (Anopheles) barberi Coquillett

This tree hole breeder is rare in Nebraska. It has been taken in very small numbers in Furnas, Hamilton, Nuckolls, Richardson and Saline Counties. Its distribution in Nebraska is limited because of its highly specific ecological niche.

Anopheles (Anopheles) carlei Vargas

In earlier publications Nebraska specimens of this species were called *A. occidentalis*. This species has only been taken at Glen, Sioux County.

Anopheles (Anopheles) pseudopunctipennis franciscanus McCracken

This species has been taken only in Franklin and Webster Counties. However, further field work may prove that it is widespread in the southern part of the state.

Anopheles (Anopheles) punctipennis (Say)

This species is widely distributed in the state. It is most abundant in the Missouri Valley region and decreases in numbers toward the western part of the state.

Anopheles (Anopheles) quadrimaculatus Say

At times, this species in eastern Nebraska reaches population densities large enough to become a severe biter. However, since malaria is not endemic in Nebraska it does not become a public health problem. Its range in Nebraska is limited to the Missouri River valley and to the southern part of the state.

Anopheles (Anopheles) walkeri Theobald

This species has been taken in all areas of the state in very small numbers.

Uranotaenia Lynch Arribálzaga

Uranotaenia sapphirina (Osten Sacken)

This species which seldom attacks humans, is distributed in very small numbers throughout the state. It is most numerous in eastern Nebraska and becomes rare in the western part of the state.

Culiseta Felt

Culiseta (Culiseta) impatiens (Walker)

This widely distributed species has been taken three times in Nebraska, twice in Lancaster County and once in Thurston County.

Culiseta (Culiseta) inornata (Williston)

This species is found throughout Nebraska. It is seldom found in large numbers but at times reaches sufficiently large populations that it will attack man (Rapp, 1954).

Culiseta (Culiseta) incidens (Thomson)

There are two records for this species in the state.

Culiseta (Climacura) melanura (Coquillett)

Olson and Keegan (1944a) report specimens collected at Fort Robinson, Dawes County, on August 11 and 19, 1944.

Orthopodomyia Theobald*Orthopodomyia signifera* (Coquillett)

This tree hole breeder has been taken in the following eastern counties: Burt, Cass, Dodge, Otoe, and Saline.

Mansonia Blanchard*Mansonia (Coquillettidia) perturbans* (Walker)

Two females have been taken, one at Valentine and one at Oshkosh.

Psorophora Robineau-Desvoidy*Psorophora (Psorophora) ciliata* (Fabricius)

This species is found in small numbers in the eastern half of Nebraska as far west as Furnas County.

Psorophora (Psorophora) howardii Coquillett

Keener (1951) took this species along the Republican River in Nuckolls County.

Psorophora (Janthinosoma) cyanescens (Coquillett)

This species was taken by Keener (1951) in the Republican River valley in Nuckolls County.

Psorophora (Janthinosoma) ferox (Humboldt)

This species has been taken in Dawes, Frontier, Furnas, Otoe, and Richardson Counties.

Psorophora (Janthinosoma) horrida (Dyar and Knab)

This species has been taken in the following counties: Douglas, Frontier, Nuckolls, and Richardson.

Psorophora (Grabhamia) confinnis (Lynch Arribáizaga)

This species is widely distributed in the state but is most abundant in southeastern Nebraska.

Psorophora (Grabhamia) discolor Coquillett

This species has been taken in northwestern Nebraska, in the Missouri River valley and in a few interior counties.

Psorophora (Grabhamia) signipennis (Coquillett)

This is the common *Psorophora* found throughout the state.

Aedes Meigen*Aedes (Ochlerotatus) campestris* Dyar and Knab

This species has been taken in the following counties: Kimball, Knox, Morrill, Phelps, Sheridan, Thurston, and Valley.

Aedes (Ochlerotatus) canadensis canadensis Theobald

This species has been taken only in Lancaster County.

Aedes (Ochlerotatus) dorsalis (Meigen)

This is a common species found throughout the state.

Aedes (Ochlerotatus) fitchii (Felt and Young)

This species was taken by light trap at Fort Robinson, Dawes County, on May 20 and June 24, 1944 (Olson and Keegan, 1944b).

Aedes (Ochlerotatus) flavescens (Müller)

This species has been taken in small numbers throughout the state.

Aedes (Ochlerotatus) idahoensis (Theobald)

This early spring species has been taken at Glen, Sioux County (Tate and Gates 1944). Since it is on the wing in April and May it possibly may be more abundant than supposed.

Aedes (Ochlerotatus) impiger (Walker)

Tate and Gates (1944) took this species in July and August, 1943, at Scottsbluff.

Aedes (Ochlerotatus) nigromaculis (Ludlow)

This common species is widely distributed throughout the state. It is often an abundant pest especially in irrigated areas.

Aedes (Ochlerotatus) sollicitans (Walker)

This brackish water species has been reported by Olson and Keegan (1944b) from Lincoln, Lancaster County, July 7, 1933, and Fort Omaha, Douglas County, June 5, July 7, 9, 10, and August 2 and 7, 1942.

Aedes (Ochlerotatus) spencerii (Theobald)

This early spring species has been taken in the following counties: Knox, Red Willow, Thurston, and Valley.

Aedes (Ochlerotatus) sticticus (Meigen)

This species has been taken in many areas in the state but is always taken in very small numbers. The majority of records are from the Missouri valley region (Rapp, 1958).

Aedes (Ochlerotatus) stimulans (Walker)

Tate and Gates (1944) report this species from Glen, Sioux, Pine Ridge, and Dawes County. This is an early spring species and may be more common than the records indicate.

Aedes (Ochlerotatus) trivittatus (Coquillett)

This is a common, widely distributed species. It seems to be limited to wooded areas along streams throughout the state.

Aedes (Finlaya) triseriatus (Say)

This tree hole breeder is found in small numbers throughout the state.

Aedes (Aedimorphus) vexans (Meigen)

All studies to date show that this is the most abundant species in Nebraska and that it is found in all parts of the state.

Aedes (Aedes) cinereus Meigen

This is a rare species in Nebraska having been taken in only the following counties: Morrill, Phelps, Valley and Washington.

Culex Linnaeus*Culex (Culex) pipiens* Linnaeus

This common species is widely distributed throughout the state. The largest populations are found in the Missouri valley region (Rapp 1958) and diminish toward the western part of the state (Edmunds 1958).

Culex (Culex) quinquefasciatus Say

Tate and Gates (1944) report taking one male at Lincoln, Lancaster County.

Culex (Culex) restuans Theobald

This species is widely distributed throughout the state but is never taken in large numbers.

Culex (Culex) salinarius Coquillett

This is a very common species found throughout the state. At times it becomes a serious pest of man.

Culex (Culex) tarsalis Coquillett

This species is found in all areas of the state. The populations become increasingly larger toward the western part of the state (Rapp, 1955). This is the second commonest species in the state and is the principal mosquito of public health importance in the state.

Culex (Melanoconion) erraticus (Dyar and Knab)

This species reaches its northwestern limit in Nebraska. It has been taken in small numbers only in the eastern half of the state.

Culex (Neoculex) territans Walker

This species has been taken in small numbers throughout the state.

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