PART III

DISTISTYLE greatly modified at apex

DISTISTYLE

BASISTYLE

claw of dististyle comb-like

claw of dististyle not comb-like

Orthopodomyia

SEE PART IV
PART IV

claw of distisyle elongated

claw of distisyle short

Toxorhynchites
distisyle slender and tapering towards tip
distisyle stout

Culiseta
basal lobe long and slender, if not long bearing a rod-like seta
basal lobe not long and slender and without rod-like seta

Mansonina

Uranotaenia
MOSQUITOES: PICTORIAL KEY TO MOST ADULTS (FEMALE) OF NEW MEXICO
PART I
Chester J. Stojanovich

Anopheles freeborni
pulp tipped with black
pulp tipped with white

Uranotaenia syntheta
abdomen pointed
abdomen blunt

Anopheles punctipennis  Anopheles frasericans  Anopheles pseudopunctipennis
mesosoma with two longitudinal lines of white scales
mesosoma without lines of white scales

Orthopodomyia alba
base of abdomen with row of bristles on underside

Culiseta incisata  Culiseta inornata
proboscis banded
proboscis not banded

Culex thriambus
femora and tibia with narrow white line of scales
femora and tibia without narrow white line of scales

Culex torvalis  Culex pews
Culex salinarius  Culex erythrorhazy  Culex restuans  Culex quinquefasciatus
mesonotum brown  mesonotum brownish red
mesonotum with 2 pale spots  mesonotum without 2 pale spots

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PART II

dorsal segments of abdomen with pale scales spirally, or if absent; hind tibia with long erect scales

wing scales mixed dark and white
hind femur with white ring at apex

kind leg with long erect scales
hind legs without long erect scales

Psorophora ciliata Psorophora cyanescens
wing scales mixed dark and white
hind femur without white ring at apex

Psorophora consimilis
fringe of wing uniform in color

Psorophora discolor Psorophora signipennis
wing scales mixed dark and white
hind femur without white ring at apex

wing scales mostly dark

middle abdominal hands B-shaped
hind femur without long erect scales

Aedes vexans Aedes dorsalis
abdomen with pale median stripe
hind tarsus with pale hands at both ends of some segments

Aedes melanomus Aedes signipennis
base of costa with white scales
hind femur with long erect scales

Aedes nigromaculis Aedes canadensis
basal half of hind femur entirely pale scaled
hind tarsus with pale hands at base of segments

Aedes miropolus Aedes canadensis
base of costa with dark scales
hind femur without long erect scales

Aedes vaespens Aedes vexans Aedes incertus Aedes sollicitans Aedes nigromaculis
dorsal segments of abdomen with pale scales basally, hind tibia without erect scales

kind tarsus entirely dark
hind tarsus with pale hands

meenumun with 2 broad white stripes at middle
memonum without 2 broad white stripes at middle

Aedes trivittatus
wing scales dark
wing scales bicolor

Aedes pullicus Aedes spenceri
hind tarsus with pale hands at both ends of some segments
hind tarsus with pale hands at base of segments

probosac without pale hand
probosac with pale hand

abdomen with a pale median stripe
abdomen without a pale median stripe

Aedes taeniarykynchos
wing scales pale and dark intermixed
wing scales mostly dark

Aedes flavus
abdomen with pale median stripe
hind tarsus with pale hands at both ends of some segments

abdomen without pale median stripe
hind tarsus with pale hands at base of segments

Aedes flavus
abdomen yellowish, first segment of hind tarsus with median pale ring
hind tarsus without median pale ring

Aedes flavus
MOSQUITOES: PICTORIAL KEY TO SOME COMMON ADULTS (FEMALE) OF IDAHO
Chester J. Stojanovich

Abdomen: Anopheles freeborni
- abdomen blunt
- abdomen pointed

Aedes cinereus
- hind tarsus entirely dark
- hind tarsus with pale bands at both ends of some segments
- wing scales mixed pale and dark
- wing scales dark with white spots at base of costa

Aedes dorsalis Aedes canadensis Aedes nigromaculis
- middle abdominal bands B-shaped
- middle abdominal bands not B-shaped

Aedes vexans
- abdomen with a pale median stripe
- abdomen without a pale median stripe

Aedes nigromaculis
- proboscis with pale band
- proboscis without pale band

Culex tarsalis
- wing spurred
- wing not spurred

Culiseta incidunt

Culiseta inornata

Aedes fitchi
Aedes increpitus

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MOSQUITOES: PICTORIAL KEY TO ALL ADULTS (FEMALE) OF TEXAS
PART I
Chester J. Stojanovich

- Pulps as long as proboscis
- Pulps much shorter than proboscis
- Wing scales all dark
- Wing scales pale and dark
- Prothoracic horn long, thoracic horn short
- Prothoracic horn short, thoracic horn long
- Abdomen pointed
- Abdomen blunt

Anopheles barbirostris
Anopheles atropalpus
Anopheles gambiae
Anopheles quadrimaculatus
Anopheles freeborni
Anopheles walkeri
Anopheles albimanus
Anopheles crucians
Anopheles bradleyi
Anopheles punctipennis
Anopheles franciscanus
Anopheles pseudopunctipennis

Taxonomie: califoniensis

Uranotaenia fusca
- Mandibles with median stripe
- Mandible without median stripe

Uranotaenia sapphirina
- Uranotaenia anhydor syntha

SEE PART III
- Base of subcosta without row of bristles on underside
- Base of subcosta with row of bristles on underside

SEE PART II
- Wing spotted
- Wing not spotted

Culiseta inornata
Culiseta melanura
PART III

dorsal segments of abdomen with pale scales spirally

wing scales mixed dark and white
hind tarsus with white ring at apex

wing uniformly speckled with dark and white scales

Psorophora confinis

Psorophora discolor

Psorophora cyanescens

hind legs with long erect scales

mesonotum with a median stripe of golden scales, tarsi banded

Psorophora ciliata

5th segment of hind tarsus dark, 4th segment white

Psorophora variipes

Psorophora mexicana

mesonotum without a median stripe, tarsi unband

Psorophora howardi

5th segment of hind tarsus white, 4th segment mostly dark

Psorophora harrida

mesonotum with mixed dark and pale scales

Psorophora ferox

with pale knee spots, palps less than one-third as long as proboscis

mesonotum with a median stripe of dark scales

Psorophora longipalpus

without pale knee spots, palps more than one-third as long as proboscis

mesonotum with mixed dark and pale scales

Psorophora altipalpus

hind tarsus entirely dark
hind tarsus with pale bands

Haemagogus equinus

wing scales mostly dark
hind tarsus without white ring at apex

Psorophora signipennis

Psorophora harrida

Psorophora lacera

wing scales mostly dark
hind tarsus with pale bands at both ends of some segments

Aedes atropalpus

Aedes canadensis

wing scales mostly dark
wing scales not evenly mixed

Aedes cumpcessis

Aedes darsalis

hind tarsus with both segments 1 and 3 white scaled
hind tarsus with both segments 4 and 5 white scaled

mesonotum without a median stripe, tarsi unband

Psorophora harrida

hind tarsus without white ring at apex
hind tarsus without white ring at apex

Psorophora harrida

Psorophora lacera

Psorophora harrida

hind tarsus with both segments 4 and 5 white scaled
hind tarsus without white ring at apex
hind tarsus without white ring at apex

Psorophora lacera

Psorophora harrida

Psorophora lacera
PART IV

PART IV SECTION I

Abdominal segments without dorsal white bands or median triangular spots

Mesonotum with one or two stripes of white scales near middle

Mesonotum without stripes of white scales near middle

Abdomen with basal triangular patches

Abdomen with basal white bands

Aedes theleri

Hypostigial area without scales

Exoprostygial area with scales

Aedes stirteicus

Aedes muelleri

Mesonotum with median stripe margined with white or silver-white scales

Mesonotum with median stripe margined with golden scales

Aedes thibaulti

Mesonotum with dark median stripe reaching anterior margin

Mesonotum with dark median stripe not reaching anterior margin

Aedes chenioci

Aedes duperiei

Aedes triciatissus

PART IV SECTION II

Probedris without pale band

Probedris with pale band

Mesonotum with 2 lower postaxial spots

Mesonotum without 2 postero-lateral spots

Abdominal segments almost entirely yellow-sealed

Abdominal segments not entirely yellow-sealed

Aedes bimaculatus

Aedes julius pallens

Mesonotum with lye-shaped marking

Mesonotum without lye-shaped marking

Aedes aegypti

Middle abdominal bands B-shaped

Middle abdominal bands not B-shaped

Aedes vexans

Aedes nigromaculatus

Aedes zonatus

Aedes sollicitans

Aedes nigromaculatus

Abdomen with pale median stripe

Abdomen without a pale median stripe

Aedes taeniorynchus

Wing scales pale and dark intermixed

Wing scales mostly dark

Aedes Mitchelliae

Abdominal stripe yellowish, first segment of hind tarsus with median pale ring

Abdominal stripe white, first segment hind of tarsus without median pale ring

Aedes nigromaculatus
MOSQUITOES: PICTORIAL KEY TO SOME COMMON ADULTS (FEMALE) OF UTAH
PART I
Chester J. Stojanovich

pupa as long as proboscis

pupa much shorter than proboscis

Inopehles franciscanaus
abdomen blunt

Inopehles freeborni

abdomen pointed

Aedes species
SEE PART II

base of subcosta with row of bristles on under side

base of subcosta without row of bristles on under side

wing spotted

wing not spotted

proboscis without pale band

proboscis with pale band

Culiseta incidens
wing scales entirely dark

Culiseta nornata

Culiseta impavida

Culiseta tarsalis
abdomen with narrow pale band

Culex pipiens
mesonotum brownish red

Culex erythrothorax

Culex salinarius
abdomen with broad pale band

mesonotum brown

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PUBLIC HEALTH SERVICE, Communicable Disease Center, Training Branch, Atlanta, Georgia - 1964
FLEAS: PICTORIAL KEY TO SPECIES FOUND ON DOMESTIC RATS IN SOUTHERN UNITED STATES

Genal, pronotal and abdominal combs present

**Stenoponinae Americana**

Genal comb of five or more spines. Eye present.

Genal comb of two to four spines. Eye absent or reduced.

No combs present.

Pronotal comb present

1 row of bristles on typical abdominal segment

Thorax normal Front margin of head rounded

Thorax contracted Front margin of head angular

Hoplopsyllus affinis

Labial palp not extending, trochanter of first pair

Labial palp extending, trochanter of first pair of legs

1 row of bristles on typical abdominal segment

2 rows of bristles on typical abdominal segment

Echidnophaga gallinacea

Genal comb horizontal Spines pointed

Genal comb with 4 spines

Genal comb with 3 spines

Genal comb with 2 spines

Ondopsylla simplex

Leptopsylla signis

Ochrophthalmus pseudohyrtex

Epideia menmannii

Mecopus nuchalis

Polygenis gomi

Head length not twice width

Head length twice width

Spine I of genal comb distinctly shorter than spine II

Spine I and spine II of genal comb approximately equal in length

Genalospilus canis

Genalospilus felis

DIAMANUS MONTAURIUS

Segment 5 of hind tars with 5 pairs lateral plantar bristles

Segment 5 of hind tars with 1 pair ventral (basal) and 4 pairs lateral plantar bristles

Mesopleuron not divided by vertical sclerotization.

Mesopleuron divided by vertical radiate sclerotization.

Ocular bristle inserted below eye

Ocular bristle inserted in front of eye

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ILLUSTRATED KEY TO SPECIES FOUND DURING PLAGUE INVESTIGATIONS
Harry D. Pratt and Chester J. Stojanovich

1. Pronotal and genal combs absent (Fig. 1 A)............................2
   Pronotal combs present; genal comb present or absent (Fig. 1 B & C)....5

   Fig. 1 A  pronotal comb Fig. 1 B  genal comb

2. Front margin of head with two angles; three thoracic tergites together
   shorter than the first abdominal tergite (Fig. 2 A). (Irkhanophaga
   gallinacea)..................................................STICKTIGHT FLEA

   Front margin of head rounded; three thoracic tergites together longer
   than the first abdominal tergite (Fig. 2 B).............................3

   Fig. 2 A  thorax Fig. 2 B  thorax

3. Ocular bristle in front of eye; mesopleuron divided by internal sclero-
   tization; female with spermatheca partially pigmented (Fig. 3 A & B)...
   (Genus Xenopsylla)...........................................4

   Ocular bristle beneath eye; mesopleuron without internal sclerotization;
   female with spermatheca entirely without pigment (Fig. 3 C & D).      (Pulex irritans)...........................................HUMAN FLEA

   Fig. 3 A  mesopleuron Fig. 3 B  mesopleuron Fig. 3 C Fig. 3 D

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4. Genus *Xenopsylla*

*X. brasiliensis*

*X. cheopis*

*X. astia*

*X. vexabilis hawaiensis*

*Xenopsylla cheopis*, male terminal segments.

*X. brasiliensis*

*X. astia*

spermatheca

*X. vexabilis hawaiensis*

*Xenopsylla cheopis*, female terminal segments
5. Genal comb absent (Fig. 5 A) .......................................................... 6

Genal comb present (Fig. 5 B) ............................................................ 8

Fig. 5 A                                                                                               Fig. 5 B

6. Pronotal comb with about 12 teeth on each side (Fig. 6 A). India.............................................................. Stivalius ahalae

Pronotal comb with 5 to 10 teeth on each side (Fig. 6 B) .............. 7

Fig. 6 A                                                                                               Fig. 6 B

7. Labial palpus long, extending beyond trochanter of first leg (Fig. 7 A). Diamanus montanus.............................................. ROCK SQUIRREL FLEA

Labial palpus short, not extending to tip of coxa of first leg (Fig. 7 B). Nosopsyllus fasciatus ........................................... NORTHERN RAT FLEA

Fig. 7 A                                                                                               Fig. 7 B

trochanter
labial palpus

labial palpus

trochanter
3. Genal comb with two teeth (Fig. 8 A). (Genus Neopsylla) Neopsylla setosa important in U.S.S.R., Mongolia and Manchuria.

Genal comb with three teeth (Fig. 8 B). (Genus Ctenocephalides) Ctenocephalides brevius and pollex potential vectors in U.S.S.R.

Genal comb with four teeth (Fig. 8 C). (Genus Leptopsylla) Leptopsylla segnis is cosmopolitan.

![Fig. 8 A](image)
![Fig. 8 B](image)
![Fig. 8 C](image)

Genal comb with more than five teeth. (Genus Ctenocephalides). 9

9. Head strongly rounded anteriorly; first spine of genal comb about half as long as second; hind tibia with spiniform setae A and B (Fig. 9 A & B). Ctenocephalides canis. .................................DOC FLEA

Head not strongly convex anteriorly; first spine of genal comb almost as long as second spine; hind tibia with spiniform seta B, spiniform seta A replaced by a minute seta which may be absent in some specimens (Fig. 9 C & D). Ctenocephalides felis. .................................CAT FLEA

![Fig. 9 A](image)
![Fig. 9 B](image)
![Fig. 9 C](image)
![Fig. 9 D](image)
SNAKES: PICTORIAL KEY TO VENOMOUS SPECIES IN UNITED STATES
PART I
Chester J. Stojanovitch and Margaret A. Parsons

NON-VENOMOUS SNAKES

loreal pit present

loreal pit absent

neck ring black

neck ring red

Micrurops fulvius
TRUE CORAL SNAKE

M. f. fulvius
Southeastern

M. f. burbatt
Florida

M. f. tenere
Arkansas, Texas

Micruroides euryxanthus
ARIZONA CORAL SNAKE

tail blunt or with rattle

SEE PART II

loreal scale present

loreal scale absent

Agkistrodon contortrix
COPPERHEAD

A. c. contortrix
Southeastern

A. c. lauritzenus
Texas, Oklahoma, Kansas

A. c. mokasen
Eastern

A. c. pictigaster
Texas

Agkistrodon piscivorus
WATER MOCCASIN

A. p. piscivorus
Southeastern

A. p. leucostoma
Southeastern
PART II

**Sistrurus catenatus**
MASSASUGA RATTLESNAKE

- **S. c. catenatus**
  Great Lakes & Central U.S.
- **S. c. coleordii**
  Arizona, Colorado, New Mexico, Texas
- **S. c. tergeminus**
  Colorado, Kansas, Nebraska, New Mexico, Oklahoma, Texas

**Sistrurus miliarius**
PIGMY RATTLESNAKE

- **S. m. miliarius**
  Southeastern
- **S. m. barbouri**
  Southeastern
- **S. m. strackei**
  Southeastern

**Crotalus cerastes**
SIDEWINDER RATTLESNAKE

- **C. c. cerastes**
  Arizona, California, Nevada, Utah
- **C. c. cerboumbous**
  Arizona
- **C. c. laserepens**
  Arizona, California

**Crotalus willardi**
RIDGE-NOSED RATTLESNAKE

- **C. w. silus**
  New Mexico
- **C. w. willardi**
  Arizona

**Crotalus pricei**
TWINS-SOTTED RATTLESNAKE

Arizona

SEE PART III
PART IV

tail without distinct rings

anterior frontal area with large scales

*Crotalus molossus*
BLACK-TAILED RATTLESNAKE Southwestern

scales between supraoculars usually 2

*Crotalus scutulatus*
MOHAVE RATTLESNAKE Arizona, California, Nevada, New Mexico, Texas

tail not in sharp contrast to posterior part of body

*Crotalus tigris*
TIGER RATTLESNAKE Arizona

first infralabial scale rarely divided, body color grayish

*Crotalus atrox*
WESTERN DIAMONDBACK RATTLESNAKE Southwestern

tail with distinct rings

anterior frontal area with scales not much larger than posterior scales

*Crotalus horridus*
CANEBRAKE OR TIMBER RATTLESNAKE

C. h. horridus
Eastern

C. h. atroxanatus
Southeastern

scales between supraoculars usually 4, or more

*Crotalus ruber*
RED DIAMONDBACK RATTLESNAKE California

first infralabial scale usually divided, body color pink or red
BIRDS: PICTORIAL KEY TO SOME COMMON PEST SPECIES OF PUBLIC HEALTH IMPORTANCE
Margaret A. Parsons and Chester J. Stojanovich

COMMON PIGEON
- Male: Body black, head brown
- Female: Overall dull grey color

COMMON COWBIRD
- Male: Wing with red 'epaulets'
- Female: Breast heavily striped, light eye stripe

HOUSE SPARROW
- Male: Black throat, grey crown
- Female: Whitish throat, dull eye stripe

RED-WINGED BLACKBIRD
- Male and female: Very large size, coal black color, tail feathers

GRIFFLES
- Winter phase
- Summer phase

CROWS
- Male and female: Very large size, coal black color, tail feathers

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PUBLIC HEALTH SERVICE, Communicable Disease Center, Training Branch, Atlanta, Georgia - 1964
PIGEON, COLUMBA LIVIA – EXTERNAL MORPHOLOGY

Harold George Scott and Walter S. Dougherty
DOMESTIC RODENTS AND COCKROACHES: PICTORIAL KEY TO DROPPINGS
Harold George Scott and Margery R. Borom

- Rectangular, blunt:
  - Length over 1/3-inch*

- Elongate, pointed:
  - Length under 1/4-inch*

- Norway Rat
- Roof Rat

- Ovoid, pointed:
  - Without ridges
  - Length about 1/4-inch

- Rectangular, blunt:
  - With ridges
  - Length about 1/16-inch

- House Mouse
- German Cockroach

- American Cockroach
- Oriental Cockroach — Periplaneta orientalis

- Smoky Brown Cockroach — Periplaneta fuliginosa

- Australian Cockroach
- Brown Cockroach — Periplaneta brunnea

- Brown Banded Cockroach — Supella supercallix

*All characteristics are for average, dry, adult droppings. Study groups, not individual droppings.
PRAIRIE DOGS: PICTORIAL KEY TO COMMON NORTH AMERICAN SPECIES
(Cynomys)
Harry Weinburgh and Margery R. Borom

Tail white-tipped, long, more than 1/3 total length, blackish brown

Tail white-tipped, short, less than 1/3 total length, blackish brown

Black on tail, covering most of distal half

Black on tail confined to distal third

MEAD MONEY
Texas to Saskatchewan

MEDIAN PRAIRIE DOG

BLACK-TAILED PRAIRIE DOG

Terminal half tail white, without dark center

Terminal half tail with dark center (gray)

GUNNISON PRAIRIE DOG

Summer color red and brown on calvage, mixed with buffy, darker in unusual
Central Valley of Utah

Summer color grizzled (pinksash buff mixed with black)
Dark patch on cheeks and above eyes
Wyoming, Colorado, and Eastern Utah

UTAH PRAIRIE DOG

WHITE-TAILED PRAIRIE DOG

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RABBITS AND HALES: PICTORIAL KEY TO COMMON UNITED STATES SPECIES

Harold George Scott and Margery R. Borom

NOTE: Rabbits and hares are lagomorphs, not rodents. The incisor teeth are used to differentiate these two groups of animals.

GENUS Sylvilagus

HARES

- **Sylvilagus idahoensis**
  - Pygmy Rabbit
  - Total length: 6.2 to 7.5 times ear length

- **Sylvilagus palustris**
  - Marsh Rabbit
  - Total length: about 6.2 times ear length
  - Hind foot with short fur

- **Sylvilagus audubonii**
  - Desert Cottontail
  - Total length: about 6.7 times ear length
  - Tail dark

- **Sylvilagus nuttalli**
  - Nuttall Cottontail
  - Total length: about 5.9 times ear length
  - Tail light

- **Sylvilagus floridanus**
  - Eastern Cottontail
  - Total length: about 7.4 times ear length
  - Upper foot dark

- **Sylvilagus transitionalis**
  - New England Cottontail
  - Total length: about 4.8 times ear length
  - Upper foot white

GENUS Lepus

HARES

- **Lepus americanus**
  - Varying Hare

- **Lepus townsendi**
  - White-tail Jack

- **Lepus europaeus**
  - European Hare

- **Lepus californicus**
  - Black-tail Jack

*All measurements for adults.*

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PUBLIC HEALTH SERVICE, Communicable Disease Center, Training Branch, Atlanta, Georgia – 1962