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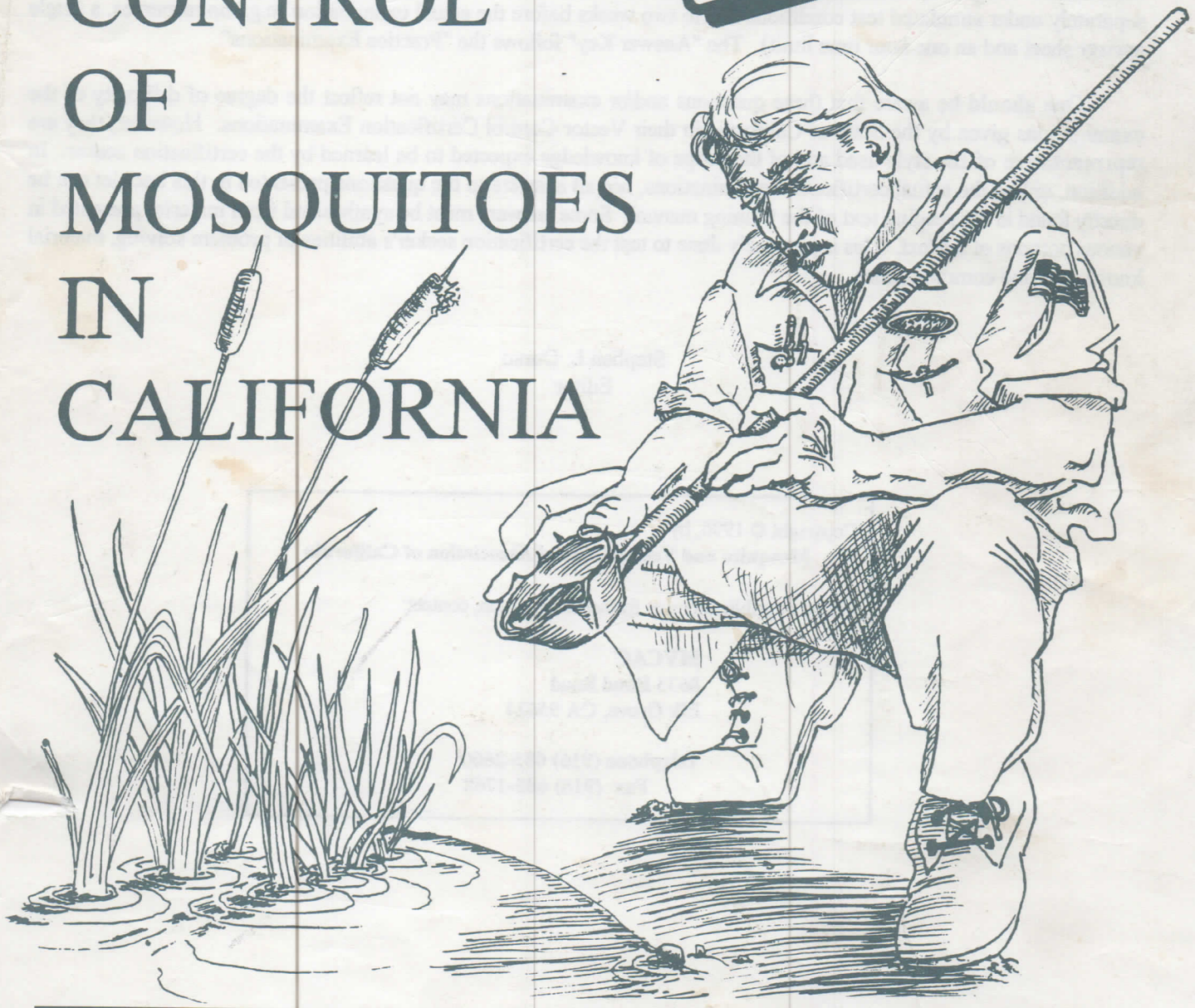
THE BIOLOGY AND CONTROL OF MOSQUITOES IN CALIFORNIA

Chapter Questions and Practice Examinations



MOSQUITO and VECTOR CONTROL ASSOCIATION of CALIFORNIA

INTRODUCTION

This booklet contains "Chapter Questions" related to *The Biology and Control of Mosquitoes in California* manual and two "Practice Examinations" which cover general principles pertaining to the field of mosquito control in California. Together, the text manual and this booklet can be used for self-study and/or classroom study in preparation for the California State Department of Health Service's Vector Control Technician Certification Examination (Category B: Mosquitoes).

The most beneficial way to use these two resources in preparation for the certification examination is to first read a chapter in *The Biology and Control of Mosquitoes in California* several times before answering the appropriate questions in this booklet (the "Answer Key" follows all chapter questions). Once the text manual has been read several times and all "Chapter Questions" have been answered and understood, the two "Practice Examinations" should be taken separately under simulated test conditions one to two weeks before the actual examination (e.g., no resources, a single answer sheet and an one hour time limit). The "Answer Key" follows the "Practice Examinations".

One should be aware that these questions and/or examinations may not reflect the degree of difficulty of the examinations given by the State of California in their Vector Control Certification Examinations. However, they are representative of the style used and of the scope of knowledge expected to be learned by the certification seeker. In addition, unlike the actual certification examinations, not all answers to the questions presented in this booklet can be directly found in the reading text of the training manual. Some answers must be synthesized from material presented in various portions of the text. This is purposely done to test the certification seeker's abilities of problem solving, material knowledge and common sense.

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Chapter 2

MOSQUITO BIOLOGY

Chapter Questions

1. Insects shed their exoskeleton and emerge as a larger form of the same stage or a different stage through the process of:

___ a. Sloughing.
___ b. Shedding.
X c. Molting.
___ d. Metamorphosis.

2. Female mosquitoes with the capacity to produce viable eggs without taking a blood meal are:

___ a. Parthenogenic.
X b. Autogenous.
___ c. Lucky.
___ d. Photosynthetic.

3. The genus of mosquitoes which lay their eggs in rafts on the water surface is:

___ a. *Anopheles*.
___ b. *Aedes*.
X c. *Culex*.
___ d. *Psorophora*.

4. Environmental conditions favoring long-term survival of adult mosquitoes include:

___ a. Heavy rainfall and strong winds.
X b. Cool temperatures and high humidity.
___ c. Hot temperatures and low humidity.
___ d. Short days and snowfall.

5. Male mosquitoes sometimes form aerial swarms to attract females for mating:

X a. True.
___ b. False.

6. Mosquito pupae are sometimes called:

X a. Tumblers.
___ b. Wrigglers or Wigglers.
___ c. Commas.
___ d. Polywogs.

7. Adult mosquitoes that are active during the daytime are called:

___ a. Normal.
___ b. Crepuscular.
___ c. Nocturnal.
X d. Diurnal.

8. Immature and adult mosquitoes take air into their bodies from the outside through their:

X a. Spiracles.
___ b. Ganglia.
___ c. Epipharynx.
___ d. Mouth.

9. Insects undergoing complete metamorphosis include:

___ a. Spiders, mites and ticks.
___ b. Cockroaches and grasshoppers.
X c. Flies, beetles and butterflies.
___ d. Silverfish, fire brats and millipedes.

10. Mosquito pupae have no mouth parts:

X a. True.
___ b. False.

Chapter 1

INTRODUCTION TO MOSQUITOES

Chapter Questions

1. The number of mosquito species distributed throughout the world is approximately:

___ a. 5,000.
___ b. 1,500.
X c. 3,500.
___ d. 500.

2. Black fly larvae inhabit:

X a. Swiftly moving water.
___ b. Ponds with emergent and floating vegetation.
___ c. Treeholes.
___ d. Coastal tidal salt marshes.

3. Mosquitoes belong to the phylum:

___ a. Culicidae.
___ b. Diptera.
___ c. Insecta.
X d. Arthropoda.

4. An insect is probably a mosquito if it has:

___ a. Long antennae, two wings and a black abdomen.
X b. A proboscis, two wings and scales on the wing veins.
___ c. A proboscis, four wings and a long abdomen.
___ d. Short antennae and four wings.

5. Adult crane flies are correctly called "mosquito hawks" because they eat adult mosquitoes:

___ a. True.
X b. False.

6. The genus name for an organism is:

___ a. Always capitalized (the first letter).
___ b. Always underlined or written in italics.
___ c. Sometimes abbreviated.
X d. All of the above.

7. The only single, non-paired structure projecting from the head of the adult mosquito is the:

___ a. Antenna.
X b. Proboscis.
___ c. Palpus.
___ d. Eye.

8. Mosquitoes have existed since the age of the dinosaurs:

X a. True.
___ b. False.

9. Midges belong to the family:

X a. Chironomidae.
___ b. Culicidae.
___ c. Tipulidae.
___ d. Simuliidae.

10. Mosquito larvae are sometimes called:

___ a. Squirmers.
___ b. Tumblers.
___ c. Wormers.
___ d. Wigglers.

herm:
punctipennis

culex rounded blunt / birds all culex = WNV SLE

culex erythrothorax - tule mosquito (orange)

culex pipiens - Northern house mosq. yes autogeny } do not feed on horses

quinquefasciatus - Southern house mosquito } no otogony

Stigmatosoma banded foul water mosquito

tarsaslis SLE WEE

Culiseta - cool weather, manmade sources large

incidens - large mammals, humans, night

inornata - same → spring & fall

psorophora columbiae - irrigated crops, pastures, date groves

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NOTES

Ochlerotatus (Ades) dorsalis good flyers / catch wind
Common name none Wee vector (in central valley)
Costal marshes, large mammals day & night
Ochlerotatus (Ades) melanimon, duck ponds,
irrigated pastures and fields. Mammals & humans.
dusk and dawn. Major pest. Wee vector
Ochlerotatus (Ades) nigromaculis. Irrigated pastures
large mammals & humans. Dusk & day. Major pest.
nigromaculis = pasture mosquito
Ochlerotatus (Ades) sierrensis western treehole mosquito
treeholes, tires, man made containers small mammals & humans
dusk & dawn. Dog heartworm
Ochlerotatus (Ades) squamiger - CA Salt marsh mosquito
humans day & night. pest univoltine = 1 generation
per year
Ochlerotatus (Ades) taeniorhynchus Black Salt Marsh
large mammals human day & dark localized pest
Ochlerotatus (Ades) washinoi coastal ground pools
inland shade pools humans, large mammals. day & dusk
localized pest.
Ades vexans Inland Floodwater mosq. Irrigated pastures
woodland watercourse pools large mammals, humans day & night
major pest, Secondary heartworm.
Anopheles franciscanus Shallow, sunlit pools w/ algea
large mammals dusk & dawn. Occasional pest, timid
Anopheles freeborni Western Malaria Mosquito - Rice fields
clear sunlit seepages with algae, large mammals humans
dusk & dawn
palps as long as proboscis

Anopheles points