

**Suggested study aids for the USFWS Quino checkerspot butterfly practical exam:**

⚙ Visit a museum and study pinned butterfly specimens.

⚙ References:

- 1) Mattoni - Butterflies of Greater LA
- 2) Emmel & Emmel - Butterflies of So. Cal.
- 3) Garth & Tilden - Butterflies of Calif.
- 4) Brown & Faulkner - Butterflies of Baja Calif.
- 5) James A. Scott - Butterflies of N. America

⚙ Links to butterfly identification websites:

[Butterflies of North America](#)

[California's Endangered Insects](#)

[Butterflies and their larval food plants](#)

[Butterflies of San Diego County](#)

[Interactive listing of Mexican Butterflies](#)

[San Diego Natural History Museum butterfly test and Quino checkerspot butterfly up-close](#)

(See links near the bottom of the page after clicking on the link above).

⚙ Keep in mind that the test:

- 1) is timed
- 2) includes 20 video clips of co-occurring butterfly species
- 3) includes identifying 10 mounted specimens
- 4) includes 3 larval photos

The test rules:

- 1) All butterflies on the test co-occur with Quino in its current range.
- 2) Any species can appear more than once anywhere on the test.
- 3) You do not need to distinguish between *E. chalcidona chalcidona* and *E. chalcidona hennei* (i.e., only identify to species).
- 4) You can miss up to 4 answers on the video portion, and 2 on the mounted portion, but cannot misidentify Quino (i.e., they cannot identify Quino as another species and cannot identify another species as Quino, this is an automatic failure).
- 5) You have 30 seconds per box on mounted specimens, 20 seconds per clip on video portion, with 20 seconds between clips. The video cannot be paused or stopped in progress.
- 6) You can pick up boxes with mounted specimens in them, but the boxes should not be opened. The specimens should be mounted at an angle to allow viewing of the ventral side. (The boxes should remain covered when not being viewed).
- 7) Responses on the answer sheet may be common name or scientific name (names published in recent literature ( $\geq$  1980's)).
- 8) You may take the test only twice prior to any given butterfly season. If you fail the test twice, you must wait until the end of that species flight season before another attempt at the test.

Potential test specimens are limited to the following:

Adults:

Acmon blue (*Plebejus acmon*)  
Sonoran blue (*Philotes sonorensis*)  
southern blue (aka silvery blue) (*Glaucopsyche lygdamus*)  
Ceraunus blue (*Hemiargus ceraunus*)  
marine blue (*Leptotes marina*)  
brown elfin (*Callophrys augustinus*)  
great purple hairstreak (*Atlides halesus*)  
Sara's orange tip (*Anthocharis sara*)  
buckeye (*Junonia coenia*)  
Lorquin's admiral (*Limenitis lorquini*)  
red admiral (*Vanessa atalanta rubria*)  
California sister (*Adelpha californica*)  
perplexing (green) hairstreak (*Callophrys dumetorum*)  
west coast lady (*Vanessa annabella*)  
Virginia (American) lady (*Vanessa virginiensis*)  
Painted lady (*Vanessa cardui*)  
Quino checkerspot (*Euphydryas editha quino*)  
monarch (*Danaus plexippus*)  
satyr anglewing (*Polygonia satyrus*)  
California tortoiseshell (*Nymphalis californica*)  
striated queen (*Danaus gilippus*)  
Wright's metalmark (*Calephelis wrightii*)

chalcedon checkerspot (*Euphydryas chalcedona chalcedona*)  
Henne's checkerspot (*Euphydryas chalcedona hennei*)  
Wright's (Leanira) checkerspot (*Chlosyne leanira wrightii*)  
Gabb's checkerspot (*Chlosyne gabbii*)  
Mylitta crescent (*Phyciodes mylitta*)  
California patch (*Chlosyne californica*)  
Behr's metalmark (*Apodemia virgulti*)  
checkered skipper (*Pyrgus communis*)  
anise swallowtail (*Papilio zelicaon*)  
pale swallowtail (*Papilio eurymedon*)  
western swallowtail (*Papilio rutulus*)  
Spring/California white (*Pontia sisymbrii*)  
European cabbage butterfly (*Pieris rapae*)  
checkered white (*Pontia protodice*)  
California ringlet (*Coenonympha tullia californica*)

Larvae: Quino, buckeye, and chalcedon checkerspot.

Revised: December 18, 2019