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A List of Cestode Parasites From California Mammals¹

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This report brings together information on the occurrence and distribution of cestode parasites in California mammals. The original information reported herein, was obtained by students, myself, and other staff members of this university. Although the host-parasite list which follows is far from complete, the dearth of knowledge about the helminth fauna in California seems to justify the publication of relatively few data, in the hope that other workers will be able to use this list as a starting point and add to it.

With few exceptions, the common names of the hosts, as given in the host list, were obtained from Burt and Grossenheider (1952). The keys and descriptions in Wardle and McLeod (1952) were of great help in identification of many of the cestode species.

In the parasite list, new locality records within the state, as well as first reports for the state, are indicated by an asterisk after the locality in question.

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List of Parasites According to Hosts

MARSUPIALIA

Didelphis virginiana, Virginia Opossum.—*Mesocestoides latus* Mueller, 1927.

INSECTIVORA

Sorex palustris, Northern Water Shrew.—*Hymenolepis parvissima* Voge, 1953; *H. parva* Rausch and Kuns, 1950.

S. ornatus, Ornate Shrew.—*Hymenolepis parva* Rausch and Kuns, 1950; *H. parvissima* Voge, 1953.

S. pacificus, Pacific Shrew.—*Hymenolepis parva* Rausch and Kuns, 1950; *Liga soricis* Neyland, 1953.

S. bendirei, Pacific Water Shrew.—*Hymenolepis parvissima* Voge, 1953.

S. vagrans, Vagrant Shrew.—*Hymenolepis parva* Rausch and Kuns, 1950.

S. sp.—*Hymenolepis sphenomorphus* Locker and Rausch, 1952; *H. parva* Rausch and Kuns, 1950.

S. trowbridgei, Trowbridge Shrew.—*Hymenolepis parva* Rausch and Kuns, 1950; *H. parvissima* Voge, 1953.

RODENTIA

Citellus beecheyi, California Ground Squirrel.—*Hymenolepis citelli* (McLeod, 1933); Larva of *Taenia* sp.; *Cysticercus portolae* Wellman and Wherry, 1910.

C. nelsoni, San Joaquin Antelope Squirrel.—*Hymenolepis citelli* (McLeod, 1933).

C. leucurus, Whitetail Antelope Squirrel.—*Oöchoristica deserti* Millemann, 1953; *Catenotaenia* sp.

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- Dipodomys heermanni*, Heermann Kangaroo Rat.—*Catenotaenia linsdalei* McIntosh, 1941.
D. venustus, Santa Cruz Kangaroo Rat.—*Catenotaenia linsdalei* McIntosh, 1941.
D. panamintinus, Panamint Kangaroo Rat.—*Catenotaenia linsdalei* McIntosh, 1941;
C. californica Dowell, 1953.
D. merriami, Merriam Kangaroo Rat.—*Catenotaenia linsdalei* McIntosh, 1941; *Oöchoristica deserti* Millemann, 1953.
D. mohavensis, Mohave Kangaroo Rat. *Catenotaenia californica* Dowell, 1953.
D. morroensis, Morro Bay Kangaroo Rat.—*Catenotaenia californica* Dowell, 1953.
Perognathus californicus, California Pocket Mouse.—*Catenotaenia linsdalei* McIntosh, 1941; *Hymenolepis horrida* (von Linstow, 1901).
P. parvus, Great Basin Pocket Mouse.—*Catenotaenia linsdalei* McIntosh, 1941.
Thomomys bottae, Valley Pocket Gopher.—*Catenotaenia linsdalei* McIntosh, 1941;
Hymenolepis citelli (McLeod, 1933); *H.* sp.
Peromyscus californicus, California Mouse.—*Hymenolepis horrida* (von Linstow, 1901).
P. truei, Piñon Mouse.—*Hymenolepis horrida* (von Linstow, 1901).
P. boylei, Brush Mouse.—*Hymenolepis horrida* (von Linstow, 1901); larva of *Mesocestoides*.
P. maniculatus, Deer Mouse.—*Choanotaenia peromysci* (Erickson, 1938).
Reithrodontomys megalotis, Western Harvest Mouse.—*Hymenolepis citelli* (McLeod, 1933).
Neotoma fuscipes, Dusky-footed Woodrat.—*Andrya neotomae* Voge, 1946; *A. primordialis* Douthitt, 1915; *A.* sp.; *Raillietina* (*Paroniella*) sp.; larva of *Hydatigera lyncis* (Skinker, 1935).
Microtus californicus, California Vole.—*Andrya macrocephala* Douthitt, 1915.
Phenacomys longicaudus, Tree Phenacomys.—*Andrya* sp.
Rattus rattus, Black Rat.—*Hymenolepis diminuta* (Rudolphi, 1819).
R. norvegicus, Norway Rat.—*Hymenolepis diminuta* (Rudolphi, 1819); *H.* sp.; larva of *Hydatigera taeniaeformis* Batsch, 1786.

LAGOMORPHA

- Lepus californicus*, Blacktail Jackrabbit.—*Cittotaenia pectinata* Goeze, 1782; larva of *Multiceps* sp.
Sylvilagus audubonii, Desert Cottontail.—*Cittotaenia variabilis* Stiles, 1895; *Raillietina* (*Paroniella*) *retractilis* Stiles, 1925; larva of *Taenia pisiformis* Bloch, 1780.
S. bachmani, Brush Rabbit.—*Cittotaenia pectinata* Goeze, 1782; *Raillietina* (*Paroniella*) *retractilis* Stiles, 1925.
S. idahoensis, Pigmy Rabbit.—*Raillietina* (*Paroniella*) *retractilis* Stiles, 1925.
Ochotona princeps, Pika.—*Schizorchis ochotonae* Hansen, 1948.

CHIROPTERA

- Antrozous pallidus*, Pallid Bat.—*Oöchoristica* sp.
Myotis yumanensis, Yuma Myotis.—*Hymenolepis* sp.

CARNIVORA

- Mustela frenata*, Longtail Weasel.—*Taenia tenuicollis* Rudolphi, 1819.
Spilogale gracilis, Spotted Skunk.—*Oöchoristica pedunculata* Chandler, 1952; *O. oklahomensis* Peery, 1939; *Mesocestoides corti* Hoeppli, 1925.
Mephitis mephitis, Striped Skunk.—*Mesocestoides corti* Hoeppli, 1925; *Oöchoristica procyonis* Chandler, 1942.
Procyon lotor, Raccoon.—*Oöchoristica procyonis* Chandler, 1942.
Urocyon cinereoargenteus, Grey Fox.—*Mesocestoides corti* Hoeppli, 1925; *Taenia larvaei* Hamilton, 1940; *Hydatigera laticollis* (Rudolphi, 1819).
Urocyon littoralis, Littoral Fox.—*Mesocestoides corti* Hoeppli, 1925.
Vulpes macrotis, Kit Fox.—*Mesocestoides corti* Hoeppli, 1925; *Mesogyna hepatica* Voge, 1952; *Dipylidium caninum* (Linnaeus, 1758).
Canis latrans, Coyote.—*Mesocestoides corti* Hoeppli, 1925; *M. kirbyi* Chandler, 1944; *Hydatigera lyncis* (Skinker, 1935); *Multiceps serialis* (Gervais, 1847).
Lynx rufus, Bobcat.—*Mesocestoides corti* Hoeppli, 1925; *Hydatigera lyncis* (Skinker, 1935); *H. macrocystis* Diesing, 1850; *H. laticollis* (Rudolphi, 1819).

ARTIODACTYLA

Odocoileus hemionus, Mule Deer.—*Moniezia expansa* Rudolphi, 1810; *M. benedeni* Moniez, 1879; *Thysanosoma actinioides* Diesing, 1835; *Helictometra giardi* Moniez, 1879; larva of *Taenia hydatigena* Pallas, 1766; larva of *T. ovis* Cobbold, 1860; larva of *T. omissa* Lühe, 1910; larva of *Multiceps serialis* (Gervais, 1845).

Parasite List

ANOPLOCEPHALIDAE

Andrya macrocephala [= *Paranoplocephala kirbyi* Voge, 1948].—*Microtus californicus*.—Sharp Park, San Mateo Co., and Marin Co. (Voge, 1948a).

A. neotomae.—*Neotoma fuscipes*.—Hastings Reservation, Monterey Co. (Voge, 1946) and Strawberry Canyon, Alameda Co.*

A. primordialis.—*Neotoma fuscipes*.—Los Angeles Co.*

A. sp.—*Neotoma fuscipes*.—Hastings Reservation, Monterey Co. (Linsdale and Tevis, 1951).

A. sp.—*Phenacomys longicaudus*.—One-half mi. E. Stewarts Point, Sonoma Co.*

Cittotaenia pectinata.—*Lepus californicus*.—Lake Co.,* and Los Angeles Co.* *Sylvilagus bachmani*.—Berkeley, Alameda Co.*

Cittotaenia variabilis.—*Sylvilagus audubonii*.—San Joaquin Experimental Range, Madera Co. (Herman and Jankiewicz, 1943).

Moniezia expansa.—*Odocoileus hemionus*.—Hopland Field Station, Mendocino Co. (Longhurst and Douglas, 1953) and Lake Co.*

M. benedeni.—*Odocoileus hemionus*.—Hopland Field Station, Mendocino Co. (Longhurst and Douglas, 1953).

Thysanosoma actinioides.—*Odocoileus hemionus*.—Lake Co.* Hopland Field Station, Mendocino Co. (Longhurst and Douglas, 1953) and Hastings Reservation, Monterey Co. (Linsdale and Tomich, 1953).

Schizorchis ochotomae.—*Ochotona princeps*.—Bodie, Mono Co.*

LINSTOWIIDAE

Oöchoristica deserti.—*Citellus leucurus*.—Victorville, San Bernardino Co. (Millemann, 1953); *Dipodomys merriami*.—Victorville, San Bernardino Co. (Millemann, 1953).

O. procyonis.—*Procyon lotor*.—Alameda Co.* *Mephitis mephitis*.—Grey Lodge Refuge, Butte Co.*

O. pedunculata.—*Spilogale gracilis*.—Hastings Reservation, Monterey Co.*

O. oklahomensis.—*Spilogale gracilis*.—Los Angeles Co.*

O. sp.—*Antrozous pallidus*.—San Luis Obispo Co.*

CATENOTAENIIDAE

Catenotaenia linsdalei.—*Thomomys bottae*.—Hastings Reservation, Monterey Co. (McIntosh, 1941) and Berkeley, Alameda Co.*; *Dipodomys venustus*, *Perognathus californicus*.—Hastings Reservation, Monterey Co. (Voge, 1948b); *Dipodomys heermanni*.—San Joaquin Experimental Range, Madera Co. (Voge, 1948b); *D. panamintinus*, *D. merriami*. Victorville, San Bernardino Co.*; *Perognathus parvus*.—Jackass Springs, Inyo Co.*

C. californica (= *linsdalei*?).—*Dipodomys panamintinus*, *D. mohavensis*.—San Bernardino Co. (Dowell, 1953); *D. morroensis*.—Morro Bay (Dowell, 1953).

C. sp.—*Citellus leucurus*.—San Bernardino Co.*

MESOCESTOIDIDAE

Mesocestoides corti [*Mesocestoides variabilis* Mueller, 1927; *Mesocestoides manteri* Chandler, 1942]; (Voge, 1955).—*Urocyon cinereoargenteus*.—Mendocino Co. (Mueller, 1927), Los Angeles Co.* and Hastings Reservation, Monterey Co. (Voge, 1953a); *U. littoralis*.—Santa Rosa Island (Voge, 1953a); *Vulpes macrotis*.—Pinto Basin, Riverside Co. (Voge, 1953a); *Canis latrans*.—Hastings Reservation, Monterey Co. (Voge, 1953a); *Lynx rufus*.—Hastings Reservation, Monterey Co. (Voge, 1953a); *Mephitis*

* Indicates new record for California.

- mephitis*. Mendocino County, (Mueller, 1927) and Greylodge Refuge, Butte Co.*
Spilogale gracilis. Mendocino Co. (Mueller, 1927).
M. kirbyi.—*Canis latrans*.—Hastings Reservation, Monterey Co. (Chandler, 1944).
M. latus.—*Didelphis virginiana*.—Berkeley, Alameda Co. (Voge, 1955).
Mesogyna hepatica.—*Vulpes macrotis*.—Pinto Basin, Riverside Co. (Voge, 1952b).
 Larva of *Mesocestoides* sp.—*Peromyscus boylei*.—Miguel Meadow, Yosemite National Park, (Webster, 1949).

HYMENOLEPIDIDAE

- Hymenolepis parva*.—*Sorex pacificus*.—Twelve mi. S. Korb, Humboldt Co.*; *S. palustris*.—Red's Meadow, Madera Co.*; *S. sp.*—Red's Meadow, Madera Co.*; *S. vagrans*.—Skyline Boulevard, San Mateo Co.*; *S. ornatus*.—Clear Lake Park, Lake Co.*; *S. trowbridgei*.—Point Arena, Mendocino Co.*
H. parvissima.—*Sorex bendirei*.—Seven mi. E. Bayside, Humboldt Co. (Voge, 1953b); *S. palustris*.—Red's Meadow, Madera Co.*; *S. ornatus*.—Clear Lake Park, Lake Co.*; *S. trowbridgei*.—Point Arena, Mendocino Co.*
H. sphenomorphus.—*Sorex* sp.—Red's Meadow, Madera Co.*
H. citelli.—*Citellus beecheyi*.—Hastings Reservation, Monterey Co. (Linsdale, 1946) and Berkeley, Alameda Co.*; *C. nelsoni*.—Panoche Pass, San Benito Co. (Voge, 1952a); *Reithrodontomys megalotis*.—Alameda Co.*; *Thomomys bottae*.—Hastings Reservation, Monterey Co.*
H. horrida.—*Perognathus californicus*, *Peromyscus truei*, *P. boylei*.—Hastings Reservation, Monterey Co. (Voge, 1952a); *P. californicus*.—Hastings Reservation, Monterey Co. and Swanton, Santa Cruz Co. (Voge, 1952a).
H. diminuta.—*Rattus norvegicus*.—San Mateo Co., and Oakland, Alameda Co. (Voge, 1952a).
H. sp.—*Thomomys bottae*.—Berkeley, Alameda Co.*
H. sp.—*Myotis yumanensis*.—Eldorado Co.*
H. sp.—*Rattus norvegicus*.—Oakland, Alameda Co.*

DAVAINEIDAE

- Railletina (Paroniella) retractilis*.—*Sylvilagus audubonii*.—San Joaquin Experimental Range, Madera County, (Herman and Jankiewicz, 1943); *S. bachmani*.—Berkeley, Alameda Co.*; *S. idahoensis*.—Mono Co.*
R. (Paroniella) sp.—*Neotoma fuscipes*.—Hastings Reservation, Monterey Co. (Linsdale and Tevis, 1951) and Clearlake Park, Lake Co.*

DILEPIDIDAE

- Dipylidium caninum*.—*Vulpes macrotis*.—Pinto Basin, Riverside Co.*
Choanotaenia peromysci.—*Peromyscus maniculatus*.—Alameda Co.*
Liga soricis.—*Sorex pacificus*.—One mile S. of Bayside, Humboldt Co.*

TAENIIDAE

- Taenia tenuicollis*.—*Mustela frenata*.—Alameda Co.*
T. laruei (scolices only).—*Urocyon cinereoargenteus*.—Grey Lodge Refuge, Butte Co.*
Hydatigera lynx.—*Canis latrans*.—Hastings Reservation, Monterey Co.*; *Lynx rufus*.—Marin Co.* and California (Skinker, 1935).
H. macrocystis.—*Lynx rufus*.—Marin Co.*
H. laticollis.—*Urocyon cinereoargenteus*.—Marin Co.*; *Lynx rufus*.—California (Skinker, 1935).
Multiceps serialis.—*Canis latrans*.—Hastings Reservation, Monterey Co.*
 Larva of *Multiceps serialis*.—*Odocoileus hemionus*.—Hastings Reservation, Monterey Co. (Linsdale and Tomich, 1953).
 Larva of *Multiceps* sp.—*Lepus californicus*.—Lake Co.*
 Larva of *Taenia ovis*.—*Odocoileus hemionus*.—Hopland Field Station, Mendocino Co. (Longhurst and Douglas, 1953).
 Larva of *Taenia hydatigena*.—*Odocoileus hemionus*.—Hopland Field Station, Mendocino Co. (Longhurst and Douglas, 1953) and Hastings Reservation, Monterey Co. (Linsdale and Tomich, 1953).

- Larva of *Taenia omisa*.—*Odocoileus hemionus*.—Hastings Reservation, Monterey Co. (Linsdale and Tomich, 1953).
- Larva of *Taenia pisiformis*.—*Sylvilagus audubonii*.—San Joaquin Experimental Range, Madera Co. (Herman and Jankiewicz, 1943).
- Larva of *Taenia* sp.—*Citellus beecheyi*.—Hastings Reservation, Monterey Co. (Linsdale, 1946).
- Larva of *Hydatigera lyncis*.—*Neotoma fuscipes*.—Hastings Reservation, Monterey Co. (Linsdale and Tevis, 1951).
- Larva of *Hydatigera taeniaeformis*.—*Rattus norvegicus*.—Oakland, Alameda Co.* and San Francisco (McCoy, 1909).
- Cysticercus portolae*.—*Citellus beecheyi*.—California (Wellman and Wherry, 1910) and Hastings Reservation, Monterey Co. (Linsdale, 1946).

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