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## REPORT ON OREGON WOOD TICK SURVEYS

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### INTRODUCTION

Wood tick surveys were begun in Oregon by the Vector Control Section in 1967 in cooperation with the Rocky Mountain Laboratory, Hamilton, Montana, in an attempt to delineate the distribution of tick-borne disease entities, tick species distribution, and seasonal occurrence in Oregon wood tick populations, since this information was not previously available. With the increase in outdoor recreational activities throughout the state, tick-borne disease problems could increase along with annoyance factors arising from tick attachments to humans.

Survey efforts have been directed toward the three major Ixodid tick species found in Oregon that readily attach to man, i.e., Dermacentor andersoni, Dermacentor occidentalis, and Ixodes pacificus. Additionally, attempts have been made to collect Argasid ticks of the Ornithodoros genera associated with tick-borne relapsing fever cases, but without success to date, due to the behavior patterns of this group.

### SURVEY METHODS

Tick surveys have been conducted in all areas of Oregon seasonally, dependent upon the tick species involved. Actual collecting sites are determined by observing certain ecological indicators of tick habitat with additional survey emphasis being placed in and about outdoor recreational areas.

Flagging has been the principal method used to collect Ixodid tick species for testing. A limited number of this group were obtained from small animals live-trapped in the plague surveillance program.

All ticks submitted for testing are collected alive, placed in a "humidity vial" and sent to the Rocky Mountain Laboratory where they are screened for causative agents.

## SURVEY RESULTS

During the initial year of 1967, tick pools were screened for all organisms, i.e., viral, rickettsial and bacterial. The first year, tularemia, Rocky Mountain spotted fever and Colorado tick fever were all found from Oregon tick pools. From 1968 to the present date, only viral isolations were attempted with the result that only the Colorado tick fever virus has been isolated each year from our tick pools. However, frozen Ixodes pacificus, 1970 pools from the Tillamook Burn area in Oregon's coast range are currently being screened for Rickettsia agents, since a mild strain of the Rocky Mountain spotted fever organism was isolated from an Ixodes pacificus pool collected in this area in 1967.

Positive tick isolates occurred in fifteen of Oregon's thirty-six counties (see attached chart and map). As the survey continues, tick pools from other counties will undoubtedly prove to have causative agents for human tick-borne diseases.

Dermacentor andersoni occurs commonly in selected areas east of the Cascade Range extending along the Columbia River Gorge to west of Hood River. This species has been collected from February to July.

Dermacentor occidentalis is found from the California border into Lane County, west of the Cascade Range to the Coast. This species is active from January to July.

Ixodes pacificus ranges in all of Oregon west of the Cascade Range and extends up the Columbia River Gorge into Wasco County where it coexists with Dermacentor andersoni. This tick species can be found throughout the year in limited areas with peak populations occurring in late fall and early spring in Oregon.

Two notable findings during this four year survey were:

1. The isolation of the Rocky Mountain spotted fever organism from an Ixodes pacificus pool in the Coastal Range of Tillamook County.
2. The determination of the Colorado tick fever virus in a Dermacentor occidentalis pool in Douglas County.

CONCLUSION

These surveys will continue as time and workload of the Vector Control Section permits.

We wish to express our appreciation to the National Institute of Allergy and Infectious Diseases, Rocky Mountain Laboratory, Hamilton, Montana, for their support in performing the necessary laboratory screening tests on the tick pools submitted from Oregon.

OREGON TICK POOL ISOLATIONS

BY YEAR	Percent Positive	Colorado Tick Fever	Rocky Mountain Spotted Fever	Tularemia
1967	29.0	5	1	1
1968	6.9	8		
1969	13.5	8		
1970	14.9	14		
<u>BY TICK SPECIES</u>				
<u>Dermacentor andersoni</u>		30		
<u>Dermacentor occidentalis</u>		5		1
<u>Ixodes pacificus</u>			1	
<u>BY COUNTY</u>				
	Percent Positive			
Baker	21.0	3		
Curry	8.3			1
Douglas	4.3	1		
Grant	14.8	4		
Harney	16.6	1		
Hood River	25.0	1		
Jackson	11.1	3		
Josephine	5.8	1		
Klamath	30.4	7		
Lake	42.8	12		
Morrow	33.3	1		
Tillamook	7.1		1	
Union	14.2	1		
Wallowa	25.0	1		
Wasco	7.1	1		

POSITIVE TICK ISOLATES

1967 - 1970

