



EUROPEAN PINE SHOOT MOTH SURVEY
INTERIOR BRITISH COLUMBIA

1966

by

D.A. Ross, R.O. Wood, J.C. Hamilton and W.E. Molyneux
Vernon, B.C.

FOREST RESEARCH LABORATORY
VICTORIA, BRITISH COLUMBIA
INFORMATION REPORT BC-X-6

DEPARTMENT OF FORESTRY
JULY, 1966

EUROPEAN PINE SHOOT MOTH SURVEY,

INTERIOR BRITISH COLUMBIA

1966

by

D. A. Ross, R.O. Wood, J.C. Hamilton and W.E. Molyneux

(Vernon, B. C.)

FOREST RESEARCH LABORATORY

VICTORIA, BRITISH COLUMBIA

INFORMATION REPORT BC-X-6

DEPARTMENT OF FORESTRY

JULY, 1966

EUROPEAN PINE SHOOT MOTH SURVEY,

INTERIOR BRITISH COLUMBIA

1966

D. A. Ross, R. O. Wood, J. C. Hamilton and W. E. Molyneux¹

INTRODUCTION

In 1966, for the second successive year, members of the Plant Protection Division, Canada Department of Agriculture and the Forest Entomology Laboratory, Canada Department of Forestry, made a joint survey of European pine shoot moth, *Rhyacionia buoliana* (Schiff.), in the interior of British Columbia.

In April, officers of both departments met several times to discuss and plan the survey. Mr. Hamilton assumed responsibility for newspaper publicity and Mr. Wood, radio and television interviews. The division of other responsibilities followed those worked out in the preceding survey (Hamilton *et al.* 1965).

The Plant Protection Division again provided two survey assistants: J. A. Kean and J. Shephard. Mr. Kean aided W. E. Molyneux of the Plant Protection Division in the survey of ornamental pines in home gardens and Mr. Shephard aided D. G. Lund of the Forest Entomology Laboratory in examination of nursery and native trees.

The street-by-street survey of ornamental pines in home gardens began on May 2 at Osoyoos, progressed northward in the Okanagan Valley, and terminated on June 10 in Kamloops. The examination of nursery and native ponderosa pine, *Pinus ponderosa* Laws., and lodgepole pine, *Pinus contorta* Dougl. var. *latifolia* Engelm., also began on May 2 at Osoyoos and progressed to Kamloops by May 26. Two Christmas tree plantations of Scots pine, *Pinus sylvestris* L., one at Rutland and one at Westbank were surveyed in mid-May. Nurseries in the south Okanagan, and the Christmas tree plantations, were re-examined on May 30 and 31.

RESULTS

Survey of Ornamental Plantings

Sixty-five man days were spent examining 4,576 pine trees on 1,544 premises; 2,360 of these trees were newly planted or had not been

¹Respectively, Officer-in-charge and Forest Research Technician, Forest Entomology Laboratory, Vernon, B. C.; Officer-in-charge and Plant Protection Officer, Plant Protection Division, Penticton, B. C.

examined in 1965. The distribution of these ornamentals in the Okanagan-Kamloops area is shown in Table 1 and Map 1. The precise location of each tree has been recorded and filed at the Penticton office.

No evidence of pine shoot moth was present on ornamental pines in home gardens in 1966.

Survey of Nurseries, Plantations and Natural Stands

Forty-two man days were spent examining 9,818 ornamental pine trees in nurseries and plantations, and 7,377 native trees within or bordering settlements.

Table 2 gives the location, the number and species of pine inspected, the stage of insect present and the origin of the infested stock in the surveyed nurseries. The distribution of pines inspected in nurseries and plantations is shown on Map 1.

Evidence of R. buoliana was found at three locations (Map 2). Two damaged tips were collected from Scots pine, Pinus sylvestris wateri at the Okanagan Gardens Nursery in Vernon; this stock was purchased from a Westbank nursery in 1965. One damaged pupa, a Rhyacionia probably buoliana, was found on Austrian pine, P. nigra Arnold (Sardis nursery stock) at Albert's Nursery, also in Vernon. Two larvae were collected from P. sylvestris in a Christmas tree plantation near Westbank; these trees were imported from Ontario in 1966 without notification to the Plant Protection Division of the shipment.

The location of plots in native stands, numbers of trees examined and the insects or insect damage collected at each plot are listed in Table 3; distribution of the plots is shown on Map 3. No specimens of R. buoliana, or damage caused by this pest, were found. However, there were collections of other shoot-infesting insects, among them a native species of Rhyacionia and three species of Dioryctria. Cecidomyiidae activity had deformed ponderosa pine shoots in many areas.

CONCLUSIONS AND RECOMMENDATIONS

No European pine shoot moths were found on stock imported from overseas in 1966. The publicity given to the hazards of the European pine shoot moth, however, has made nurserymen and home owners aware of the pest. As a result, some infested shoots may have been removed and destroyed before the survey was made. This should help eradicate the insect; however, it would hamper a true assessment of the possibilities of accidental introductions of the insect from overseas. It is recommended again that all imported pines be grown under quarantine for one year before release for sale.

Two larvae were found near Westbank on plantation Scots pine

that had been brought, unknown to the Plant Protection Division, from Ontario in the spring of 1966. This further emphasizes the need for the control of inter-provincial shipments of pine trees.

Two pine shoot moth larvae were found in Vernon nurseries, one of them was on a Scots pine brought from the Coast in 1966 (Sardis). This indicates a need for preventing movement of ornamental pines from the Coast where the pest is established to the Interior of the Province.

Since it is difficult, through legislation alone, to prevent the spread of the European pine shoot moth, immediate steps should be taken to plan an educational program to discourage the transplanting of pine stock from the Coast or outside the Province to the Interior.

It is suggested that the intensive survey of Interior nurseries and pine plantations be repeated in 1967. The survey of native pine trees and pines planted in home gardens may be reduced.

SUMMARY

In 1966 over 100 man days were spent by officers of the federal departments of Agriculture and Forestry in surveying the southern interior of British Columbia for European pine shoot moth. About 14,400 ornamental and 7,377 native pines were examined.

Damage attributed to the shoot moth was discovered at a Vernon nursery on Austrian pine obtained at a Westbank nursery on Okanagan Lake and one pupa was collected at another Vernon nursery on a Scots pine brought in 1966 from Sardis on the Coast. Two larvae were collected in a Christmas tree plantation near Westbank on Scots pine imported from Ontario in 1966. No evidence of infestation was observed on native pines.

It is recommended that imported pines be grown under quarantine for one year. Inter-and intra-provincial control of pine shipments should be established. Growing pine from seed in Interior British Columbia should be encouraged. An educational approach is recommended.

A reduced survey program is suggested for 1967.

ACKNOWLEDGMENTS

Appreciation is tendered to local newspaper, radio and television stations in the Okanagan Valley and in Kamloops for their assistance in obtaining good public cooperation. Messrs. J. G. Arrand and Robert Wilson of the Provincial Department of Agriculture in Vernon and Kelowna helped by arranging television time and presenting publicity material.

REFERENCES

- Hamilton, J. C., W. E. Molyneux, R. O. Wood, and D. A. Ross. 1965. Report on the European pine shoot moth survey, Interior British Columbia, 1965. Dep. For. Can., For. Ent. Lab., Vernon. Inform. Rep. 16 pp.
- Harris, J.W.E., D. S. Ruth, E. Fridell, and C. A. Gibson. 1965. European pine shoot moth survey south coastal British Columbia, 1965. Dep. For. Can., For. Res. Lab., Victoria. Inform. Rep. 9 pp.

July 14, 1966
Vernon, B. C.

Table 1

Location and Number of Pine Trees in Home Gardens Examined
for European Pine Shoot Moth

Okanagan - Kamloops, 1966

Location	Mugho	Scots	Austrian	Other exotics	Native pines	Totals	No. new trees found
Osoyoos	68	56	14	8	59	205	60
Oliver	107	28	15	7	21	178	80
Penticton	698	87	150	20	239	1,194	446
Summerland	66	6	15	10	69	166	39
Westbank	73	9	-	3	19	104	87
Kelowna	377	99	42	25	252	795	479
Rutland	19	-	5	2	17	43	21
Vernon	467	35	9	70	130	711	305
Kamloops	617	301	7	35	220	1,180	843
Totals	2,492	621	257	180	1,026	4,576	2,360

Table 2

Number and Species of Ornamental Pines in Nurseries Examined for
European Pine Shoot Moth, Okanagan - Kamloops Area 1966

Location	No. pines examined				No. specimens collected	Origin of stock
	Scots	Austrian	Mugho	Others		
Oliver Nurseries	32	23	204	22		
Wilcox Nursery	79	12	38	2		
Penticton						
Westside Gardens		2	8			
Schinz Nursery	40	3	31			
Kean's Nursery		1	17			
Safeway Store			21			
Summerland						
McLaughlan Nursery		2	20			
Monashee Nursery	1,054		1,100			
Gallop's Nursery		2	11	12		
Schmidt's Nursery			83			
Westbank						
Byland's Nursery	318	2	1,815	4		
Plantation	2,832				2 (larvae)	Ontario, 1966
Kelowna						
Kelowna Nursery	50	105	151			
Burnett's Nursery	4		15	1		
Stewart's Nursery			290			
Rutland						
Plantation	820					
Vernon						
Albert's Nursery		3+	14	13	1 (pupa)	Connor's Nursery Sardis, 1966
Okanagan Nursery	14	105	139	24#	2 (shoot damage)	Byland's Nursery, Westbank, 1965
Rice Nursery	7	6				
Kamloops						
Westsyde Nursery			183			
Experimental Farm	49	11	12	12		
Totals	5,299	277	4,152	90		

+ P. nigra

P. sylvestris wateri

Table 3

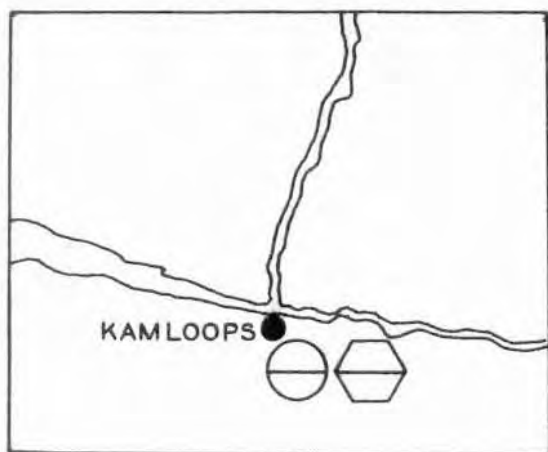
Location and Number of Pine Trees Examined for
European Pine Shoot Moth in Native Stands
Okanagan - Kamloops, 1966

Plot location	No. pine trees examined		Insect causing similar damage	
	Ponderosa	Lodgepole	<u>Dioryctria</u> sp.	Other
Oliver				
3 miles north	100			
Cherry Grove Golf Course	730			
Oliver Golf Course	150			
Gallagher L.	150			
Vaseaux L., south of	100			
Okanagan Falls	100			
Kaleden	150			
Penticton				
Skaha L. Park	67		x	
Welby St. & Dawson Av.	100		x	
East of hospital	100		x	
3 mi. northeast of	125		x	
Duncan Ave.	120		x	
Summerland				
Experimental Farm	365		x	
Paradise Flats	120		x	
Prairie Valley	100			
Ball Park	70			
Garnet Valley	100			
Peachland				
Antlers Park	61			
3 m. east of	88			
Trepanier Beach Rd.	108			
Westbank				
Glenrosa Rd.	100		x	
		100		Olethreutidae
Shannon L.	75		x	
North west of	100		x	
South of	80			
West of		53		
East of	100			<u>D. cambicola</u>
Windmill Cafe	225		x	
N. of Bylans Nursery	100			
Mi. 5, Westside	90			
Mi. 1.5, Bear Cr. Rd.	100			
Kelowna				
1 mi. west of L. bridge	100		x	
Lakeside Drive	85			
Mi. 9, Shute L. Rd.	100			
Saucier Rd.	100			
Field Rd.	100		x	<u>Rhyacionia</u> sp. (native)

(continued next page)

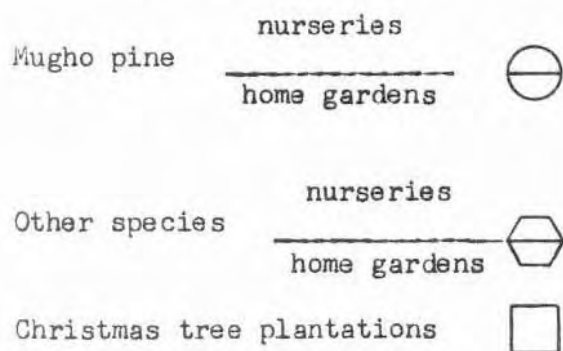
Table 3 continued

Plot location	No. pine trees examined		Insect causing similar damage	
	Ponderosa	Lodgepole	<u>Diorycetria</u> sp.	Other
Kelowna				
Joe Rich Rd.	100		x	
Scotty Cr. Rd.	20			
Poplar Point Rd.	100		x	<u>D. zimmermanni</u>
North Bench Rd.				<u>Rhyacionia sub-</u> <u>cervinana</u>
Knox Mt.	30			<u>D. zimmermanni</u>
Cemetery	100			<u>D. cambiicola</u>
Railroad overpass Hwy.97	75			
McKinley Rd.	100		x	
Rutland	35			
Duck Lake, Winfield	100			
Davidson Rd., Okanagan Centre	50			
Beaver Lake Rd.	100			
Woodsdale Rd. Winfield	50			
Okanagan Centre Rd.	100			
Northeast Bench, Oyama	100			
Oyama	100			
Commonage Road turnoff	100			
West of Kalamalka L.	100			
Okanagan Landing	25			
North of Okanagan Land.	25			
Cosens Bay	100			
BX Rd. Vernon	35			
Jct. Westsyde Rd. & Hwy. 97	100			
Near Hoover sawmill	100			
Mile 1, Beau Park Rd.	100			
Caesars Point, Okanagan Lake	100			
Kamloops				
Campbell Range Rd.	100			
North of, on Hwy. 5	100			
North of Westsyde	100			
Savona	100			<u>D. zimmermanni</u>
Southeast of Salmon Arm		120		
		also 10 white pine		
South of golf course, Salmon Arm		130		<u>Petrova albica-</u> <u>pitana</u>
Total trees examined	6,964	403 + 10 white pine		

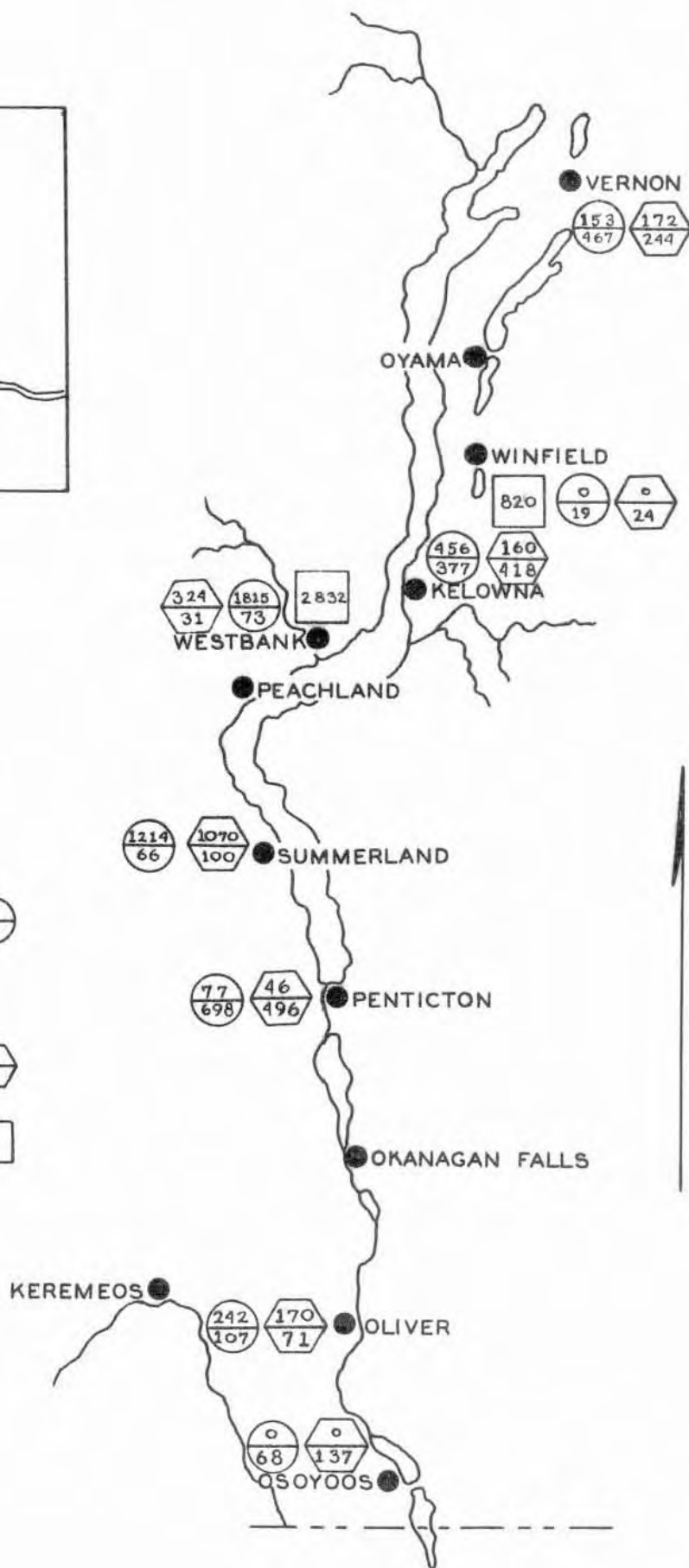


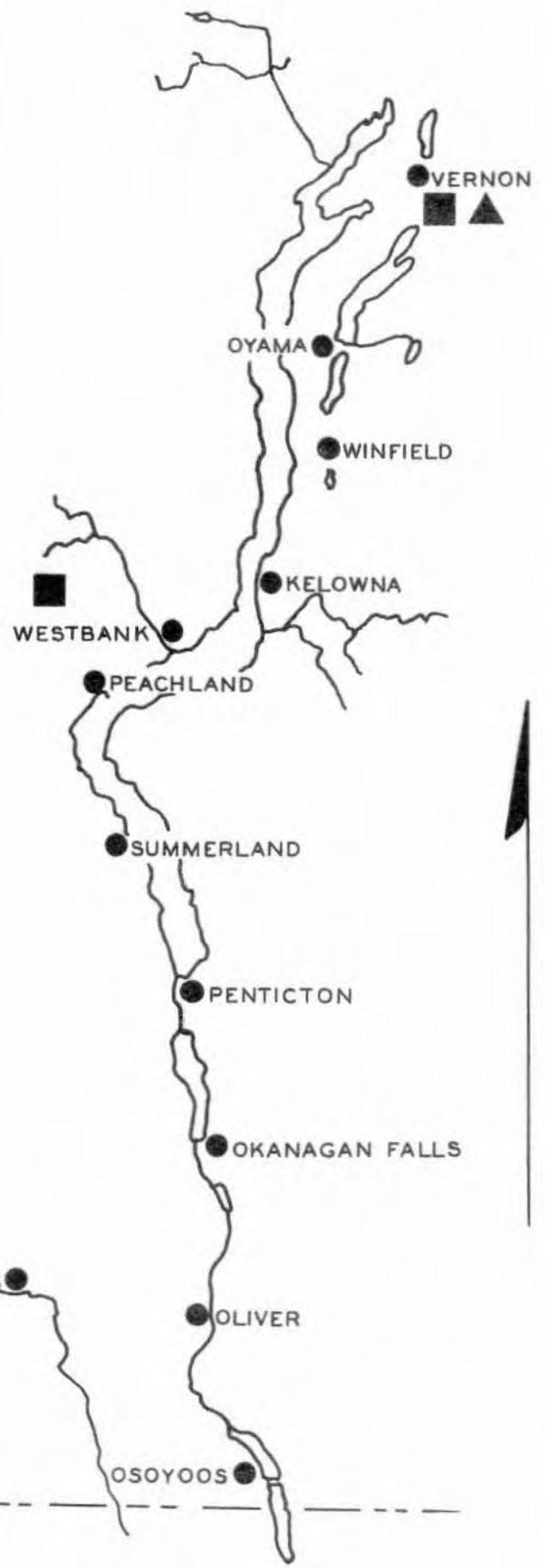
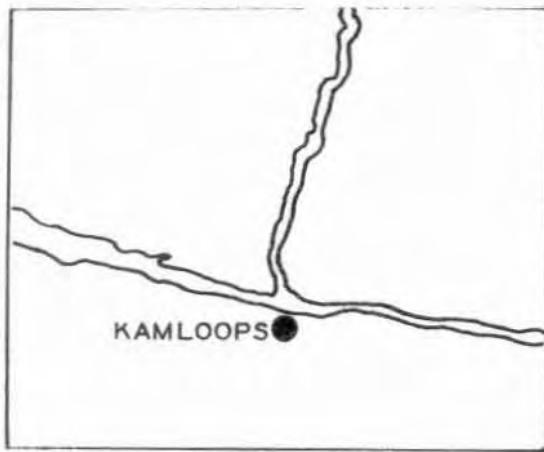
MAP 1

DISTRIBUTION OF ORNAMENTAL
PINES, OKANAGAN-KAMLOOPS
AREA, 1966



Scale 1" = 10 miles

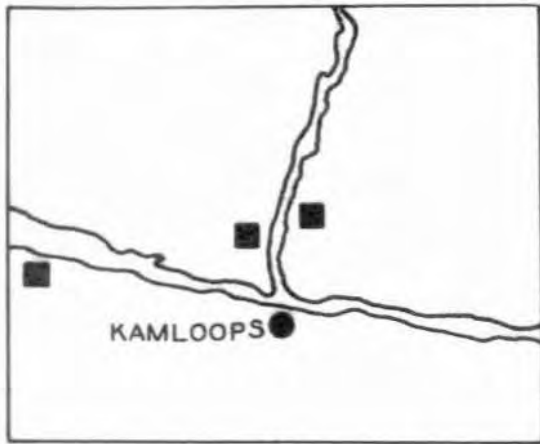




MAP 2
 LOCATION OF
 EUROPEAN PINE SHOOT MOTH
 COLLECTIONS
 1966

Shoot moth ■
 Shoot damage only ▲

Scale 1" = 10 miles



MAP 3

DISTRIBUTION OF SURVEY PLOTS
FOR EUROPEAN PINE SHOOT MOTH
IN NATIVE PINES IN OKANAGAN-
KAMLOOPS AREA, 1966

Ponderosa Pine ■
Lodgepole pine ▲
Western white pine ◆

Scale 1" = 10 miles

