

PREHISTORIC SETTLEMENT PATTERNS IN THE COLUMBIA/  
LAKES REGION OF SOUTHEASTERN BRITISH COLUMBIA AND  
NORTHEASTERN WASHINGTON.

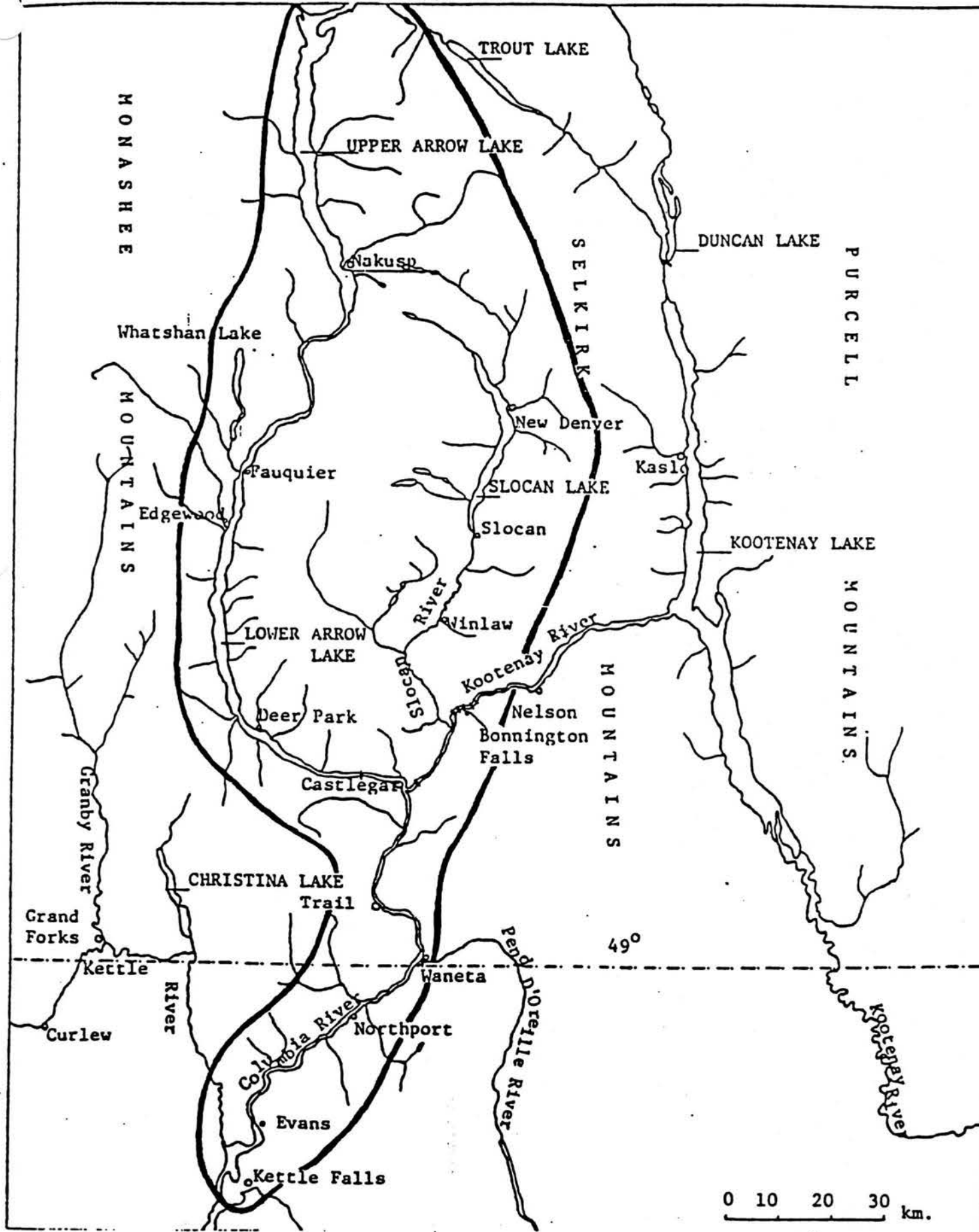
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ABSTRACT

This paper considers patterns and systems of prehistoric settlement in the Columbia/Lakes region of southeastern British Columbia and northeastern Washington. The paper is primarily a study of winter habitation or pit house sites and is meant to be a regional study concerned with looking at environmental regularities in the placement and spacing of sites. In order to establish an environmental and cultural background, environmental variables (i.e. topography, climate, etc.) and a brief ethnographic sketch are presented prior to the settlement data. Some of the data which appears in this paper is based on a previous study by the writer (Mohs 1982). Where discrepancies exist, please disregard the earlier work.

FIGURE 1 THE COLUMBIA/LAKES REGION STUDY AREA



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FISH AND WILDLIFE

The Columbia/Lakes region provides a diversity of habitat for a wide range of fauna. White-tailed deer, mule deer, elk, moose, mountain caribou, mountain goat, black bear, grizzly bear and cougar are important big game species. Smaller mammals, particularly fur bearers, are also plentiful. Common species include: beaver, mink, otter, marten, wolverine, coyote, squirrel, racoon, fisher, lynx, bobcat and weasel. Important waterfowl and upland game birds include: grebes, mallards, Canada geese, whistling swans, ruffed grouse, spruce grouse, blue grouse and ptarmigan (Sigma Resource Consultants Ltd. 1975, Woods 1981).

Snow depth and topography are the main factors limiting ungulate distribution within the Columbia/Lakes region although precipitation and forest cover are contributing factors. Low elevation lands (up to 1100 meters) provide range for wintering white-tailed deer, mule deer, and small numbers of elk and moose while higher elevation sites (between 1525-2300 meters) provide habitat for small numbers of caribou. In addition, scattered populations of mountain goat and grizzly bear inhabit alpine and subalpine areas while black bears are common throughout the watershed (ibid).

Suitable winter range for ungulates is not very extensive and most occurs in the southern half of the region. Most of this range is rated Class 3 or 4 capability with slight to moderate limitations for ungulates. Highest capability (Class 2W) is given to south facing slopes. In these areas, Douglas fir and larch are dominant conifers in open stands with a rich understorey of grasses, forbes and shrubs. The snowpack in these areas is generally light.

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The Deer Park and Pend d'Oreille areas are the two most extensive portions within the region having high capability (Class 2W) winter range for deer and elk. Numerous other areas of high capability deer winter range exist but in smaller discontinuous units (i.e. along the Arrow Lakes basin). Significant wintering areas within the Slocan and lower Kootenay watershed are restricted to south and west facing slopes. Mixed 2W and 3W potential winter range classes are situated along the north side of the Kootenay River upstream from South Slocan, the Perry Ridge at Vallican, and Lemon Creek areas. Class 3 range is generally distributed elsewhere in the valley bottoms (Woods 1981). It is not possible to offer an estimate of deer and elk numbers in the study area. However, it is probable that several thousand deer and several hundred elk would be a reasonable approximation.

The northern part of the region (i.e. north of Burton) lies within the Wetter Interior Hemlock forest zone which is characterized by dense forest cover and deep snowpack, conditions which severely limit the capability of this area to sustain deer and elk populations. Moose and caribou are dominant ungulates, both of which depend to a large degree on timbered areas of winter range. Generally, moose occupy the lower south and west facing slopes of major valleys and the more extensive areas of riparian habitat in river bottoms during winter. They tend to occupy timber in such areas during periods of deep snow. Caribou generally winter in subalpine timber stands. During the winter caribou rely on tree growing lichen for food. These lichens are available only in mature forests in the subalpine zone. The locations of moose and caribou winter ranges are not well known, nor can reasonable estimates of their numbers be

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made with existing data. It appears that their numbers would be in the hundreds only (Sigma Resource Consultants 1975, Woods 1981).

The southern portion of the region (i.e. lower Columbia River valley) is, apparently, not as productive for wildlife as the area to the north. Chance writes:

Historically, the only big game present have been deer, mainly white-tail, and bear. In the early nineteenth century even deer were not abundant and game of any kind was not plentiful. The usual smaller animals of the northern Rocky Mountains are present today such as beaver, muskrat, porcupines, martins, coyote, etc. One may suppose that past human population pressures accounted for the reported dearth of game in the last century (1977:12).

With the exception of this area, all winter habitation sites in the Columbia/Lakes region are associated with areas of potentially high ungulate productivity.

Extensive habitat for small mammals, particularly fur bearers, exists throughout the region although suitable habitat within the Arrow Lakes basin has been severely affected with the construction of the Hugh Keenleyside Dam. Today the Slocan River valley is probably the most productive area for fur bearers. They are taken along the river, bordering streams and small lakes and harvested for commercial purposes (Woods 1981).

The capability for waterfowl production is rated as Class 6 or 7 (severe to very severe limitations) throughout the region. Limitations include adverse topography, reduced marshland and excessive water depths. However, some areas, notably the upper Slocan River valley, do provide staging areas in the spring and fall for migrant and moulting birds (Woods 1981). Within the Arrow Lakes basin, nesting habitat was eliminated with the impoundment of the lakes. Prior to inundation, islands, wetlands and extensive delta format-

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ions, particularly in the Narrows between the two lakes, provided nesting habitat for a large population of Canada geese and many species of duck and functioned as staging areas for migrant and moulting birds (Sigma Resource Consultants 1975).

An extensive inventory of fish within the Columbia/Lakes region is not available at the present time. A detailed inventory of the watershed is not planned until 1984-85. However, the Fish and Wildlife Branch did conduct a preliminary survey of the Arrow Lakes in 1962 and 1963 prior to the inundation of the reservoir and identified 23 species (Peterson and Withler 1965). A minimum of 8 species have also been identified within the Slocan watershed (Gary Smythe, Fish and Wildlife Branch, personal communication). It is probable that the majority of species identified for the Arrow Lakes basin also occur throughout much of the Slocan, lower Kootenay River and Columbia River watershed. Species identified include:

<u>Common Name</u>	<u>Scientific Name</u>
mountain whitefish	<u>Prosopium williamsoni</u>
lake whitefish	<u>Coregonus clupeaformis</u>
pygmy whitefish	<u>Prosopium coulteri</u>
eastern brook trout	<u>Salvelinus fontinalis</u>
Yellowstone cutthroat trout	<u>Salmo clarki lewisi</u>
rainbow trout	<u>Salmo gairdnerii</u>
Dolly Varden char	<u>Salvelinus malma</u>
kokanee	<u>Oncorhynchus nerka</u>
burbot	<u>Lota lota</u>
white sturgeon	<u>Acipenser transmontanus</u>
largescale sucker	<u>Catostomus macrocheilus</u>
longnose sucker	<u>Catostomus catostomus</u>
bridgelip sucker	<u>Catostomus columbianus</u>
northern squawfish	<u>Ptychocheilus oregonense</u>
reidside shiner	<u>Richardsonius balteatus</u>
carp	<u>Cyprinus carpio</u>
peamouth chub	<u>Mylocheilus caurinum</u>
lake chub	<u>Couesius plumbeus</u>
leopard dace	<u>Rhinichthys falcatus</u>
longnose dace	<u>Rhinichthys cataractae</u>
prickly sculpin	<u>Cottus asper</u>
torrent sculpin	<u>Cottus rhotheus</u>
slimy sculpin	<u>Cottus cognatus</u>

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The majority of these fish are known to have been utilized by the indigenous peoples living in the area (Kennedy and Bouchard 1975). Teit (1930) records the major native freshwater fisheries at the following localities:

- (1) Arrowhead (at the head of the Upper Arrow Lake)
- (2) Nakusp (salmon and lake trout)
- (3) Faquier (kokanee)
- (4) Deer Park
- (5) near Bonnington Falls (trout)
- (6) Nelson
- (7) Slocan Lake (trout)
- (8) Trout Lake

There is strong evidence to suggest that prior to the construction of the Grand Coulee Dam on the Columbia River in 1941 (222 km. downstream from the border) that chinook salmon (Oncorhynchus tshawytscha), Sockeye salmon (Oncorhynchus nerka), steelhead (Salmo gairdneri) and Coho salmon (Oncorhynchus kisutch) ascended the Columbia River above Kettle Falls (Chance 1977:12). With regard to the salmon fishery Chance writes:

Kettle Falls, at 698 miles from the sea, may have been the second largest fishery on the Columbia River, after the Dalles (Bancroft 1883, Ray 1932). The fishing season lasted from about mid-June into October and had two peaks or heavy runs of anadromous fish, the first in late June and the second in late August (Bryant and Parkhurst 1950)...The runs of Chinook, Sockeye, and Steelhead were all heavy (Leonard A. Fulton 1970). The fish ascended the falls with the least difficulty when the water was either very high or very low. In the former case the vertical drop in the falls was reduced, while in the latter the slower current made for more resting places...Recently, as our thinking and information have improved, we have concluded that a catch of 122,500 anadromous fish weighing some 1,960,000 pounds might not have been unreasonable in good years prior to 1785 (1977:12-13).

Only two major salmon fishing sites have been identified in the ethnographic literature above Kettle Falls. These include: a barrier at the mouth of the Slocan River (Kittson 1826) and a stone fishing wier at the confluence of the Kootenay and Columbia



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Rivers (Ross 1855:164-165). Winter habitation sites are associated with both localities as well as at Kettle Falls.

Statistics are not currently available for the combined spawning tributary habitat within the region. Preliminary studies within the Arrow Lakes basin conducted in 1962 and 1963 prior to inundation of the lakes estimated that the combined tributary habitat totalled about 274,000 square meters of spawning gravel. Most of this habitat is restricted to lower reaches of side tributaries entering the Arrow Lakes (Peterson and Withler 1965). Most winter habitation sites recorded on the Arrow Lakes are associated with side tributaries classified as 'good' spawning habitat.

The resource capability of the Columbia/Lakes region for native plant food resources is very high due to the productivity and variability of the biogeoclimatic zones. Turner, Bouchard and Kennedy (1980) have identified over 60 food plants including: 21 root, 19 berry, 5 seed and nut, 5 leaf, stalk and sprout, 4 cambium and sap plants, one lichen and various species of mushrooms that were traditionally used in the diet of the Kananaskis - Colville people. The majority of these food plants are found in the Columbia/Lakes region.

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Like most native groups living in the Plateau area, the adaptive strategy of the Lakes involved winter occupancy of semi-permanent river villages and temporary summer occupancy of fishing, berrying and root digging camps. With the arrival of spring, the winter village population would disperse and family groups would move out to a succession of temporary camps where they hunted, fished and gathered for several weeks at a time. Foodstuffs obtained were dried and cached at these temporary camps until enough had been accumulated to last over the winter months. These were collected at the end of the season on return to the winter village, being transported by canoe and packing (Elmendorf 1935-36).

Ethnographic data compiled by Teit (1930) and Ray (1936) locates the major winter villages of the Lakes near the Colville salmon fishery at Kettle Falls and the majority of their temporary camps along the Columbia, lower Kootenay and Slocan valleys above Castlegar. It should be noted, however, that early historical documents indicate that prior to about 1850 the Lakes people were primarily centered in the Columbia valley region north of Castlegar (Bouchard and Kennedy 1979). This is also supported by the archaeological record (Mohs 1982, Chance 1977). Winter villages are believed to have had populations of between 50-200 individuals while summer foraging camps were comprised of small, scattered family groups (Teit 1930:211, Ray 1936:124, Elmendorf 1935-36). Based on the archaeological record, I would suggest that these figures are somewhat high for winter habitation sites and that between 35 and 100 people is a more reasonable estimate.

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The hunting focus was on deer although a wide variety of other large and small game including waterfowl and upland game birds were also taken. Hunting continued year round, although the largest hunts occurred in the fall. Deer, caribou and elk were hunted in group drives and by individual hunters and the meat obtained was shared communally (Elmendorf 1935-36). One of the more popular methods of hunting deer was by round up in the woods. Deer were encircled at night and driven to the water where they were killed by men waiting in canoes (ibid). Caribou were hunted in a similar manner with the use of dogs (Kennedy nd).

Fishing also continued year round but was most extensive between early spring and late fall (Elmendorf 1935-36). During the spring and summer the lakes and rivers of the region were fished for Dolly varden, rainbow trout, kokanee, whitefish, squawfish, sucker and sturgeon while Pacific salmon were fished between June and October (Kennedy and Bouchard 1975). The majority of freshwater fishing camps were situated on the Arrow Lakes (4 have been noted) and to a lesser extent, on the lower Kootenay and Slocan Rivers (Teit 1930). The importance of the freshwater fishery to the Lakes people is symbolized in their native name 'sngaytskstx' which means "Dolly varden people" (Bouchard and Kennedy 1979).

During the salmon run, the main encampment of the Lakes was at Hayes Island slightly northeast of Kettle Falls, where they shared the salmon harvest with the Colville People (Kennedy and Bouchard 1975:5). Important fisheries were also located near South Slocan and Castlegar. In addition, but to a much lesser

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extent, salmon were also fished on the Arrow Lakes (Teit 1930).

Food plants most depended on by the Lakes people included roots and berries. Huckleberries were the most important berry while important roots included camas, yellow lily, tiger lily, yellow bell and bitter roots (Teit 1930, Elmendorf 1935-36, and Turner, Bouchard and Kennedy 1980). Bitter roots and white camas were obtained only through trade (Teit 1930). Roots, shoots and cambium were generally collected in the spring with root collecting continuing into the summer, while berries were collected throughout the summer into the late fall. Hazelnuts were also collected in the fall (Elmendorf 1935-36).

Lakes housing has been most extensively described by Ray (1939) although references are also given by Teit (1930), Elmendorf (1935-1936) and others. Ray maintains that the Lakes constructed and utilized two types of dwellings: the earth lodge or semi-subterranean pit house and the mat lodge. He states, however, that while earth lodges were in use throughout the area in aboriginal times their use was going out of existence before white men arrived in the area. Ray describes the aboriginal pithouse of the Lakes as follows:

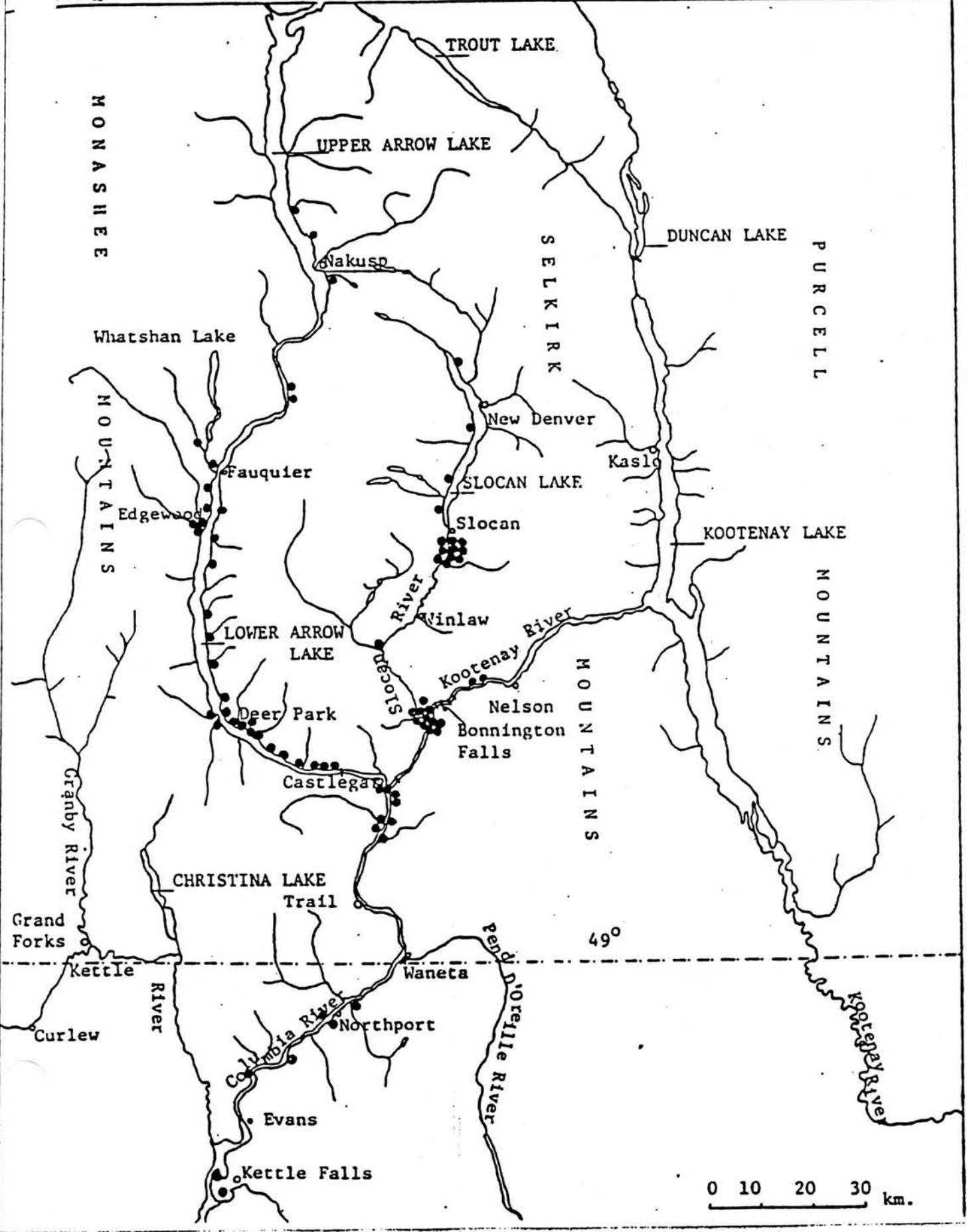
The Lakes pit lodge differs considerably from those of the Shuswap and other neighbours. A roof of radiating poles is encountered here, a type of construction dominant to the south. The central posts are likewise absent. The roof is sufficiently steep so that the radiating poles maintain their positions after being anchored in the ground and tied to the hatchway frame. The foundation poles are spaced about four feet at the base. These are crossed by horizontal purlins or hoops, both inside and out. Then sub rafters are placed and covering material added (1939:135).

The mat lodge, by comparison, was basically rectangular in shape and comprised a pole frame covered by rush or reed mats.

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When used as winter dwellings, these structures were often partially excavated into the earth for added protection. (A detailed description of the Lakes mat lodge appears in Mohs 1982.)

URE 2 PIT HOUSE DISTRIBUTION: COLUMBIA/LAKES REGION ARCHAEOLOGICAL SITES



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vers. Their distribution, however, is not continuous with adjacent regions. They appear to be isolated to a geographical area extending about 180 linear kilometers north/south by 60 linear kilometers east/west. The most easterly are found on the Kootenay River near Nelson, the most northerly on the Upper Arrow Lake near Nakusp and the most southerly on the Columbia River at Kettle Falls.

Few pit house sites have been recorded between Kettle Falls and Grand Coulee, 140 km. downstream along the Columbia (Chance 1968, 1970, 1977). Similarly, a distance of over 200 km. separates pit house sites in the Lakes region from those upriver along the Columbia (Turnbull 1977, Mohs 1982). None have been recorded east of Nelson while the nearest to the west probably occur in the Granby and Kettle River valleys, a distance of 35-40 kilometers from the study area. The Monashee Mountains occupy the intervening area.

Within the Columbia/Lakes region to date 452 housepits have been recorded at 77 archaeological sites, an average of 6 per site. An additional 80 housepits have reportedly been destroyed (Appendices I and III). For purposes of this discussion, pit depressions over the 3 meter diameter are considered habitable size while those 3 meters or less are not.

Within the region there are basically 7 natural geographical areas which reflect major differences in topography, hydrology, vegetation, and climate. These include:

- (1) the Upper Arrow Lake (including the Columbia River Narrows between the two lakes as far south as Faquier)
- (2) the Lower Arrow Lake (from Faquier to Castlegar)
- (3) the Columbia River valley (from Castlegar to Waneta)



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- ) the Columbia River valley from (Waneta to Kettle Falls)
- (5) the lower Kootenay River valley (from Castlegar to Taghum, the latter which lies at the narrowing of the Kootenay River west of Nelson)
- (6) the Slocan River valley
- (7) the Slocan Lake valley

The intra-regional distribution of pit house sites varies considerably for each of these areas. The majority of sites, 28 or 36.4% of the total, occur in the Lower Arrow Lake area where (on average) one site is found every 2.7 kilometers. This is followed by the Slocan River valley with 14 pit house sites (18.2% of the regional total) for an average of one site every 2.9 kilometers; the Kootenay River valley with 9 sites (11.7%) for an average of one site every 3.8 kilometers; the Columbia River valley (Castlegar-Waneta) with 8 sites (10.4%) for an average of one site every 6 kilometers; the Columbia River valley (Waneta-Kettle Falls) with 7 sites (9.1%) for an average of one site every 8.6 kilometers; the Upper Arrow Lake with 7 sites (9.1%) for an average of one site every 13 kilometers; and finally the Slocan Lake valley with 4 sites (5.2%) for an average of one site every 10 kilometers.

Pit house sites appear to be evenly distributed in 3 of these areas: the Upper Arrow Lake, Slocan Lake, and Columbia River valley (Waneta-Kettle Falls). On the Lower Arrow Lake, pit house sites are strung out along the entire length of the lake but tend to cluster in a linear arrangement along the northeast side of the lake between Deer Park and Castlegar. Within this area there are 13 sites or 46% of the total number found on the Lower Arrow Lake. The high concentration of sites in this area appears to be related to several factors

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cluding: the general physiographic setting (i.e. extensive southern exposure and broad based, low level alluvial benches), an exceptionally favourable climate, an extremely high resource capability with regard to the production of deer and elk, and an xeric vegetation or forest cover. (See : previous sections of this paper for details.)

Within the Slocan and Kootenay River valleys, pit house sites are extremely clustered and occur in 3 areas: (1) at the north end of the Slocan River valley near Lemon Creek (10 sites), (2) at the south end of the Slocan River valley at the confluence of the Slocan and Kootenay Rivers (11 sites), and (3) midway between these two points at Vallican, situated at the confluence of the Little Slocan and Slocan Rivers. The latter area is only represented by a single site, however, it does contain as many pit house depressions as each of the other two areas. Only two pit house sites lie outside of these areas. They occur on the north bank of the Kootenay River at Taghum.

As with the Deer Park area, settlement of these three areas appears to be related to several factors including: a very high resource capability with regard to ungulate production, an xeric vegetation or forest cover, and general physiographic conditions. For example, the narrow Slocan valley reaches its greatest width at these three points providing maximum southern exposure. Southern exposure is particularly important in the winter months when temperatures are cold and the daylight hours short. The intervening areas, by comparison, receive up to half the amount of winter sunlight. In addition, all three areas are located at sites that are productive for other important food resources. South Slocan

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is and/or was a strategic location for fish including both fresh-water and anadromous varieties; Vallican is in close proximity to upland areas that are productive for mountain goat and woodland caribou while the river bordering the site provides access to fish, mussels and, to a lesser extent, fur bearers and waterfowl; the marshlands near Lemon Creek are very productive for fur bearers and provide an important staging area for migrant and molting waterfowl.

#### SETTLEMENT SIZE DISTRIBUTION

Pit house sites within the region vary considerably in size from a minimum of 1 to a maximum of 61 housepits at any given site. Single housepit sites total 21, small settlements (2-5 housepits) total 34, medium size settlements (6-10 housepits) total 12, and large settlements (over 11 housepits) total 10. The frequency distribution of these settlement types within the region is as follows: Single housepit: 27.3%, Small Settlement 44.2%, Medium Size Settlement: 15.5%, and Large Settlement: 13.0% with the regional mean number of housepits per site being 1, 3, 7, and 24 respectively. These data indicate that Small Settlements with an average of 3 housepits per site are the most common type.

However, if one considers the absolute numbers of housepits for each 'settlement type' on a regional basis the results are remarkably different. Single Housepit sites contain 21 housepits or 4.6% of the regional total, Small Settlements 102 housepits or 23.9%, Medium Size Settlements 87 housepits or 19.2%, and Large Settlements 236 housepits or 52.2% of the total. These data, alternatively, suggest that Large Settlements were the preferred type.

Turnbull (1977:143) has suggested that the probable winter village size was under 7 houses. He explains the larger number

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of features at some sites by stating that the actual number of simultaneously occupied houses is less than the total number of houses per site cluster. He suggests that large clusters represent favoured areas occupied over a longer period of time. The average number of housepits per site for the region as a whole is 6. Data obtained from recent excavations at the Vallican site (DjOj 1) support this theory (Mohs 1982). Results indicate that few of the 10 housepit depressions tested at the site were occupied simultaneously, rather that over 2200 years of site re-occupation are represented.

The majority of single housepit sites occur in the Lower Arrow Lake area where 10 sites or 48% of the total are represented. These sites are associated with small isolated pockets of highly productive deer winter range which occur along the Lower Arrow Lake. Similarly, almost 40% of the small settlements (13 sites) occur along the Lower Arrow Lake. Again, these sites are associated with pockets of highly productive ungulate range bordering the lake.

Elsewhere in the region, single housepit and small settlement sites have a somewhat different distribution. Along the Upper Arrow Lake, Slocan Lake and lower Columbia River valleys their distribution appears to be more random although sites are associated with small but productive resource areas. Along the Kootenay River, single housepit and small settlements cluster in two areas: the south bank of the river opposite South Slocan and the north bank of the river at Taghum. The resource potential of these areas is fairly high although the area suitable for settlement is rather limited. Within the Slocan River valley, single housepit and small

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Settlements cluster at the north and south ends of the valley. These settlements are adjacent to larger settlements and may represent site localities that were utilized when resources adjacent to the larger settlements had diminished or were somewhat depleted (i.e. firewood, deer etc.).

Medium size settlements are more evenly distributed, with the exception of a small cluster at the north end of the Slocan River valley. With the exception of two outlying sites (EbC1 1 on the Upper Arrow Lake and 45FE47 at Kettle Falls) these settlements are found in the central portion of the region. All are associated with favourable settlement localities (i.e. xeric sites with relatively high resource potential) except the two outlying sites. Chance (1977) suggests that the Chaudiere site (45FE47) was a rather inhospitable place to live and that the site was probably utilized only under special circumstances: "These might be the pressure of population, the need for an annex to the Ilthkoyape (45FE46) village just to the north, or the need to use the site as a burial ground because of its relatively high elevation compared to other parts of the island" (1977:46). Similarly, EbC1 1 is situated in an area relatively inhospitable to human settlement. Two factors which together might explain the choice of this site for a settlement are its close proximity to local hot springs and its location within a small winter deer range area.

All of the larger settlements occur in areas that are most favourable for human settlement and/or have exceptionally high resource potential. Five occur in the Slocan River valley, 2 at Deer Park and 3 along the Columbia River between Kettle Falls and Northport.

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FIGURE 3 DISTRIBUTION OF HOUSEPIT SITES AND HOUSEPIT DEPRESSIONS IN THE COLUMBIA/LAKES REGION

AREA	DISTANCE IN LINEAR KM'S.	NUMBER OF SITES	NUMBER OF HOUSEPITS	RATIO SITE:KM	HOUSEPITS PER SITE
1	90	7	26	1:13	3.7
2	75	28	108	1:2.7	3.9
3	50	8	28	1:6.2	3.5
4	60	7	63	1:8.6	9.0
5	30	9	61	1:3.8	6.7
6	40	14	152	1:2.9	10.9
7	40	4	14	1:10	3.5
REGION TOTAL	385	77	452	1:5	5.9

AREA: (1) Upper Arrow Lake (including Narrows to Faquier);  
 (2) Lower Arrow Lake (to Castlegar)  
 (3) Columbia River (Castlegar-Waneta)  
 (4) Columbia River (Waneta-Kettle Falls)  
 (5) Kootenay River (Castlegar to Taghum)  
 (6) Slocan River  
 (7) Slocan Lake

Note: the intra-regional distribution of pit house (winter habitation sites):

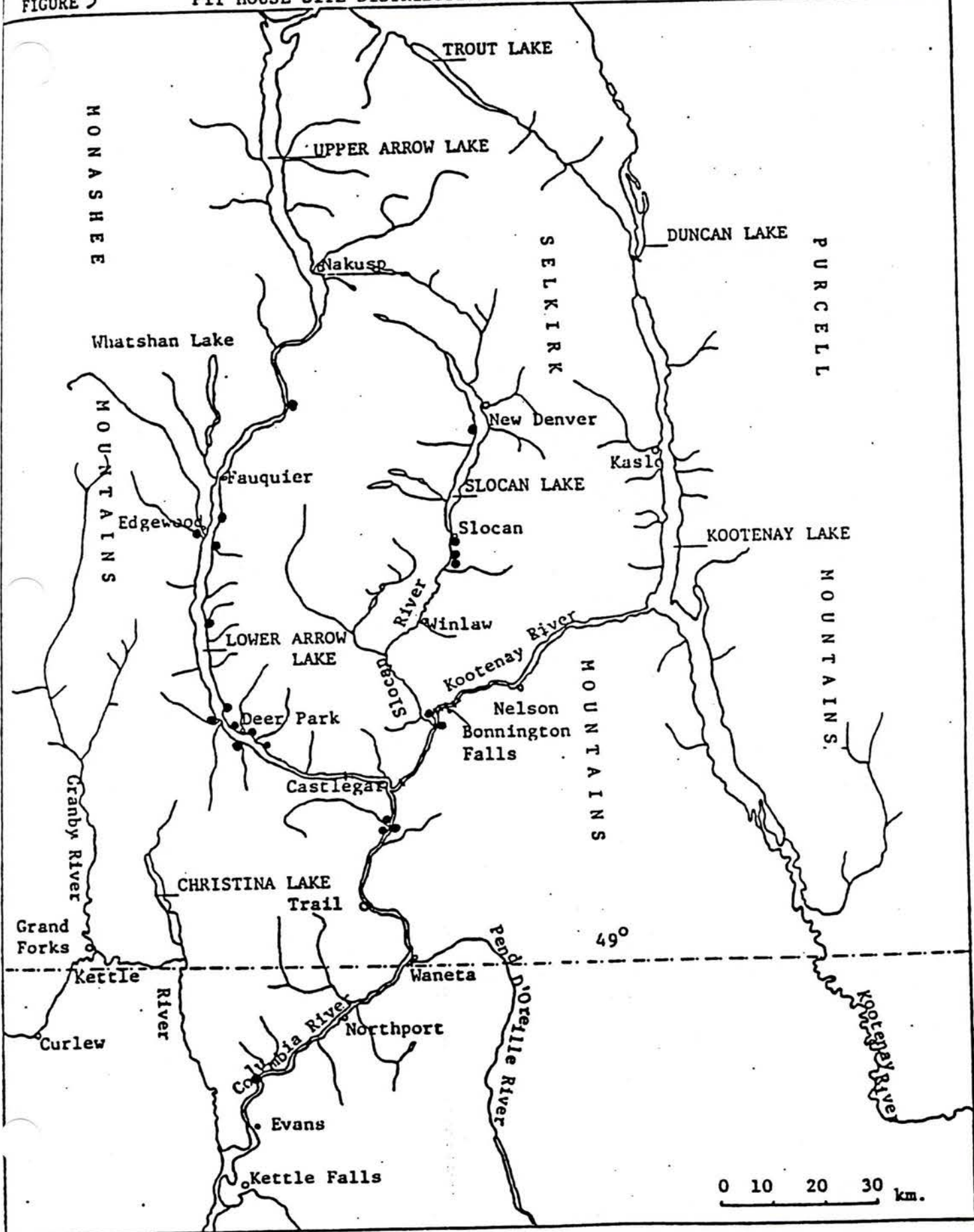
Lower Arrow Lake: 36.4%  
 Slocan River: 18.2%  
 Kootenay River: 11.7%  
 Columbia River (3): 10.4%  
 Upper Arrow Lake: 9.1%  
 Columbia River (4): 9.1%  
 Slocan Lake: 5.2%

FIGURE 4 COMPARATIVE RELATIONSHIP BETWEEN PREHISTORIC SETTLEMENT SIZE AND HOUSEPIT DEPRESSION DISTRIBUTION IN THE COLUMBIA/LAKES REGION

STUDY AREA	SETTLEMENT SIZE						
	Single Housepit	Small Settlement 2-5 Housepits	Medium Settlement 6-10 Housepits	Large Settlement Over 11 Housepits			
	# of # of mean # sites HP HP/site	# of # of mean # sites HP HP/site	# of # of mean # sites HP HP/site	# of # of mean # sites HP HP/site	# of # of mean # sites HP HP/site	# of # of mean # sites HP HP/site	# of # of mean # sites HP HP/site
1	1 1 1	5 19 4	1 6 6	- - -			
2	10 10 1	13 42 3	3 20 7	2 36 18			
3	3 3 1	3 10 3	2 15 8	- - -			
4	1 1 1	2 4 2	1 6 6	3 52 17			
5	1 1 1	5 14 3	1 7 7	2 39 20			
6	4 4 1	4 13 3	3 26 9	3 109 36			
7	1 1 1	2 6 3	1 7 7	- - -			
REGION TOTAL	21 21 1	34 108 3	12 87 7	10 236 24			
% HP.	4.6	23.9	19.2	52.2			
% Set. Size	27.3	44.2	15.5	13.0			

AREA: (1) Upper Arrow Lake (including Narrows to Faquier)  
 (2) Lower Arrow Lake (to Castlegar)  
 (3) Columbia River (Castlegar-Waneta)  
 (4) Columbia River (Waneta-Kettle Falls)  
 (5) Kootenay River (Castlegar to Taghum)  
 (6) Slocan River  
 (7) Slocan Lake

FIGURE 5 PIT HOUSE SITE DISTRIBUTION: SINGLE HOUSEPIT SITES





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FIGURE 6 PIT HOUSE SITE DISTRIBUTION: SMALL CLUSTERS (2-5 HOUSEPITS)

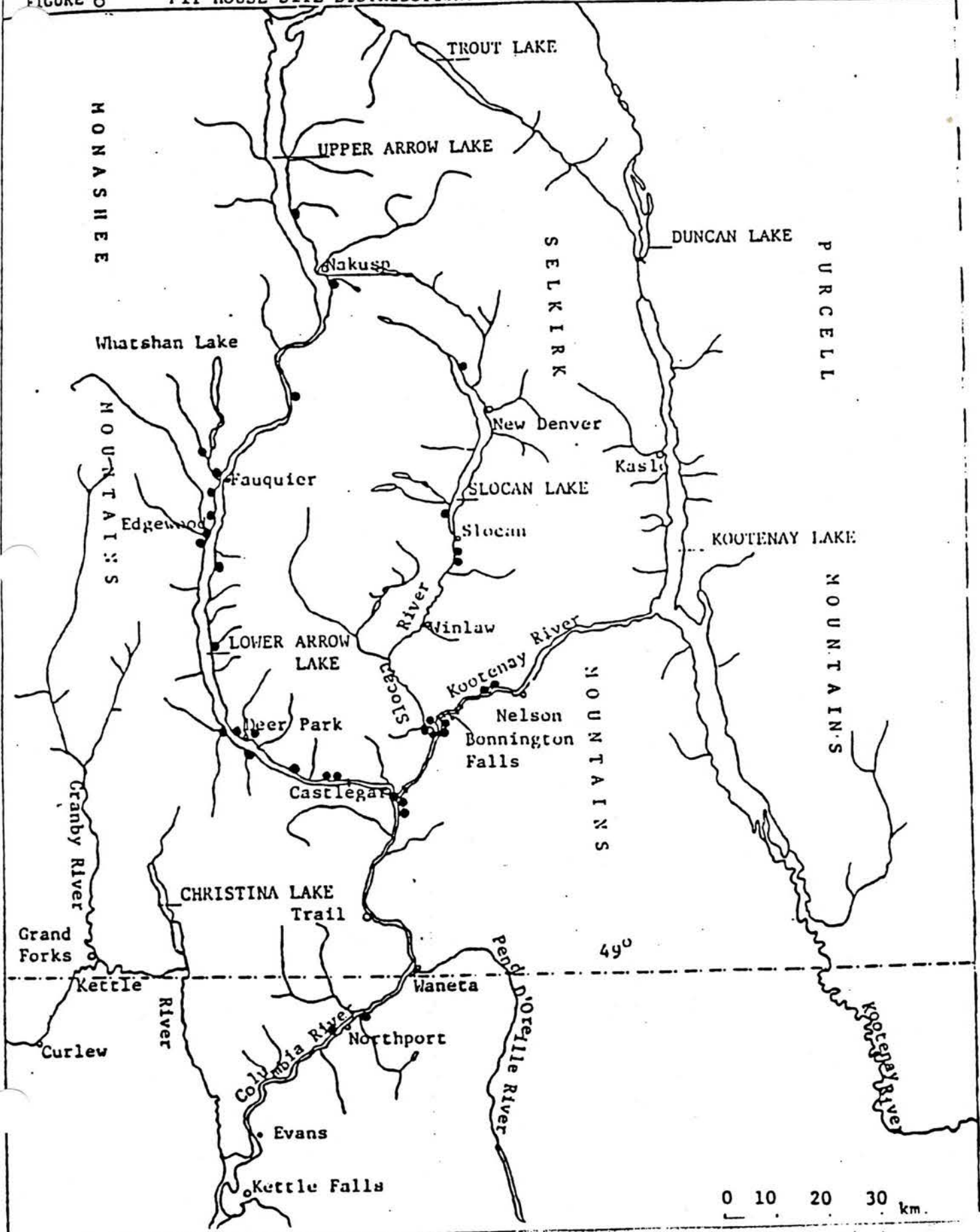


FIGURE 7. PIT HOUSE SITE DISTRIBUTION: MEDIUM CLUSTERS (6-10 HOUSEPITS)

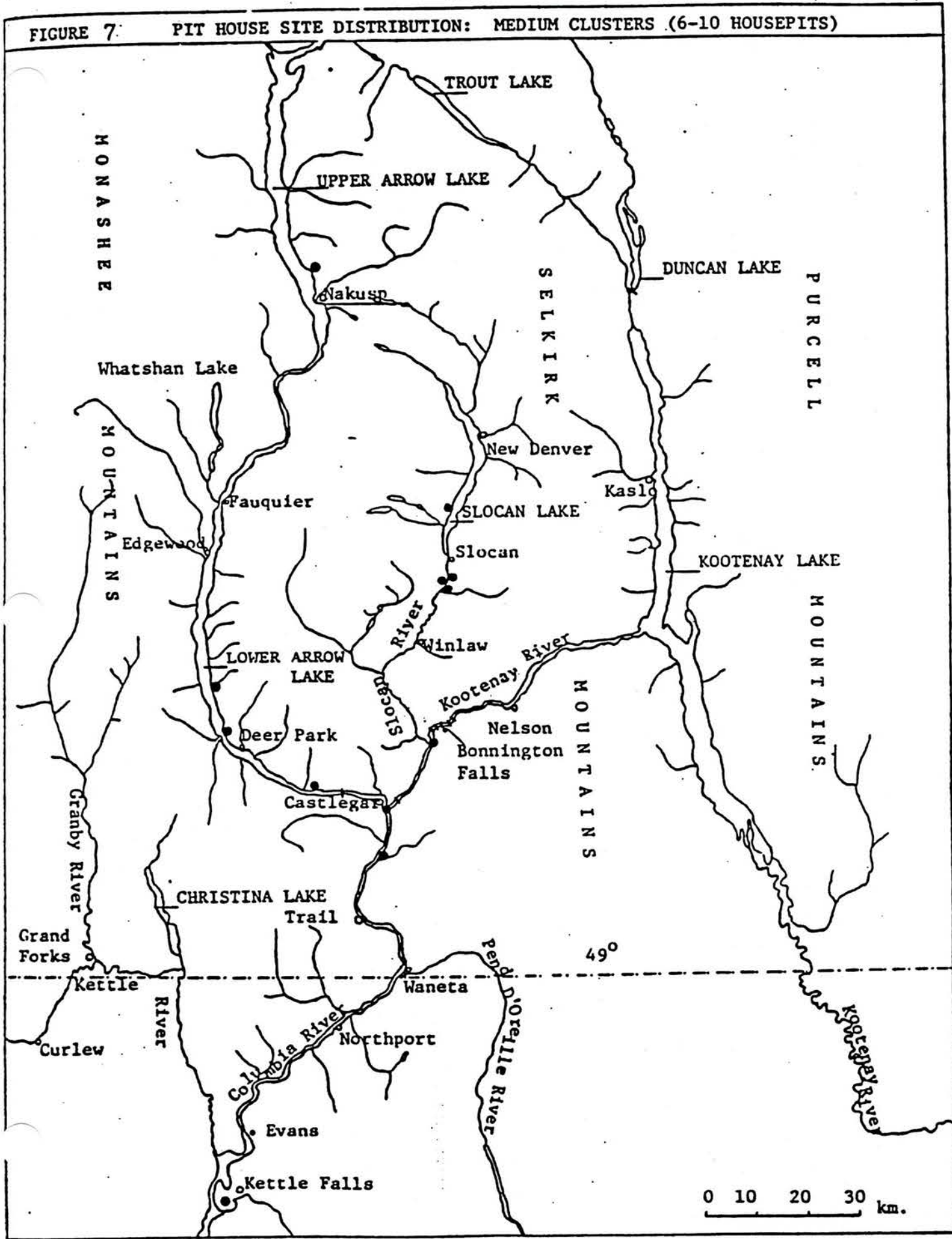
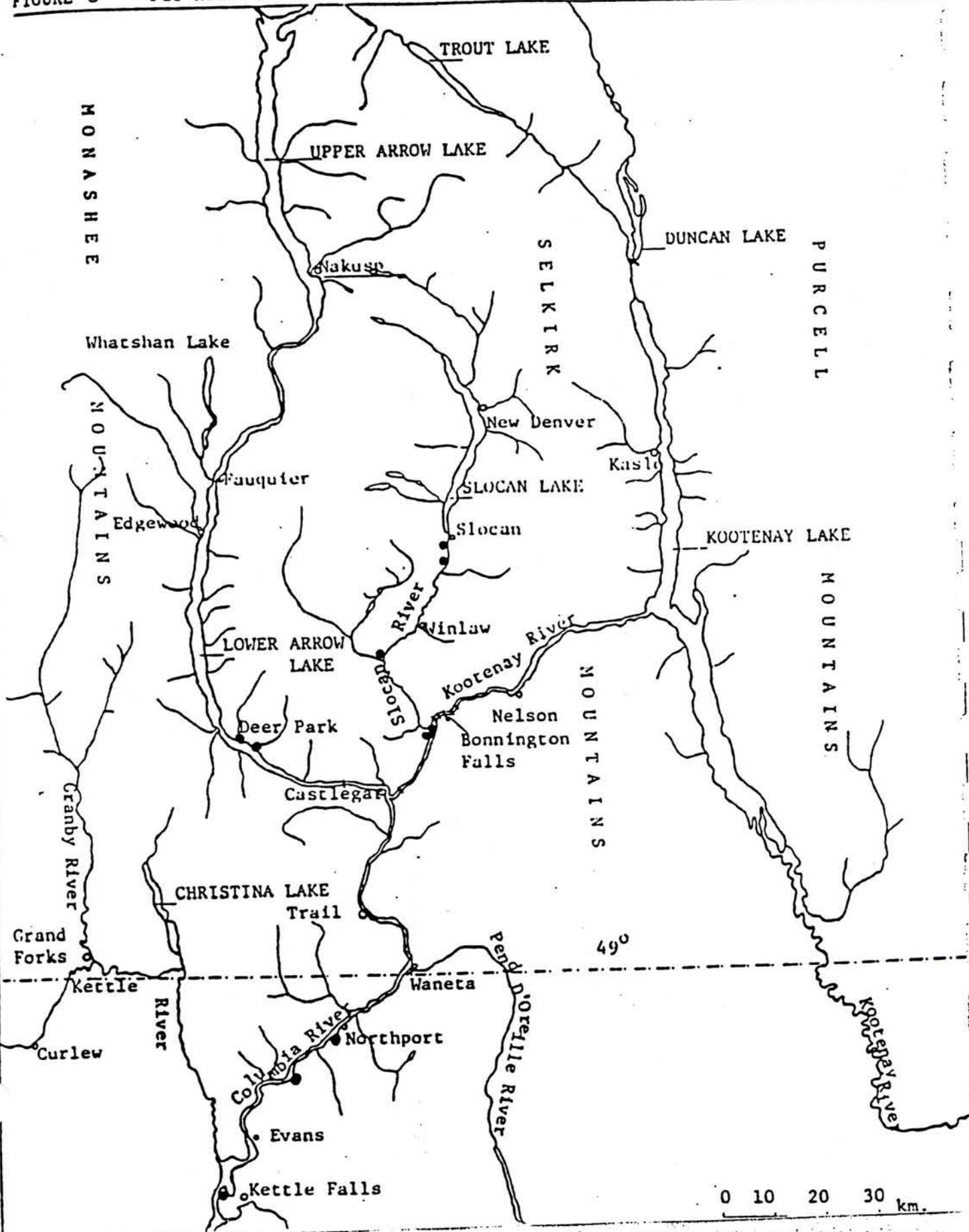


FIGURE 8 PIT HOUSE SITE DISTRIBUTION: LARGE CLUSTERS (OVER 11 HOUSEPITS)



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### HOUSEPIT DENSITY DISTRIBUTION

Turnbull's hypothesis that large site clusters represent favoured areas occupied over a longer period of time is even more dramatically represented if one disregards site boundaries and looks at where housepits tend to cluster on an inter-regional basis (Figure 9 ). Examined in this fashion, 5 major clusters and 6 minor clusters are apparent.

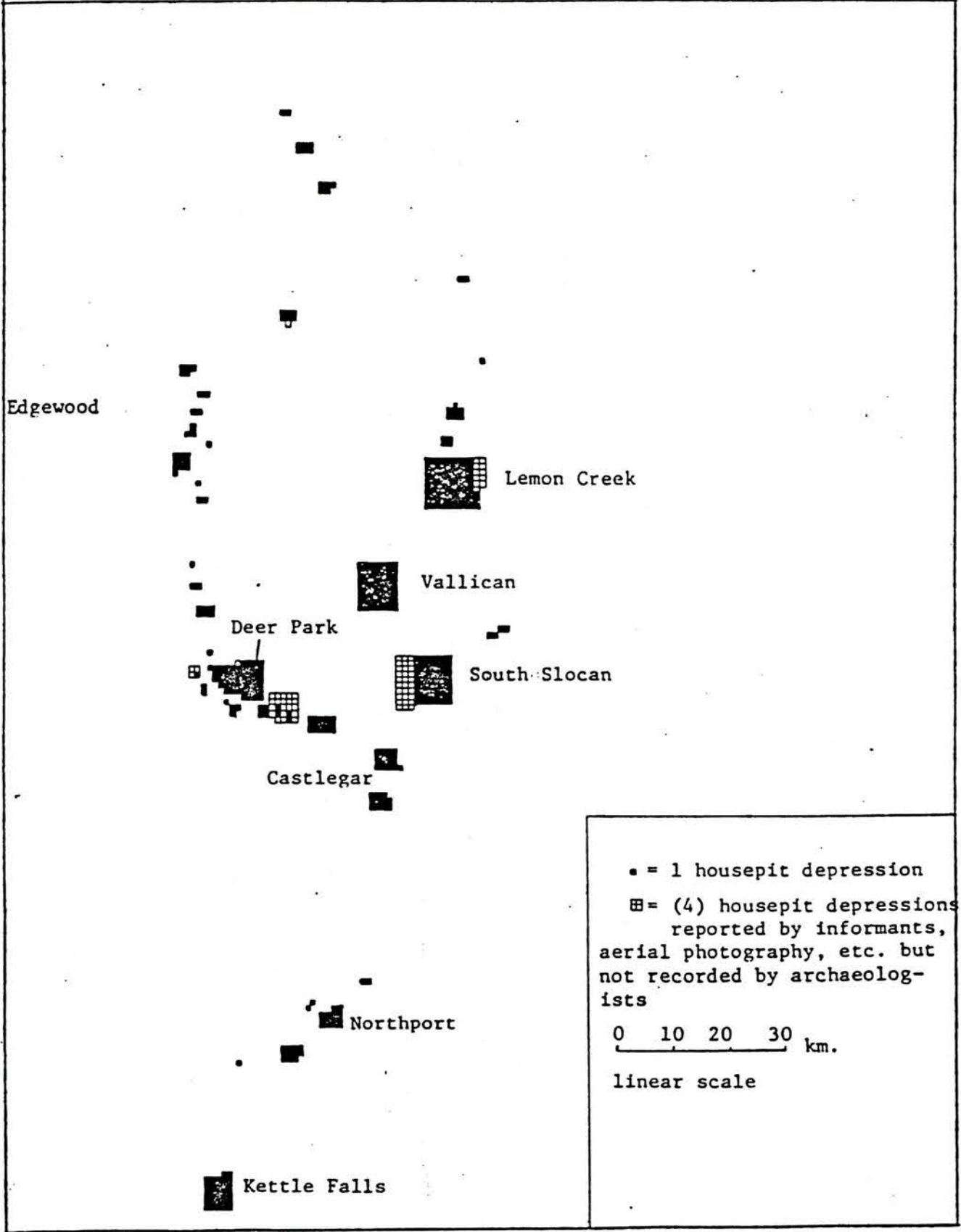
Three major clusters occur in the Slocan River valley including: Lemon Creek (84 housepits), South Slocan (63 housepits) and Vallican (61 housepits). Major clusters also occur at Deer Park (58 housepits), and at Kettle Falls (33 housepits). Not surprisingly, these areas represent the most favoured areas for human settlement and/or exceptionally high resource potential.

The six minor clusters tend to occur along the Columbia between Kettle Falls and Syringa Creek (east of Deer Park). Two occur in the lower Columbia River valley at Northport (14 housepits) and Marble (11 housepits), two along the upper Columbia near Castlegar (17 housepits) and Blueberry Creek (11 housepits), one at Syringa Creek (15 housepits), and one at Edgewood (10 housepits). North of Deer Park and Lemon Creek the density of housepits decreases dramatically with increased distance from these points. (The resource potential and settlement capability of these areas are discussed in previous sections of this paper with the exception of Northport and Marble. Regarding these two sites, the writer was unable to obtain the necessary inventory data.)

### TEMPORAL DISTRIBUTION OF HOUSEPIT TYPES

In the Columbia/Lakes region, pit houses appear to have been

FIGURE 9 HOUSEPIT DENSITY DISTRIBUTION: COLUMBIA/LAKES REGION



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in use continuously over a 3100 year period from about 1300 B.C. to 1800 A.D. (Mohs 1982). There are, however, several problems in attempting to define spatial/temporal relationships for housepits recorded in the region. The first is that a definitive regional typology has not been developed with regard to stylistic changes in housepit characteristics over time. The second is that a considerable amount of data is lacking on individual housepits recorded at pit house sites. The third is that 60-70% of all those housepits that have been recorded have been destroyed from cultural and/or natural agents. Consequently, even if an adequate typology were developed it would be impossible to apply this to the many sites that have been destroyed. Finally, there is evidence to suggest that many housepits were modified and re-used over the course of time (Chance 1977, Turnbull 1977, Mohs 1982). Thus, it would appear that earlier period housepits would be under-represented and later period housepits over-represented in any model that was designed to demonstrate intra-regional patterns of settlement. Despite these problems, however, there may be some utility in examining the data that is available in order to define gross regional trends.

Most of the data available on individual housepits in the Columbia/Lakes region relates to size and shape although there are limited references to depth, and other surface characteristics. These data are presented in Appendix I and Figures 10 to 15. Furthermore, there is some evidence to suggest that pit houses have changed in size and shape over time (Chance 1977, Turnbull 1977, Mohs 1982). For example, it has been suggested that earlier period

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housepits (1300 B.C. - 450 B.C.) range in size from about 7-9 meters in diameter, that middle period housepits (@ 450 B.C. - 750 A.D.) range in size from about 5-7 meters in diameter, that later period housepits (750 - 1800 A.D.) are generally large ranging in size from 7-13+ meters in diameter, and that rectilinear forms are associated with the later period (Mohs 1982). There are, of course, contradictions to this suggestion. Chance (1977), for example, excavated 3 smaller housepits (@ 6-7.5 meters in diameter) at Kettle Falls which were found to date between about 1200 - 1600 A.D. Moreover, definitive characteristics at specific sites that have been tested often include housepit surface characteristics (i.e. rimming, floor shape etc.) and depth as time diagnostic factors (Mohs 1982). As previously stated, however, much of this data is not available for specific housepits at many sites.

Before proceeding further, a review of pit house archaeology in the Columbia/Lakes region is essential in order to present the little information that exists regarding changes in housepit characteristics over time.

Little archaeological research has been conducted in the Canadian portion of the Columbia/Lakes region. The little that has occurred has concentrated on pit house sites. The area south of the border, by comparison, has received considerable attention. However, few pit house sites have been examined in this area.

South of the international boundary, Chance (1977) excavated 3 housepits at the Chaudiere site (45FE47). The housepits excavated measured between about 6 and 7.5 meters in diameter, two were circular and one pentagonal in shape. Depths ranged from 1.25 - 1.50 meters. The houses dated between about 1200 - 1600 A.D.

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Between 1966 and 1969, Turnbull excavated or tested 23 housepits at 9 archaeological sites. Seven of these sites were situated on the Lower Arrow Lake, one on the Upper Arrow Lake and one at the junction of the Slocan and Kootenay Rivers (Turnbull 1977). Four of these housepits produced radiocarbon dates between 1265 B.C. and 580 B.C. including: House 12 at DiQm 4, House 2 at DkQm 5, and Houses 2 and 4 at DiQm 1. All of these pit houses measured between 7.5 and 9.5 meters in diameter. Surficially, all were relatively shallow (i.e. 60-75 cm. in depth), all were steep-walled rather than saucer-shaped, and all but one were circular in shape. House 12 at DiQm 4 was oval in shape (Turnbull 1977: 224-246) and yielded the more recent date of 580 B.C. Dates from the remaining 3 houses only spanned a 125 year period between 1265-1140 B.C. (Turnbull 1977:105).

More recently, the writer (Mohs 1982) tested 10 of 61 housepits at the Vallican site (DjQj 1) in the Slocan River valley. The housepits tested were of varying sizes, shapes, depths and surface characteristics. Thirteen radiocarbon dates obtained from 7 housepits at the site were found to span a 2200 year period from 260 B.C. to the modern era.

Limited testing of these features prompted the writer to postulate that surficial characteristics of housepit depressions at the site could be associated with specific time periods. It was suggested that the earliest housepits at the site (pre 2300-2400 years BP) are large (7-10 meters diameter), shallow (under 70 cm.) circular, rimless and flat-bottomed, similar to those excavated and dated by Turnbull. It was also postulated that surficially small (5-7 meters diameter), shallow (under 60 cm.), circular,



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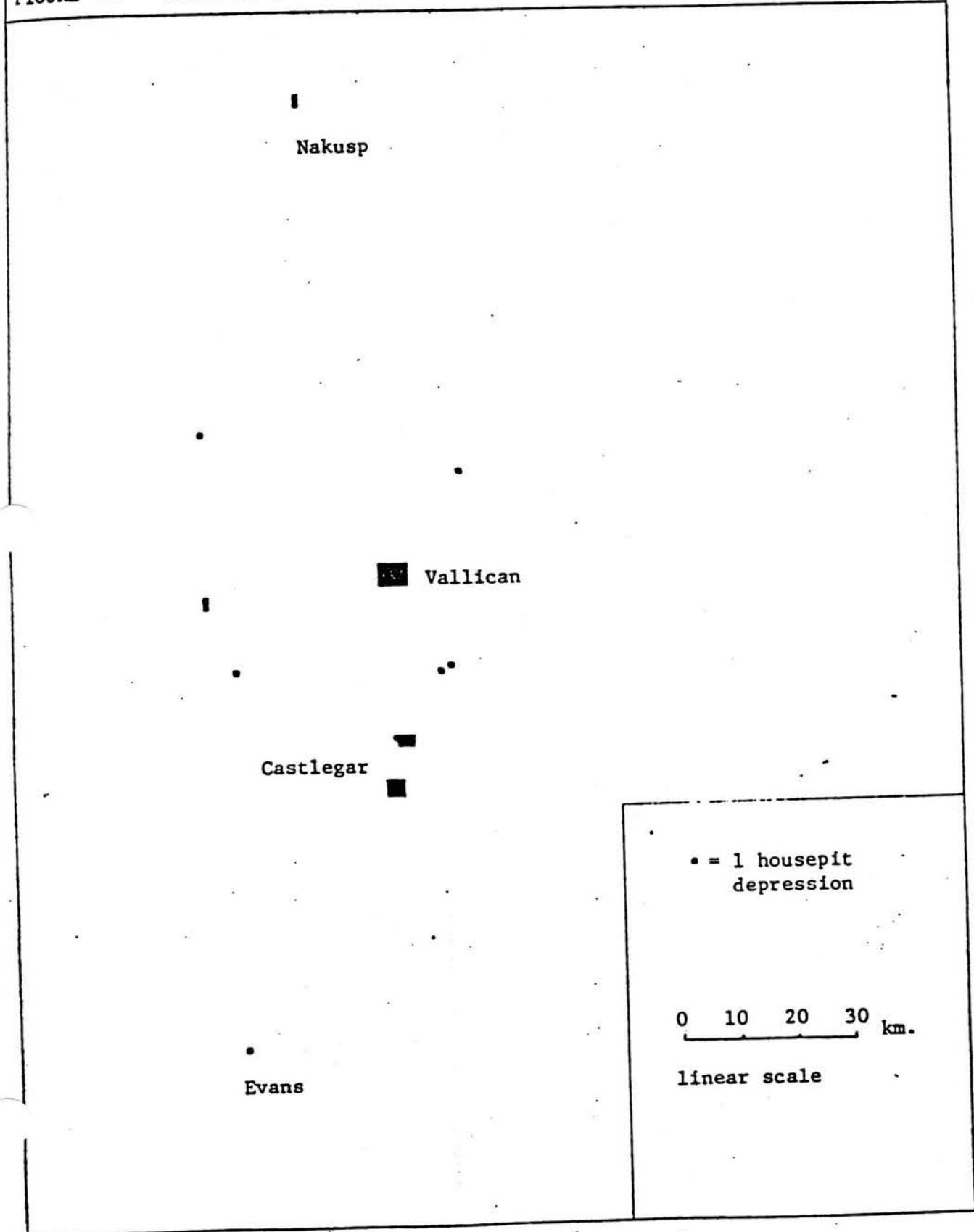
saucer-bottomed, rimless housepits dated between 2400 and 1200 years BP (450 B.C.- 750 A.D.). Housepits associated with the later period (750 - 1750 A.D.) are superficially large (7-13+ meters diameter), deep (70-180 cm.) and include a variety of shapes (circular, oval and rectilinear forms). Most are flat-bottomed, several exhibit heaped earth rims, and a few have visible side entranceway depressions. Small (4-5 meter diameter), shallow (10-30 cm.), rectilinear depressions are also associated with this period.

With regard to shape, all rectilinear housepits tested in the Columbia/Lakes region (to date) appear to be late prehistoric (circa 750 - 1750 A.D.) in age. The distribution of rectilinear housepits is presented in Figure 10 while data recorded on these features appears in Appendix III. Within the region, rectilinear housepits appear to cluster in 2 areas: at Vallican in the central Slocan River valley and at Castlegar. These data suggest that these two areas were extensively occupied during the late prehistoric period. A few rectilinear housepits are scattered along the Arrow Lakes as far north as Nakusp and one to the south near Evans.

With regard to size, if the overall tendency within the region involves a temporal shift from large (@ 7-9 meter diameter) to small (@ 5-7 meter diameter) to very large (@ 7-13+ meter diameter) then it should be possible to observe gross intra-regional tendencies with regard to settlement patterns.

The largest concentration of 'large housepits' (7-9 meter diameter) occurs at Deer Park on the Lower Arrow Lake with 3 minor clusters in the Slocan River valley and 2 along the lower Columbia between Northport and Kettle Falls. This would appear to indicate that

FIGURE 10 HOUSEPIT DENSITY DISTRIBUTION: RECTILINEAR DEPRESSIONS



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the Deer Park area was favoured during the early prehistoric period (@1300 - 450 B.C.). This contention is supported by the fact that Turnbull excavated or tested 14 housepits at 5 sites in this area and failed to produce evidence of later prehistoric occupations (1977: 109-111, 124). Also, there is little evidence to suggest that the Kettle Falls area was occupied at this time (Chance 1977).

Major clusters of 'smaller housepits' (i.e. 3-5 and 5-7 meter diameter) tend to occur in the Slocan River valley at Vallican, Lemon Creek and South Slocan and at Castlegar near the confluence of the Kootenay and Columbia Rivers (Figures 12 and 13). The Deer Park area, by comparison, has few housepits of this size. This would appear to indicate that these areas were favoured for settlement during much of the middle prehistoric period (@450 B.C. - 750 A.D.). Archaeological components dating to this period have been identified at Vallican (Mohs 1982) and at South Slocan (Turnbull 1977). South of the border, this interval corresponds with the Takumakst Period at Kettle Falls. The earlier Takumakst Period (@ 100 - 400 A.D. or possibly 400 B.C. - A.D. 400) is not well represented at Kettle Falls. It is only during the later Takumakst Period (@ 400 - 800 A.D.) that a resurgence of cultural activity becomes apparent (Chance 1977).

Finally, major clusters of 'very large' housepits (over 9 meter diameter) tend to occur at Lemon Creek in the upper Slocan River valley and on Hayes Island at Kettle Falls (Figures 14 and 15). This would appear to indicate that these two areas were favoured for settlement during the later prehistoric period (@750 - 1800 A.D.). Unfortunately, no 'very large' housepits have been excavated at either locality. However, excavations at Vallican to the south

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Lemon Creek indicate that late prehistoric deposits dominate the component assemblage and that all 'very large' housepits tested at the site are associated with this period. Accordingly, excavations at Chaudiere (a possible annex to Ilthkoyape) at Kettle Falls suggest that the larger housepits at Ilthkoyape might also date to the late prehistoric period (Chance 1977:46). Moreover, non-housepit components dating to this period (i.e. Sinaikst Period and Shwayip Period) are well represented in the Lower Columbia River valley area suggesting a strong outside group (i.e. Lakes) interest in the Kettle Falls at this time (Chance 1977:149-191).

#### CONCLUSION

In this paper I have tried to demonstrate that environmental variables influenced patterns of aboriginal settlement and the placing of sites in the Columbia/Lakes region. In other words, considering variables such as topography, climate, resource potential and vegetation cover, the majority of winter village sites occur where one would expect to find them (i.e. on low level, xeric sites in proximity to water with a good southern exposure and within or adjacent to productive resource areas).

I have also attempted to demonstrate that gross patterns of settlement did change somewhat over time. At present it is impossible to assess the degree to which settlement patterns changed over time due to a lack of archaeological data or to explain why patterns of settlement changed due to a lack of paleoenvironmental data. More research is required in both areas before more specific conclusions can be drawn.

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FIGURE 11 HOUSEPIT DENSITY DISTRIBUTION: SIZE: 7-9 METERS

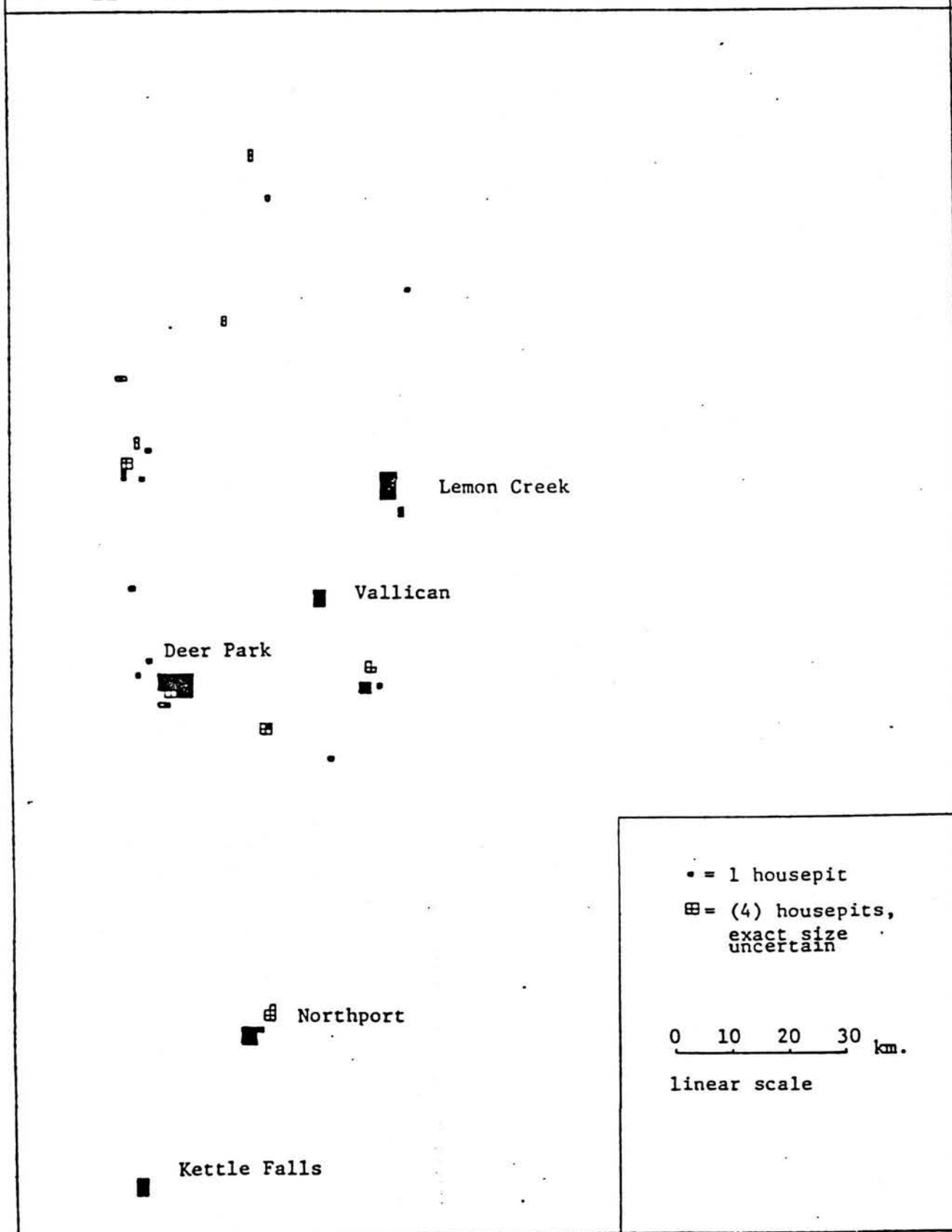
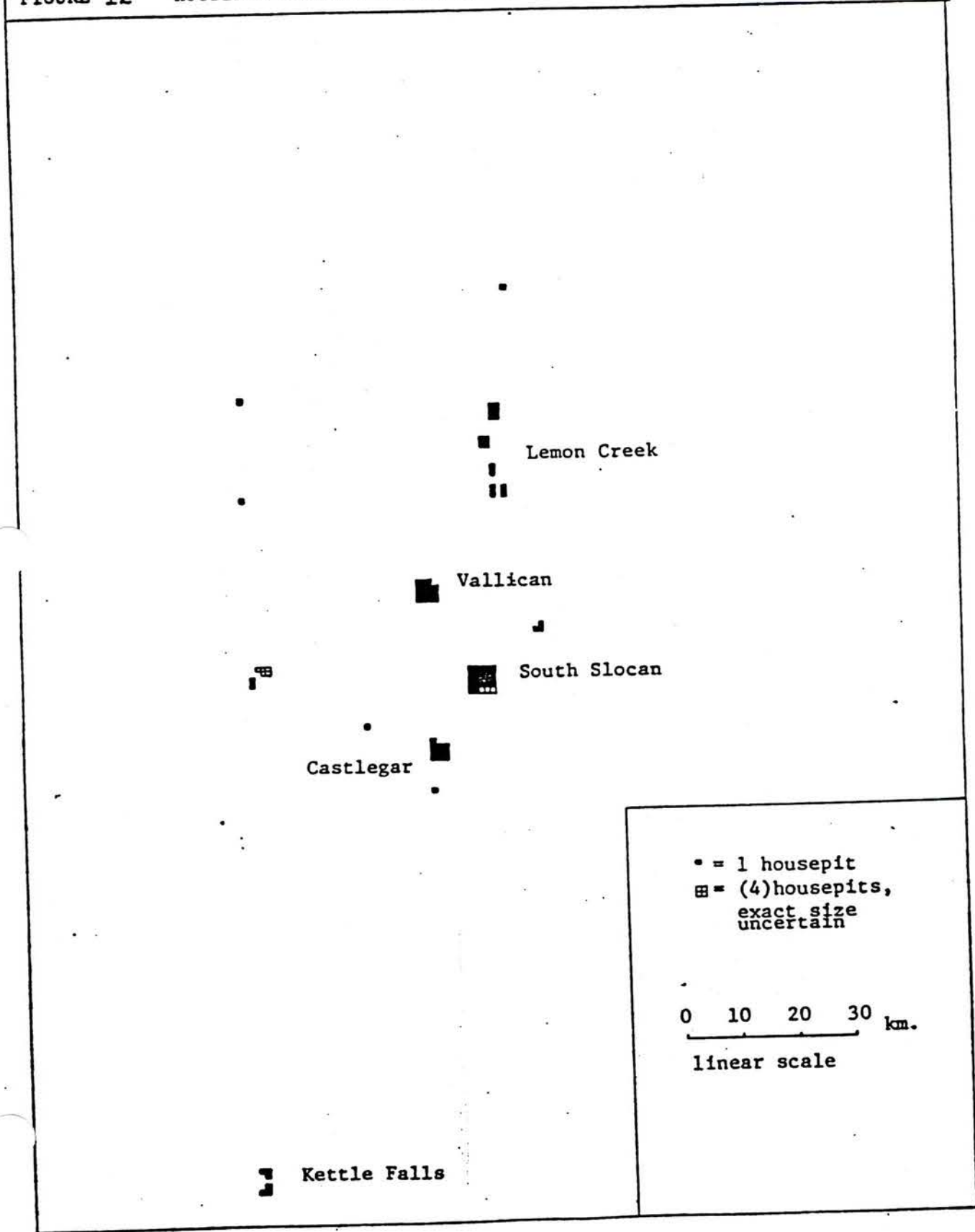


FIGURE 12 HOUSEPIT DENSITY DISTRIBUTION: SIZE: 3-5 METERS



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FIGURE 13 HOUSEPIT DENSITY DISTRIBUTION: SIZE: 5-7 METERS

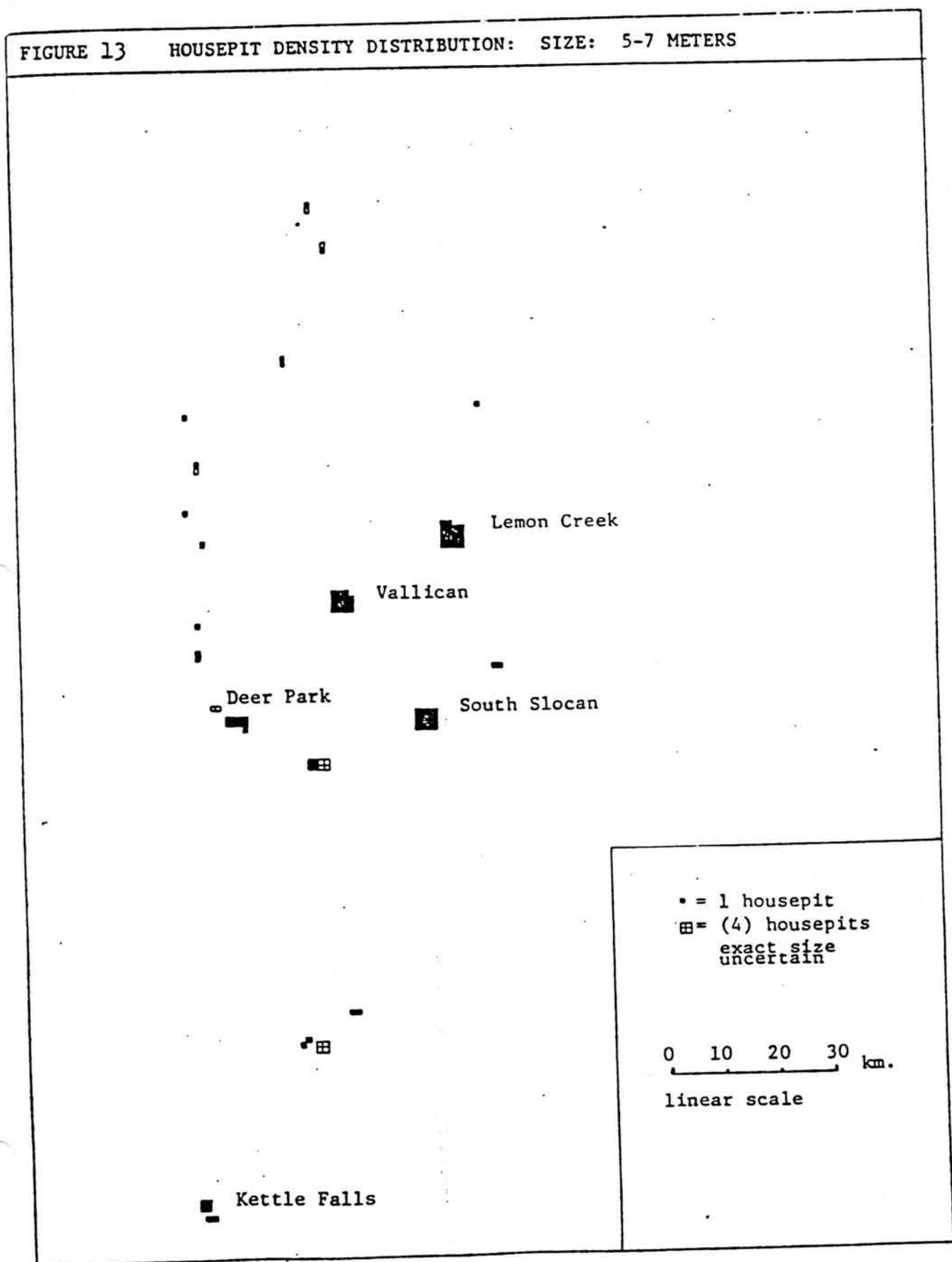


FIGURE 14 HOUSEPIT DENSITY DISTRIBUTION: SIZE: 9-11 METERS

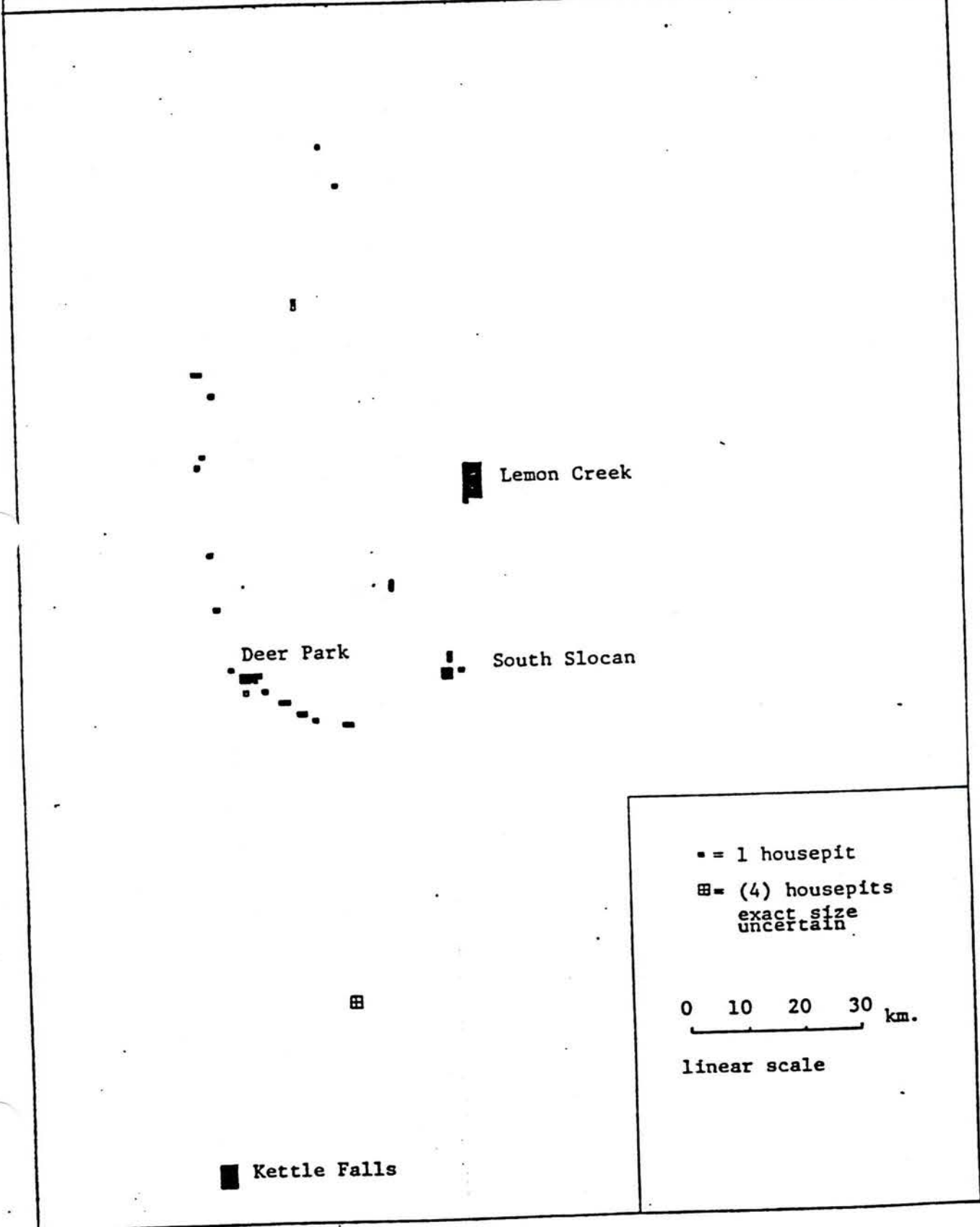
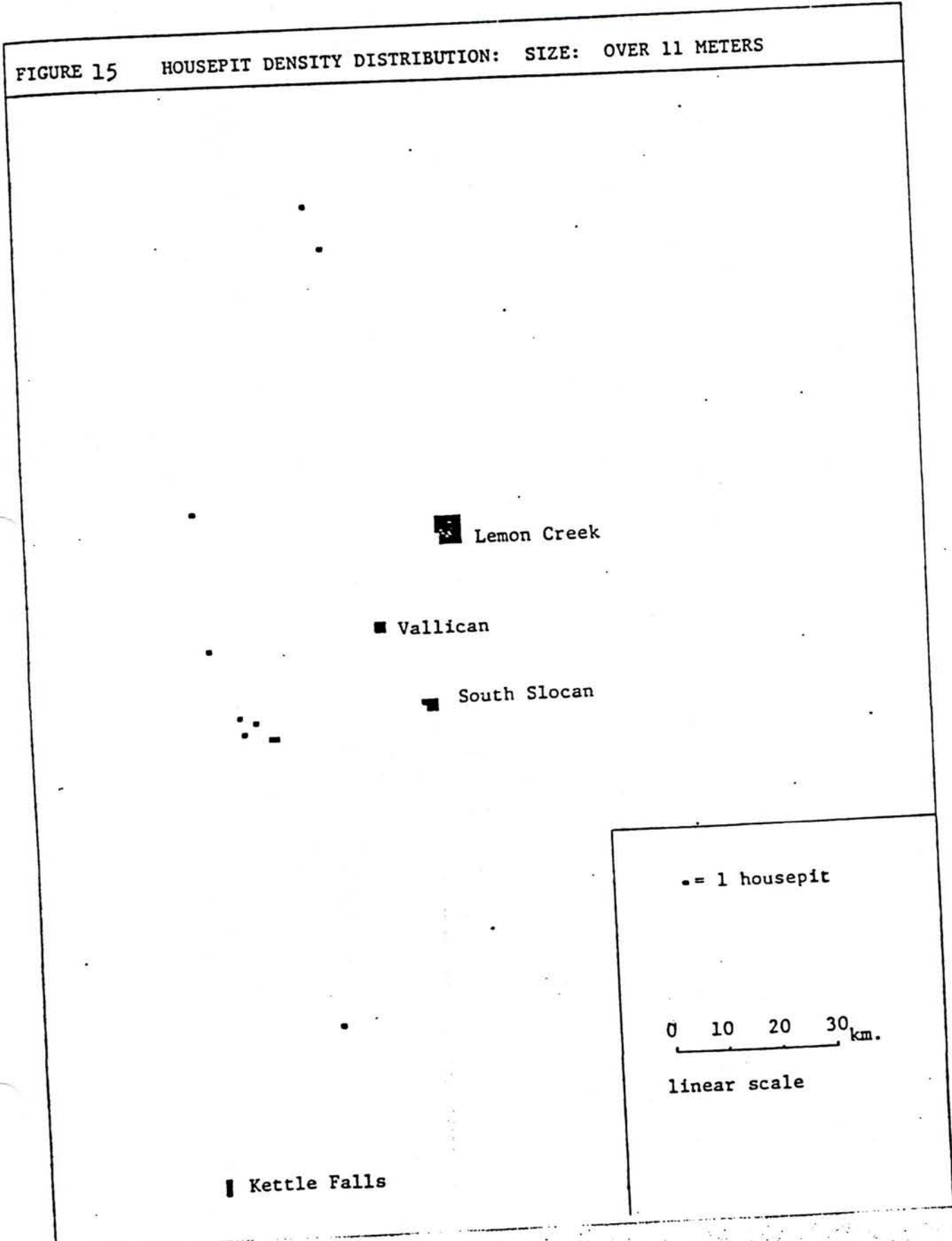




FIGURE 15 HOUSEPIT DENSITY DISTRIBUTION: SIZE: OVER 11 METERS



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APPENDIX I ARCHAEOLOGICAL SITES WITH HABITABLE SIZE DEPRESSIONS IN THE COLUMBIA/LAKES REGION,  
 AREA: ARROW LAKES  
 SOURCE: HERITAGE CONSERVATION BRANCH ARCHAEOLOGICAL SITE FILE, HARRISON 1961, TURNBULL 1977,  
 and MOHS 1977

SITE NUMBER	TOTAL HP.	DIMENSION IN METERS (M <sup>2</sup> )			RECT. HP.	COMMENTS
		3-5 (9-25)	5-7 (25-49)	7-9 (49-81)		
EcQ1 1	2	-	1	-	1	2 both flat bottomed, lipped, inundated
EbQ1 1	6	-	2*	1	1	3 ovoid, site inundated, all lipped
EaQk 1	5	-	2*	1*	1	site inundated
EaQl 4	5	-	1	2*	2	inundated but partially intact
" 5	1	-	1	-	-	Turnbull reports 2+ on site, inundated
DlQm 7	2	1	-	-	1	both 90cm.deep, highly disturbed
" 32	5	-	1	2*	2	site under cultivation
DkQm 1	2	-	2*	-	-	site under cultivation
" 2	3	-	-	3*	-	1 2 ovoid, site inundated
" 4	4	-	-	4*	-	site inundated
" 5	5	-	1	2	1	4.5-10.3cm.deep, no lips, inundated
" 6	2	1	1	-	-	50 & 75cm.deep, no lips, inundated
" 9	1	-	-	1	-	inundated
" 15	1	-	-	-	1	105cm.deep, severely potted
" 17	1	-	-	1	-	site under cultivation

\* exact dimensions uncertain due to inadequate recording data  
 (M<sup>2</sup>)= meters squared for oval and rectilinear depressions (lengthxwidth)

APPENDIX I ARCHAEOLOGICAL SITES WITH HABITABLE SIZE DEPRESSIONS IN THE COLUMBIA/LAKES REGION  
 AREA: ARROW LAKES (CONT'D)

SITE NUMBER	TOTAL DIMENSION IN METERS (M <sup>2</sup> )			RECT. HP.	COMMENTS
	HP.	3-5 5-7 7-9 9-11 11+	(121+)		
DJQm 1	6	2	1	2	40cm. rims on rect. features, inundated
" 2	2	1	1	-	both 100cm.deep, highly disturbed
" 3	1	-	1	-	110cm.deep, rimless
DiQm 1	14	2	6	5	60-160cm.deep, some with low uphill rims, site inundated
" 3	4	-	2	2	70-80cm.deep, severely potted
" 4	22	7	13	1	inundated but partially intact
" 7	3	-	1	1*	all flat bottomed, 110cm.deep, lipped
" 8	1	-	1	-	more formerly existed (Turnbull)
" 10	1	-	1	-	site under cultivation
" 14	1	-	1*	-	site inundated
" 15	1	-	-	-	Turnbull reports 2, site intact 1977
" 17	8*	5*	1*	-	site inundated
" 18	1	-	1*	-	site inundated
" 19	2	-	-	-	site inundated
DiQ1 1	1	-	-	1	over 20 reported destroyed (Turnbull)
" 2	2	-	-	2	@100cm.deep, downhill rims, inundated

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APPENDIX - ARCHAEOLOGICAL SITES WITH HABITABLE SI. DEPRESSIONS IN THE COLUMBIA/LAKES REGIO  
 AREA: ARROW LAKES (CONT'D) / COLUMBIA RIVER (CASTLEGAR - WANETA) / SLOCAN LAKE  
 SOURCE: HERITAGE CONSERVATION BRANCH ARCHAEOLOGICAL SITE FILE, ELDRIDGE 1981.

SITE NUMBER	TOTAL DIMENSION IN METERS (M <sup>2</sup> )				RECT. HP.	COMMENTS
	3-5	5-7	7-9	9-11	11+	
	(6-25)	(25-49)	(49-81)	(81-121)	(121+)	
D1Q1 6	4	-	-	2	2	- inundated
D1Qk 1	6	-	4*	2	-	- site severely disturbed
" 3	4	-	4	-	-	- 75-120cm.deep, low downhill rims
" 4	5	1	4*	-	-	- site severely disturbed
DhQj 2	7	7	-	-	-	- all @ 10Ccm.deep (COLUMBIA RIVER)
" 4	8	1	2	4	1	8 all @ 100cm.deep
" 12	2	2	-	-	-	- saucer bottomed
" 19	1	1	-	-	-	- 100cm. deep
" 20	1	1	-	-	-	1 100cm. deep, rock lined
" 21	1	-	-	1	-	- 150cm. deep
" 22	5	3	2	-	-	5 all @ 100cm. deep
" 23	3	3	-	-	-	2 all @ 100cm. deep
DKQ1 9	4	4	-	-	-	- SLOCAN LAKE
D1Q1 6	7	7	-	-	-	-
D1Q1 15	1	-	1	-	-	-
EaQ1 1	2	1	-	1	-	-



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PENDIX I ARCHAEOLOGICAL SITES WITH HABITABLE SIZE DEPRESSIONS IN THE COLUMBIA/LAKES REGION

EA: SLOCAN RIVER VALLEY / KOOTENAY RIVER  
 SOURCE: ELDRIDGE 1981, HERITAGE CONSERVATION BRANCH ARCHAEOLOGICAL SITE FILE, MOHS 1982

SITE NUMBER	TOTAL HP.	DIMENSION IN METERS (M <sup>2</sup> )			RECT. HP.	COMMENTS
		3-5 (9-25)	5-7 (25-49)	7-9 (49-81)	9-11 (81-121)	11+ (121+)
18	3	-	-	3*	-	- many housepits destroyed
19	3	1	1	-	1	-
20	1	-	1	-	-	- site disturbed
21	61	22	20	9	5	6 20 several with side entrances, burials
22	9	2	-	2	1	4 - also 1 cut and fill 2x8M. platform
23	5	-	4	-	-	1 - platform 1 & 2 could be same site
24	8	-	3	-	2	3 - Turnbull reports 5 (1977)
25	2	-	-	-	1	1 -
26	1	-	-	-	1	-
27	1	-	-	-	-	-
28	1	-	1	-	-	-
29	22	-	5	6	3	8 - possible natural depression also
30	9	2	3	-	4	-
31	26	2	3	9	7	5 1 air photo indicates another 7
32	3	3	-	-	-	- inundated (KOOTENAY RIVER)
33	2	-	2	-	-	-

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## APPENDI ARCHAEOLOGICAL SITES WITH HABITABLE SI' DEPRESSIONS IN THE COLUMBIA/LAKES REGION

AREA: KOOTENAY RIVER (CONT'D) /, COLUMBIA RIVER (WANETA TO KETTLE FALLS)  
 SOURCE: CHANCE 1967, 1970, 1977

SITE NUMBER	TOTAL DIMENSION IN METERS (M <sup>2</sup> )				RECT. HP.	COMMENTS	
	3-5	5-7	7-9	9-11			
1	3*	-	-	-	-	Turnbull (1977) reports over 10, site inundated	
2	2	-	-	2	-	reported as village (Turnbull), orientation to Slocan River	
" 3	7	7	-	-	1	site disturbed	
" 5	25	2	7	4	2	1	burials associated
" 6	1	1	-	-	-	-	2 with side entrances, 3 with heaped rims, 1 hillside platform
" 12	4	-	2	1	1	-	possible HP. 30 cm. deep
" 13	14	7	5	-	2	-	9 with side entrances, 80-200cm. deep
45ST63	1	-	1	-	-	1	both 60 cm. deep
" 72	14	-	4*	5*	4*	1	most 20cm. deep
" 77	2	-	2	-	-	-	both 50cm. deep
" 84	11	-	-	11	-	-	several with possible side entrances
" 96	2	-	2	-	-	-	? housepits appear connected
45FE46	27	3	4	6	11	3	
" 47	6	3	2	-	2	-	

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APPENDIX II DATA SHEET ON RECTILINEAR HOUSEPT DEPRESSIONS				
AREA	SITE NUMBER	TOTAL RECT.	DIMENSIONS (IN METERS) (LENGTH x WIDTH x DEPTH)	ADDITIONAL COMMENTS
1	EcQ1 1	2	7.7 x 8.5 x 0.45 10.1 x 12.5 x 0.64	both are rimmed, flat-bottomed
2	DkQm 2	1	@ 7 x 7	40cm. rim, flat- bottomed
	DjQm 1	2	@ 7 x 8 and 11 x 12	40cm. rims, flat bottomed
	DiQm 4	1	@ 6 x 13	flat-bottomed rounded corners
3	DhQj 4	8	9.3 x 8 x 1.2 9.3 x 8.3 x 1.2 9.2 x 6.6 x 1.2 7.5 x 10 x 1.0 5.8 x 6 x 0.5 7.7 x 8.7 x 0.25 4.3 x 2.0 x 0.4 5.4 x 5.0 x 0.65	
	DhQj 20	1	@ 4 x 3 x 1	
	DhQj 22	5	5.4 x 5.7 x 1.8 5.6 x 5.6 x 1.3 4.2 x 4.3 x 0.55 3.7 x 3.1 x 0.7 3.6 x 2.7 x 0.95	
	DhQj 23	2	5.0 x 3.7 x 1.25 3.5 x 2.9 x 0.25	
4	45ST63	1	8.1 x 5.4 x 0.3	rounded rectangle
5	DiQj 3	1	4.5 x 2.0 x 1.0	
	DiQj 5	1	4.7 x 3.7 x 0.4	
6	DjQj 1	20	4 x 4 x 0.1 4.2 x 4.2 x 0.15 4.7 x 4.7 x 0.15 5.2 x 5.2 x 0.3 4.3 x 4.3 x 0.2 8.0 x 6.5 x 0.3 12.2 x 7.0 x 0.5 12.5 x 12.3 x 1.2 9.5 x 5.8 x 0.4 4.8 x 4.1 x 0.2	most are flat- bottomed and a few have discernable rims

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APPENDIX II DATA SHEET ON RECTILINEAR HOUSEHOLD DEPRESSIONS  
(CONT'D)

AREA	SITE NUMBER	TOTAL RECT.	DIMENSIONS (IN METERS) (LENGTH x WIDTH x DEPTH)	ADDITIONAL COMMENTS
6	DjQj 1 (cont'd)	20	12.7 x 7.3 x 0.3 12.1 x 12.0 x 0.2 11.9 x 11.9 x 0.75 5.6 x 6.1 x 0.15 5.6 x 6.1 x 0.25 8.4 x 4.4 x 0.2 9.9 x 5.0 x 0.3 5.5 x 4.0 x 0.3 4.7 x 4.8 x 0.2 4.5 x 4.5 x 0.2	
	DkQi 19	1	6.6 x 6	

- AREA: (1) Upper Arrow Lake  
 (2) Lower Arrow Lake  
 (3) Columbia River (Castlegar-Waneta)  
 (4) Columbia River (Waneta - Kettle Falls)  
 (5) Kootenay River  
 (6) Slocan River  
 (7) Slocan Lake

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APPENDIX III SETTLEMENT SIZE DATA SHEET					
AREA	SETTLEMENT SIZE				TOTAL (HP.)
	SINGLE HOUSEPIT	SMALL (2-5 HP.)	MEDIUM (6-10 HP.)	LARGE (11+ HP.)	
1	(EaQ1 5)	EcQ1 1, EaQk 1, EaQ1 4, D1Qm 7, D1Qm 32, *EaQ1 5	EbQ1 1	-	26 *27
2	DkQm 9 DkQm 15 DkQm 17 DjQm 3 DiQm 10 DiQm 14 DiQm 18 (DiQm 8) (DiQm 15) (DiQ1 1)	DkQm 1,2,4,5,6 DjQm 2 DiQm 3,7,19 DiQ1 2,6 DiQk 3,4 *DiQm 8 *DiQm 15	DjQm 1 DiQm 17 DiQk 1	DiQm 1 DiQm 4 *DiQ1 1	108 *133
3	DhQj 19 DhQj 20 DhQj 21	DhQj 12,22,23	DhQj 2,4	-	23
4	45ST63	45ST77,96	45FE47	45ST72, <sup>24</sup> 45FE46	63
5	DiQj 6	DjQi 2, DiQi 2 DiQj 12 (DiQj 1) (DiQj 2)	DiQj 3	DiQj 5,18 *DiQj 1 *DiQj 2	61 *81
6	DiQj 20 DkQi 14 DkQi 15 DkQi 16	DiQj 19 DkQi 2,4 (DiQj 8)	DkQi 1,3,18	DjQj 1 DkQi 17,19 *DiQj 8	152 *186
7	D1Qi 15	DkQi 9 EaQi 1	D1Qi 6	-	14
Total 1	21	34	12	10	452
Total 2*	17	34	12	14	532

Total 1= Actual number recorded by archaeologists

Total 2= Probable total based on housepits reportedly destroyed  
(See Appendix I for details)

( ) = Actual

\* = Probable count

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