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AN OVERVIEW OF HISTORY IN THE DRAINAGE BASIN OF THE MIDDLE FORK OF THE SALMON RIVER

by

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ABSTRACT

The history of the Middle Fork of the Salmon River drainage basin in central Idaho can be characterized as a series of brief interludes in the over-riding theme of economic and social isolation from other parts of Idaho and the United States. Early nineteenth century fur trapping, the Loon Creek mining boom, the Sheepeater Campaign, Thunder Mountain mining, and recent recreational interest are some of the interludes that involved interaction with external economies and society. However, because there was no permanence for these interactions, a frontier atmosphere reigned in the Middle Fork basin until the 1930s. This overview recounts and synthesizes historic events of the past 150-175 years, beginning with a summary of aboriginal use of area natural resources and ending with a short review of recreational use in the "Wild and Scenic" Middle Fork River and the Idaho Primitive Area. The final section presents a predictive model for early agriculture site location, one aspect of Middle Fork history that has not been satisfactorily addressed in historic documents.

NB: This overview is a companion to a more detailed site survey, "Archaeological reconnaissance in the Middle Fork Salmon Basin, 1978," by Darby Stapp and others (n.d.). More detailed descriptions of many historic sites discussed in this overview, with an outline of the methods of research followed for the Middle Fork analysis, are to be found in the reconnaissance report.

ACKNOWLEDGMENTS

In the summer of 1978 the Idaho State Historical Society and the U.S. Forest Service entered into a cooperative agreement for the purpose of conducting research on historic and prehistoric cultural materials of the Middle Fork of the Salmon River Basin in central Idaho. Research consisted of archaeological field surveys, a historic document search, and laboratory analysis of environmental data.

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1. INTRODUCTION

In both the degree and the longevity of its isolation, the drainage basin of the Salmon River's Middle Fork (Fig. 1) differs from most areas of the United States. There transportation was slow, natural resources remained underdeveloped, population density was low, and contemporary technologies were slow to be accepted. Because of this isolation, the Middle Fork contains historic and archaeological materials from a frontier context that lasted over 100 years.

The historic adaptation of Middle Fork inhabitants was due largely to the constraints of the environment. The people were physically isolated from "the outside" by a number of factors. The total drainage encompasses elevations ranging from 3100 to 10,000 ft. (900-3100 m). The topography is rough; in the vicinity of the Bighorn Crags elevations of 4000 and 10,000 ft. (1200 and 3000 m) are less than 5 mi. (8 km) apart. Although snow is light in the lower river valleys, the snow pack reaches considerable depth in the surrounding mountains. Transportation was often hampered in the spring, when creek and Middle Fork River volume may have been 650% higher than in the winter (Northwest Cartographics 1977).

The combined force of these environmental factors discouraged economic development of the Middle Fork area because resource exploitation was always at a great cost. The high risk and long hours required of packers and freighters due to narrow trails and treacherous roads dictated high prices for supplies packed to and exports (mineral and agricultural products) packed from the backcountry.

These factors also contributed to an economic dependency on ore extraction, because it was the one locally abundant product of sufficient national scarcity to justify exploitation despite high transportation costs. Although production was rarely stable or dependable, ore was the one resource of the Middle Fork basin attractive to wealthy outside investors. Unfortunately, the profits from mining went mostly to those investors, and so were not recycled through the local economy.

Businesses other than mining were also unable to contribute significantly to the local economy. Throughout most of Idaho history, the highest stable population density has centered on the Snake River plain. In the nineteenth and early twentieth centuries, this crescent of markets received most of its agricultural and timber products from local sources. Not only was the Middle Fork at a considerable distance from these major markets, but the area's agricultural potential was never high since the growing season there is short and the soil shallow, except on a few major creek and river terraces.

Cattle and sheep herding in the Middle Fork drainage basin has contributed some agricultural products to Idaho markets. Nevertheless, the relatively small acreage of productive rangeland has scarcely aided the economic development of the Middle Fork region proper. Because these lands were used principally as summer range, any income generated by livestock sales was circulated in the vicinity of the owner's permanent home base, sometimes over 100 mi. (160 km) away.

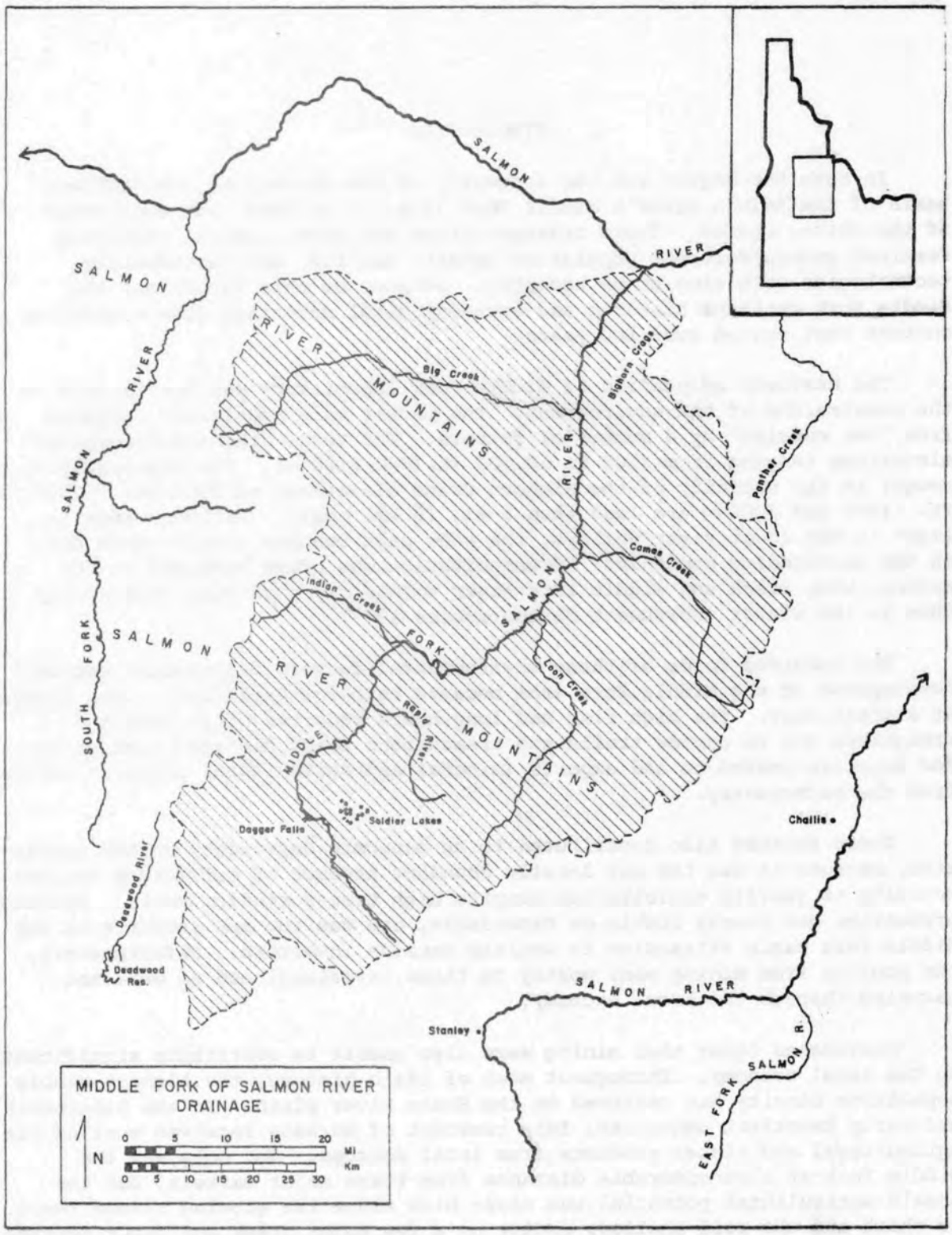

Fig. 1. Middle Fork Salmon drainage basin, Idaho.

Historically, Idaho itself was isolated from the mainstream of national economic development, again partially due to its physical location. Until completion of the Snake-Columbia waterway in the past decade, it had no seaport. Even after two transcontinental railroads were built through Idaho in 1883, the travel time to major national markets such as St. Louis, Chicago, and San Francisco was excessive for the types of exports which Idaho was able to produce. Economic development and population growth have been "belated" in Idaho as compared with the coastal states of California, Oregon, and Washington. To this day Idaho remains one of the few "rural" states in the United States (U.S. Department of Commerce 1977:13,1722). The combination of Idaho's minimal involvement in national economic and political affairs with the additional physical, and consequently social and economic, isolation of the Middle Fork basin has produced the distinctive character of Middle Fork history.

The present overview provides the background against which hypotheses concerning adaptation to isolated frontier situations can be formulated. Some of the general subjects that may someday be addressed through a more detailed and problem-oriented analysis of the Middle Fork materials are: 1) the close relationships among economic, social, and ideological aspects of historic cultures and the physical and social environments; 2) the representation of individual status in an area where material goods were limited; and 3) the mechanisms and consequences of decision-making in a comparatively hostile environment.

This overview outlines the cultural events of the Middle Fork Salmon drainage basin from the early 1800s to the 1930s. Previous to this work, no comprehensive history of the entire Middle Fork basin has been written. There are, however, popularized accounts for small areas within the basin (Carrey 1968; Carrey and Conley 1977; Midmore 1970; Parke 1955) and national forest histories (Challis National Forest n.d.b; Hockaday 1968; Smith 1978, n.d.) which offer fair to good compilations of events in their respective areas. No historic archaeological work had been conducted in the Middle Fork basin before the summer of 1978.

Because of the area's great size (over 3200 km^2 or 2000 $mi.^2$), detail is kept at a minimum; specific information is only used to illustrate general trends in Middle Fork history. Due also to constraints on the author's time and efforts, certain valuable sources of information were not examined, notably, mining claim records at county courthouses, and both local and regional newspapers. These sources were omitted because possibly 3000 (or more) claims have been filed in the study area, and because there was not time to locate and canvass all the potentially relevant newspaper files. It is felt, however, that the diversity of other sources consulted compensated in many ways for the omissions and that no major aspect of Middle Fork history has been ignored.

The overview is written from the perspective of a historical archaeologist and therefore contains considerable emphasis on material culture. This is especially evident in the short discussions at the end of most sections which describe the types of features and artifacts which Middle Fork inhabitants possessed and possibly abandoned. The overview is designed to be useful in cultural resource management; it therefore attempts to provide aids for recognizing different types of sites and their likely locations on the landscape.

2. INDIAN PREHISTORY AND HISTORY

The prehistory of the Middle Fork Salmon drainage is rather incompletely known. Ethnography and Indian oral tradition have provided the most information about the area's cultural history, but these sources are limited because many of the data were not collected until the 1930s and later (Lowie 1909; Steward 1938; Liljeblad 1957; Murphy and Murphy 1960). Historic sources contain little, and often inaccurate, information about the Indians of central Idaho, especially since contact was infrequent (Lewis and Phillips 1923; Ferris 1940). Recent efforts sponsored by the U.S. Forest Service and/or the Idaho State Historical Society (Pavesic 1978; Stapp and others n.d.) are beginning to provide a better idea of aboriginal activities in the area through archaeological investigation. Present knowledge of and supposition about prehistory is summarized here as background for efforts to reconstruct site locations and subsistence patterns of historic Indian groups in the Middle Fork drainage.

Indians lived in the mountains of central Idaho for at least 10,000 years before the coming of Euroamerican populations (Gallagher 1975; Swanson and Sneed 1966:43). Their cultural identity is obscure, although Swanson (1972:197) believed that cultural antecedents of the Numic-speaking Shoshoni had been in the present state of Idaho for at least 8000 years. (Note, however, the controversy surrounding the issue of how long Uto-Aztecan-speaking groups [including Numic speakers] have occupied the Great Basin, which lies to the south of the study area. Lamb [1958] and Goss [1968, 1978] offer and review numerous theories based on linguistic evidence, while Madsen [1975] and Epstein [1968] review archaeological evidence which adds to the controversy.) In addition, the Sahaptin-speaking Nez Perce Indians apparently used some resources within the drainage area and occupied at least two seasonal camps there (Butler 1978; Schwede 1966:47).

Swanson (1972:210) maintained that the aboriginal culture elements for the central mountains of Idaho were fairly similar throughout its human occupation and that therefore such factors as preferences for certain foods and site locations were similar for both early and late prehistoric times. This has yet to be proved on the Middle Fork of the Salmon River, and therefore the following culture historical summary applies only to the late prehistoric period.

The Indians of central Idaho, whatever their linguistic or cultural affiliation, relied on hunting, gathering, and fishing for their subsistence. Winter villages, which were often occupied until early summer, were located in major river valleys such as the Middle Fork of the Salmon River and Big Creek. Villages consisted of 2-40 extended families (Steward 1938:187-188). The location of these villages corresponded with the winter range of big game animals and also with good fishing spots on the river that insured easy access to early summer runs of anadromous fish (Liljeblad 1957:100). The villages were apparently limited to valley floors on second and third terraces that were wide enough to accommodate them (Stapp and others n.d.). These winter villages were probably deserted in late spring or early summer for fields of camas and other important vegetable foods, and for big game summer ranges at higher elevations. Summer camps were probably much smaller than the winter villages, one band separating into groups composed of a few families to facilitate mobile hunting and gathering. Summer and early fall

camp locations were more frequently changed than were village locations, as the Indians followed game and ripening plant foods.

Because they were concentrated along major streams, aboriginal winter sites of the central Idaho Indians have been more completely recorded than the summer and fall temporary camps (Harrison 1971). This is especially true in the Middle Fork drainage because of the rugged nature of the mountainous uplands. The patterning of upland camp locations, sizes, and functions has yet to be recognized.

Ethnographically, the Shoshoni described themselves by several different names, depending on the types of foods eaten. While it was possible that one group of Shoshoni could be known by more than one name as it progressed through a season round, in central Idaho generally the name *tûkudeka* or Sheepeaters was reserved for those who wintered in the mountains there and hunted big game, especially bighorn sheep (Liljeblad 1957:54-55).

Most ethnographers and archaeologists believe that the *tûkudeka* were the historic inhabitants of the upper Salmon River and its tributaries. Gallagher (1975), however, has suggested that ethnographic sources plus archaeological evidence from Redfish Overhang (10-CR-201) and the Sheepeater Battleground site (10-CR-202) in central Idaho indicate occupation by both the *tûkudeka* and the Boise-Weiser Shoshoni, the latter wintering west of the upper Salmon and Middle Fork Rivers. He interprets the lack of vegetal-processing tools and a higher percentage of hunting and butchering tools at Sheepeater Battleground as evidence for site use by Boise-Weiser Shoshoni populations. However, a close similarity in the material cultures of the two Shoshoni groups and poor preservation of faunal and vegetal remains at archaeological sites would seem to make distinction of the two groups virtually impossible. Therefore the ethnographic pattern as described here is based on the ethnographers' accounts of the *tûkudeka* only.

Although it would be misleading to describe these central Idaho Indians as completely isolated from surrounding groups, their contact with others was probably infrequent. Ethnographic records indicate they did not frequently visit Camas Prairie, a popular early summer meeting place for other Shoshoni 140 km (90 mi.) to the south (Liljeblad 1957:99; Murphy and Murphy 1960:323; Steward 1938:136,188). It would seem that any *tûkudeka* trips made to Camas Prairie would have been more social than economic in nature since large camas meadows (Poker, Ayers, Vader, and Sheepeater [Statham 1975:69]) were available much closer to their winter villages. Nevertheless the *tûkudeka* did travel to Camas Prairie to trade away hides of bighorn sheep (Idaho State Historical Society 1962). Analyses of obsidian trace elements may offer further evidence of contact with other Indian populations, or actual visits to areas outside of the upper Salmon and Middle Fork of the Salmon River drainages. Studies of obsidian from the Sheepeater Battleground site on Marsh Creek and Redfish Overhang, approximately 30 km (20 mi.) south of the study area, suggest that the primary source exploited by prehistoric inhabitants of those sites was Timber Butte, over 90 km (60 mi.) to the southwest (Gallagher 1975:Appendix I; Gallagher, Sappington, and Wylie 1979). Timber Butte was also the primary source of the archaeological obsidian found during the 1978 Middle Fork survey (Stapp and others n.d.). Relative to this topic, a small group of *tûkudeka*, headed by Eagle eye, remained in central Idaho after the Sheepeater War, and eventually settled at Dry Buck, next to Timber Butte. They remained there until about 1900 (Merle Wells 1980:personal communication).

The Nez Perce Indians of the Plateau culture area inhabited or visited portions of the drainage of the Middle Fork (Schwede 1966:47) (Fig. 2a,c) but their "territory" was mainly north and west of that of the *tûkudeka*. An 1855 treaty between the United States government and the Nez Perce delimited a large reservation for that tribe that extended as far east and south as the Pahsimeroi (Haines:1955), and hence included the lower Middle Fork. In general, though, the Nez Perce were located in the southeastern part of the present state of Washington, and in adjacent sections of western Idaho and northeastern Oregon. Yearly expeditions to Montana and Wyoming to hunt bison after acquisition of the horse generally followed established trails to the north of the Middle Fork drainage (Chalfant 1974:122-124; Haines 1955).

Butler (1978) has suggested that the Middle Fork drainage was visited by the Nez Perce during the late prehistoric period until they acquired the horse in the late eighteenth century. By the early nineteenth century, some *tûkudeka* families had moved northward into former Nez Perce territory along the lower portion of the Middle Fork and its major tributaries. Nez Perce-*tûkudeka* co-occupation of the area is not precluded, however. Although it is expected that the two groups' socio-cultural adaptations to this mountainous environment were similar, Butler maintains that two material cultures and associated architectures probably varied, and that this should be reflected in the archaeological record.

Liljeblad (1957:96), the principal ethnographer of the *tûkudeka*, claims that *tûkudeka* culture was more Plateau-like than Great Basin-like. If so, the influence of and contact with the Nez Perce and their predecessors must have been significant. Further archaeological investigation may clarify the Plateau-Great Basin interaction, although similarities in the material cultures of the two major cultural groups presents a serious problem for definite cultural identification.

Population size at the time of contact is difficult to reconstruct because Indian groups were often misidentified, exaggerated numbers were cited in historic sources, and population was greatly reduced by smallpox epidemics in the nineteenth century (Liljeblad 1959:54; Stearn and Stearn 1945). Steward (1938:49) suggested an 1865 population density of one person per 22.5 mi^2. Stearn and Stearn (1945:131) claim that in the Columbia Region, which includes central Idaho, between one-third and one-half of the Indians died in the smallpox epidemic of 1782-1783. At least three other epidemics between 1785 and 1865 which affected nearby Indian groups to the north and east of the *tûkudeka* may have further reduced *tûkudeka* population (Stearn and Stearn 1945:76,68,85). Therefore, Steward's population estimate is probably less than the actual aboriginal population density in the late prehistoric period. The pre-smallpox density may have been as high as, say, one person per 10 mi^2.

By 1700 the Shoshoni of southern Idaho had obtained the horse (Haines 1938:435). The horse was responsible for major changes in subsistence activities of both Shoshoni and Nez Perce Indians. Thereafter they could participate in buffalo hunts in western Montana and Wyoming because of their increased mobility. Some *tûkudeka* (notably those who later inhabited the Lemhi Reservation) used horses for extensive travel, but those who continued to occupy the Middle Fork did not, partly because of the rough terrain. Culturally more conservative, the inhabitants of the Middle Fork retained their older language and culture (including mountain sheep hunting), while others adopted a horse economy.

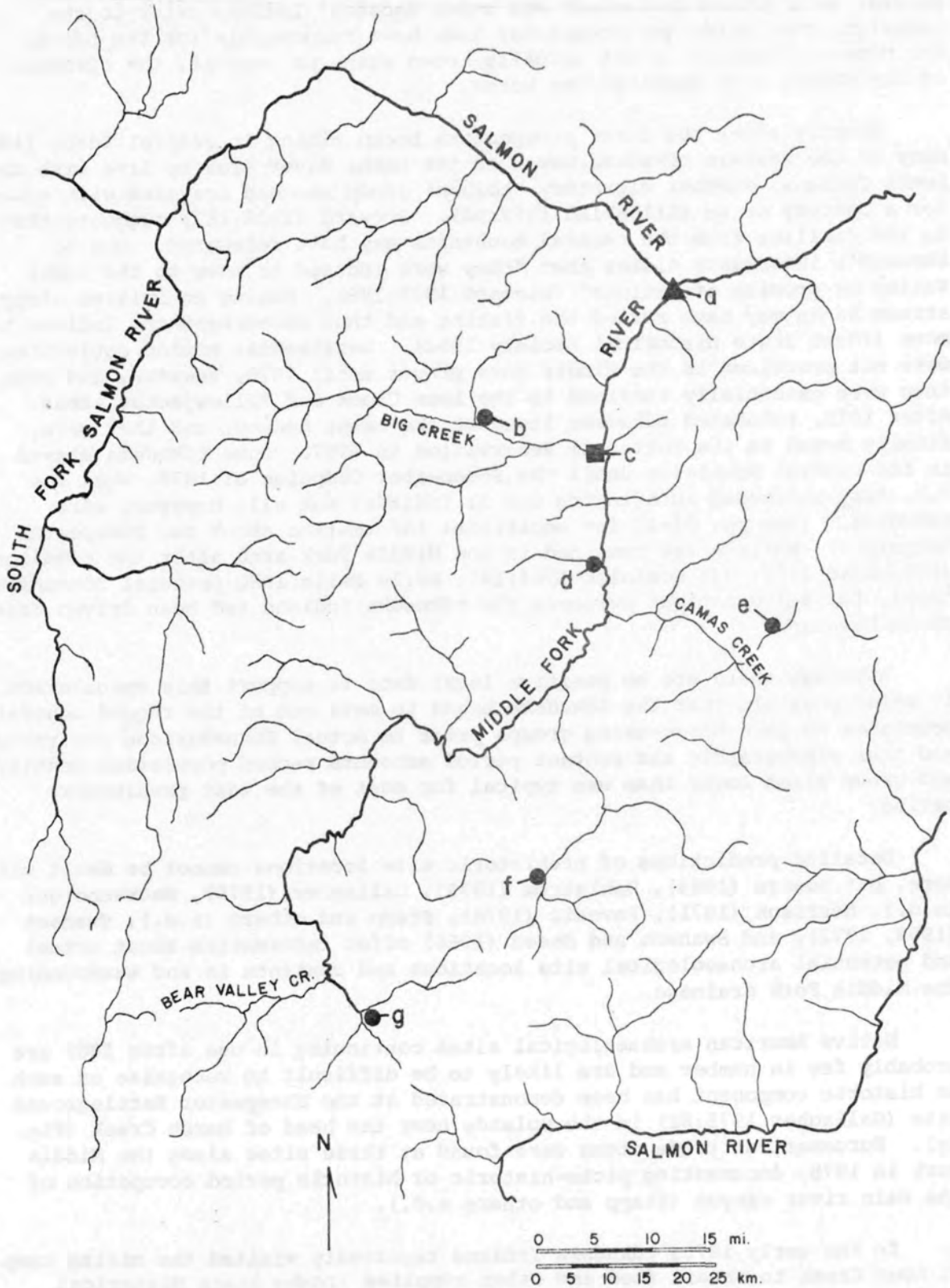

Fig. 2. Historic period *túkudeka* and Nez Perce site locations. ● are túkudeka, ■ is Nez Perce, and ▲ is both *túkudeka* and Nez Perce.

The Indians, however, did use horses during the Sheepeater Campaign of 1879 (Brown 1926:46). Military accounts claim that the *tûkudeka* (Sheepeaters) were joined by Bannock and other Shoshoni Indians prior to the campaign; the latter two groups may have been responsible for the use of the horses. Thus it is not actually known when, or even if, the *tûkudeka* of the Middle Fork acquired the horse.

Shortly after the first prospectors began mining in central Idaho (1860), many of the western *tûkudeka* moved to the Lemhi River area to live with the Lemhi Indians, another migratory Shoshoni group who had traveled with horses for a century or so (Liljeblad 1957:94). Steward (1938:187) suggests that up to 100 families from the central mountains may have relocated. One of Steward's informants claims that "they were induced to move to the Lemhi Valley by promise of rations" (Steward 1938:186). Mining activities along stream banks may have ruined the fishing and thus encouraged the Indians to move (Idaho State Historical Society 1962). Detrimental mining activities were not practiced in the Middle Fork proper until 1870, however, and even then were essentially confined to the Loon Creek and Yellowjacket areas. After 1875, relocated *tûkudeka* lived at the Lemhi Agency, and they were finally moved to the Fort Hall Reservation in 1907. Some *tûkudeka* stayed in the central mountains until the Sheepeater Campaign of 1879, when the U.S. Army succeeded in bringing out 51 Indians; not all, however, were *tûkudeka*. (See pp. 21-22 for additional information about the Sheepeater Campaign.) While a few remained in the Middle Fork area after the campaign (Liljeblad 1957:103; Dominick 1964:141; Merle Wells 1980:personal communication), for all practical purposes the *tûkudeka* Indians had been driven from their homeland.

Although there are no positive local data to support this speculation, it seems possible that the *tûkudeka* began to move out of the rugged central mountains to join horse-using groups prior to actual Euroamerican contracts, and thus ethnographic and contact period accounts record population density and group sizes lower than was typical for most of the last prehistoric period.

Detailed predictions of prehistoric site locations cannot be dealt with here, but Bowers (1964), Dahlstrom (1972), Gallagher (1975), Hackenberger (n.d.), Harrison (1971), Pavesic (1978), Stapp and others (n.d.), Swanson (1958, 1972), and Swanson and Sneed (1966) offer information about actual and potential archaeological site locations and contents in and surrounding the Middle Fork drainage.

Native American archaeological sites continuing in use after 1869 are probably few in number and are likely to be difficult to recognize as such. An historic component has been demonstrated at the Sheepeater Battleground site (Gallagher 1975:82) in the uplands near the head of Marsh Creek (Fig. 2g). Euroamerican trade items were found at three sites along the Middle Fork in 1978, documenting proto-historic or historic period occupation of the main river canyon (Stapp and others n.d.).

In the early 1870s *tûkudeka* Indians reportedly visited the mining camp at Loon Creek to obtain food and other supplies (Idaho State Historical Society 1965a), so it is expected that temporary camps were located on Loon Creek (Fig. 2f) and possibly on other tributaries of the Middle Fork. A camp and burial ground have been reported at the confluence of Silver and Rams Creeks

near Meyers Cove (Salmon National Forest 1972; Shoup 1969:12) (Fig. 2e). The site is also reputed to have been an Indian battleground, but that designation is questionable (Salmon National Forest 1972; Shoup 1969:12). In accounts of the Sheepeater Campaign, military personnel report very few historic period Indian sites which were occupied before summer, 1879. The first sighting of the *tûkudeka* during the campaign was at the mouth of Cabin Creek at Big Creek where the Indians were observed setting fish traps (Lewis 1925:Fig 2*b*). The site may also have been used earlier in the historic period. The military later discovered an old village near the mouth of Bernard Creek on the Middle Fork River (Brown 1926:40) (Fig. 2d). Finally, Steward (1938:136) has identified two *tûkudeka* villages on the Middle Fork, one at the river's confluence with the main Salmon River and the other near the Middle Fork's headwaters, perhaps at the Sheepeater Battleground site (Fig. 2a,g).

Historic Indian sites may be recognized by the co-occurrence of aboriginal and Euroamerican artifacts. Materials in the aboriginal tradition will consist mostly of flaked stone. The Euroamerican artifacts are likely to be of glass (e.g., beads) or metal (e.g., knife blades, gun parts). Often, pieces of iron were modified by the Indians to make "new" artifacts. For example, metal projectile points made from knives or other pieces of flat iron are not uncommon at historic Indian sites in the Northwest.

3. HISTORY OF THE NINETEENTH CENTURY

Fur Trapping

Most of the early expeditions by Euroamericans into the mountains of central Idaho were concerned with the fur trapping business. Even the Lewis and Clark expedition in 1805 indirectly encouraged the expansion of American and British fur trading companies into Idaho.

At least two early organized expeditions reached the Middle Fork drainage--part of the 1824 Alexander Ross party and John Work's 1832 Hudson's Bay Company brigade. Their short visits were limited to Bear Valley and Cape Horn Creeks, and possibly to the uppermost Middle Fork proper (Idaho State Historical Society 1972). Access was relatively easy over the low pass between Valley Creek, a tributary of the main Salmon River, and the two creeks mentioned above. These few trappers probably limited their wandering to the southern periphery of the drainage basin since further downstream, to the north, the countryside was more rugged and foreboding.

Although contact between Euroamerican trappers and the *tûkudeka* Indians of the Middle Fork drainage was rare, it probably had a serious effect on the Indians by exposing them to previously unknown diseases and by placing them in competition with the trappers for wild foods, especially big game.

With the depletion of beaver populations throughout much of Idaho by 1830 (de Jong 1957:101), there was little reason for Euroamericans to stay in the mountains of central Idaho. Unrecognized were other resources that would later draw thousands of people to the area--minerals, grazing and agricultural lands, and recreational opportunities.

Euroamerican archaeological sites dating to the fur trapping period of the early 1800s, like Indian sites of this time, are undoubtedly few and far between. As mentioned previously, they are probably confined to the drainage of Marsh, Bear Valley, and Cape Horn Creeks, and perhaps to the uppermost part of the Middle Fork itself (Fig. 3). Evidence of trapper occupation should be scarce, since they established no permanent settlements and had few material possessions. Of the few goods trappers possessed, most would not have been preserved over the past 125 to 175 years. Gun parts, knives, and traps are the artifacts most likely to have survived.

Mining at Loon Creek 1869-1872

In 1860 Captain Pierce discovered placer gold along Orofino Creek, Idaho. This new resource opened up numerous possibilities for Americans to "make a living" in the future territory and state of Idaho. As miners were drawn from Washington, California, Colorado, and elsewhere, the inevitable flow of merchants and laborers followed. The mining communities of Pierce, Orofino, Florence, and Warrens sprang up between 1860 and 1862 as placer claims were located and mined in central Idaho (Beal and Wells 1959:218-299). Soon gold was discovered near Boise (Romig 1950:7), at Leesburg, and at Robinson's Bar (Idaho State Historical Society 1965a)--on all sides of the Middle Fork area.

In 1864 gold was found on Loon Creek, a tributary of the Middle Fork, but the big rush was not until 1869, when Nathan Smith engaged in some additional prospecting there and announced the area's rich potential at the mining town of Leesburg, 60 mi. (95 km) to the northeast (Midmore 1970:27).

Giving little or no consideration to what the district had to offer in the way of shelter or food, hundreds of miners travelled to Loon Creek. Three mining districts were established; each miner could locate and own a total of nine claims, three per mining district. The town of Oro Grande was founded immediately, and it contained seven stores, seven saloons, three boarding houses, and two express offices in the fall of 1869. Most miners lived in tents, although as soon as the sawmills began to cut lumber, more permanent houses began to be constructed. (Fig. 4 illustrates a tent frame style which was probably typical for Oro Grande in the late 1860s.) The boom at Loon Creek was short-lived; by 1872 fewer than 75 people lived at Oro Grande, where a few years earlier there had been over 500 inhabitants (Idaho State Historical Society 1965a).

Although the 1870 population census for the Loon Creek mining district (United States of America 1973 [1870]) does not accurately record where people lived before moving to the Loon Creek placers, it gives an idea of the diversity of cultures represented at a fairly typical boom mining camp. About one-third of the total population was originally from Europe with more than half of those from Ireland. Only four individual Chinese, plus two households of unrecorded size, were noted in the census. Most Chinese who were working the low paying claims in the Loon Creek district in 1870 did not arrive there until after the census was taken on June 1, so they could not be counted (Idaho State Historical Society 1965a).

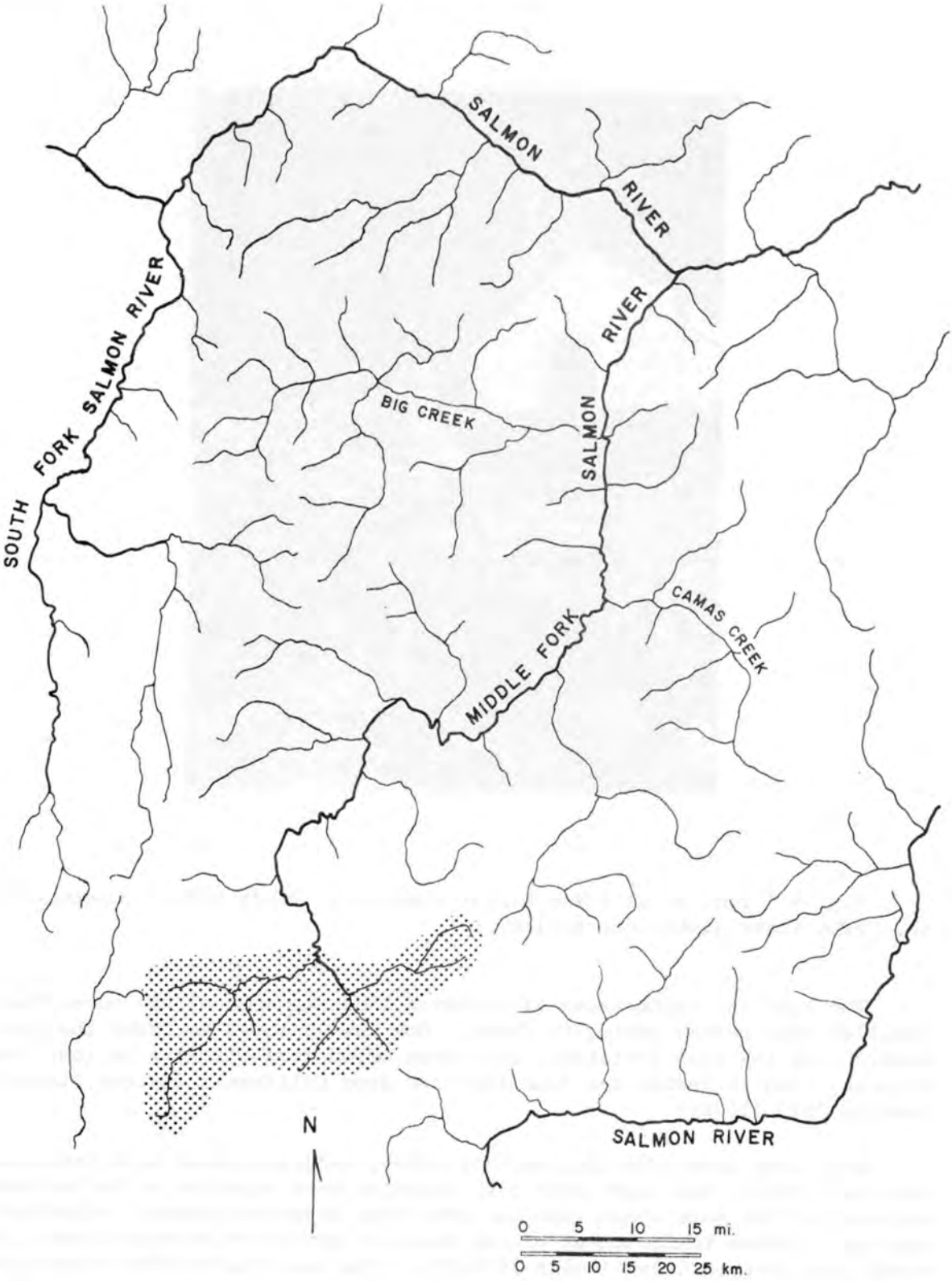

Fig. 3. Area of early nineteenth century fur trapping activities.

Fig. 4. Tent at an Idaho mining community, Ivers 1906. (Courtesy of the Idaho State Historical Society.)

The ages and birthplaces of children indicate some of the moves that families made before coming to Idaho. One family moved to Idaho the year before from the Utah Territory; one woman moved from Virginia to Iowa, then Montana, then to Idaho; two families came from California (United States of America 1973 [1870]).

When Loon Creek was discovered in 1869, hundreds moved here from Leesburg and Idaho City. That same year rich deposits were reported at Yellowjacket and many of the same miners who had come from Leesburg probably scrambled to the north. When Yellowjacket placer deposits proved to be significant, they moved back to Loon Creek (Wells 1974:79). The next year--1870--claims were being located on the Yankee Fork south of Loon Creek, and 50 to 60 of the Loon Creek miners prospected there (Idaho Historical Society 1965b).

performed or the wages they received. Therefore, the Chinese were probably willing to operate farms for an unreliable market and under a lower profit margin than were Euroamericans. Oppression forced them to be less sensitive to the risk of failure.

At Loon Creek, as elsewhere in the mountains of central Idaho, heavy winter snows, large spring runoffs, and low water in the fall limited placer mining to summer and early fall. Not only were local conditions poor for year-round mining, but supplies from Idaho City or Salmon City could not reach the camps due to snow or high water. Although winter conditions were severe in the highlands surrounding Loon Creek, the valley itself suffered less from deep snows and extreme cold. The first winter at Oro Grande (1869-1870) saw 200 miners wintering over in order to be on hand for the first opportunity to work their claims (Idaho State Historical Society 1965a).

Placer mining along Loon Creek was not limited to the vicinity of Oro Grande. Most early activity came on some high bars or terraces both north and south of Oro Grande. Evidence of placer mining still shows on the next wide terrace to the north, at Tin Cup Creek. However, temporally diagnostic artifacts are scarce there, and those few observed indicate occupation later than 1879. Traces of early mining may have been observed by later work.

Historical archaeological survey at the former townsite of Oro Grande in the summer of 1978 revealed that the site has been seriously damaged by pothunters. Of the 15 features observed, all but one were very disturbed. Walls had been broken down and moved, there were few complete artifacts, and fragmentary artifacts had been scattered away from apparent feature boundaries. The site retains some archaeological potential, however, because structure distribution and faunal associations can still be recorded and analyzed, and it still appears possible to make fairly complete artifact collections at the few undisturbed features.

The early Loon Creek mining activities left a greater number and diversity of artifacts than did the previous Middle Fork occupations. Mining equipment included shovels, picks, gold pans, and hydraulic mining pipes and nozzles. At Oro Grande today the most frequently discovered tools are shovels, which were most often employed in ditch digging. Hydraulic equipment is also present, although it may be associated with later operations at Loon Creek. It is anticipated that household artifacts from the earliest mining camps would include many tin cans, since canned goods probably provided a significant percentage of the food consumed. Animal bones should indicate the miner's heavy reliance on wild game or domesticated species. Collections of glass fragments should be dominated by beer, wine, and liquor bottle glass. Luxury items should be scarce at Loon Creek features of the early 1870s, first because few fancy goods were supplied to an unstable, isolated mining community, and second because these items are highly treasured by pothunters. Chinese artifacts, such as opium tin and bottles, delicate tea cups and bowls, and coins, are not uncommon at Oro Grande; most Chinese artifacts found along Loon Creek are probably attributable to the 1869-1879 period, because no Chinese were housed at later historic mining camps there.

Architectural features are more difficult to determine. There are no standing structures that date to the earliest Loon Creek boom. As implied previously, floor dimensions and other aspects of features cannot always be determined because of subsequent disturbances. In the 1870 census (United States of America 1973 [1870]) 160 residences were recorded; the average (mean) number of members per household was approximately three, while the most frequent (mode) household size was one. Therefore, most houses were small; boarding houses were few (only 13 non-family residences contained six or more inhabitants). Many "houses" may have actually been tents, and archaeological evidence for tent locations is practically nil although artifact concentrations may give some indication. Non-residential buildings were also constructed at Oro Grande. As mentioned above, in the fall of 1869, there were 16 structures other than houses, and probably several more were built in the next two years. Therefore, in the early 1870s, approximately 150 structures covered a terrace measuring about 1750x250 m (1x0.15 mi.).

Chinese at Early Mining Camps

While the 1870 census did not adequately recognize the Chinese population at Loon Creek, the orientals were there in number (Idaho State Historical Society 1965a). As was characteristic elsewhere in Idaho, the Chinese worked the low-paying claims because they were not allowed to own rich claims and because they were generally the only people with the perseverance to spend hours and hours in extracting only small amounts of gold. Some of the Chinese at Loon Creek also performed services for the white community. Of the two Chinese reported in the census, one operated a laundry and one cooked at a hotel. Other Chinese may also have operated restaurants and served as water carriers as they did elsewhere in Idaho.

As the placers began to be worked out, the size of the Euroamerican population declined relative to the Chinese. In 1872, when Oro Grande's population was waning, half of the people living there were Chinese; and in 1879 several Chinese still worked claims that had long since been deserted by Euroamericans (Idaho State Historical Society 1965a). Chinese dependence on the Euroamerican community for jobs, such as the service businesses mentioned previously, should not be overemphasized. The Chinese probably changed occupations from times of boom to those of decline; during decline proportionately more Chinese mined rather than served the Euroamerican community.

In Oro Grande, the Chinese probably were allowed to build their community to one side of the town (Fig. 5c). Often they preferred to build closest to the stream so that they could work in laundries at their homes. At Oro Grande this arrangement may not have been possible since all waters at Loon Creek were diverted for placering operations (Idaho State Historical Society 1965a). Generally throughout Idaho, the houses where Chinese dwelled were indistinguishable from those of Euroamericans, except possibly for a sign in front written in Chinese characters. Sometimes, however, their homes were distinctive, as at Salmon City where Chinese houses were semi-subterranean with earth roofs and walls of logs and mud (Trull 1946:14). If they were occupied year around, they would

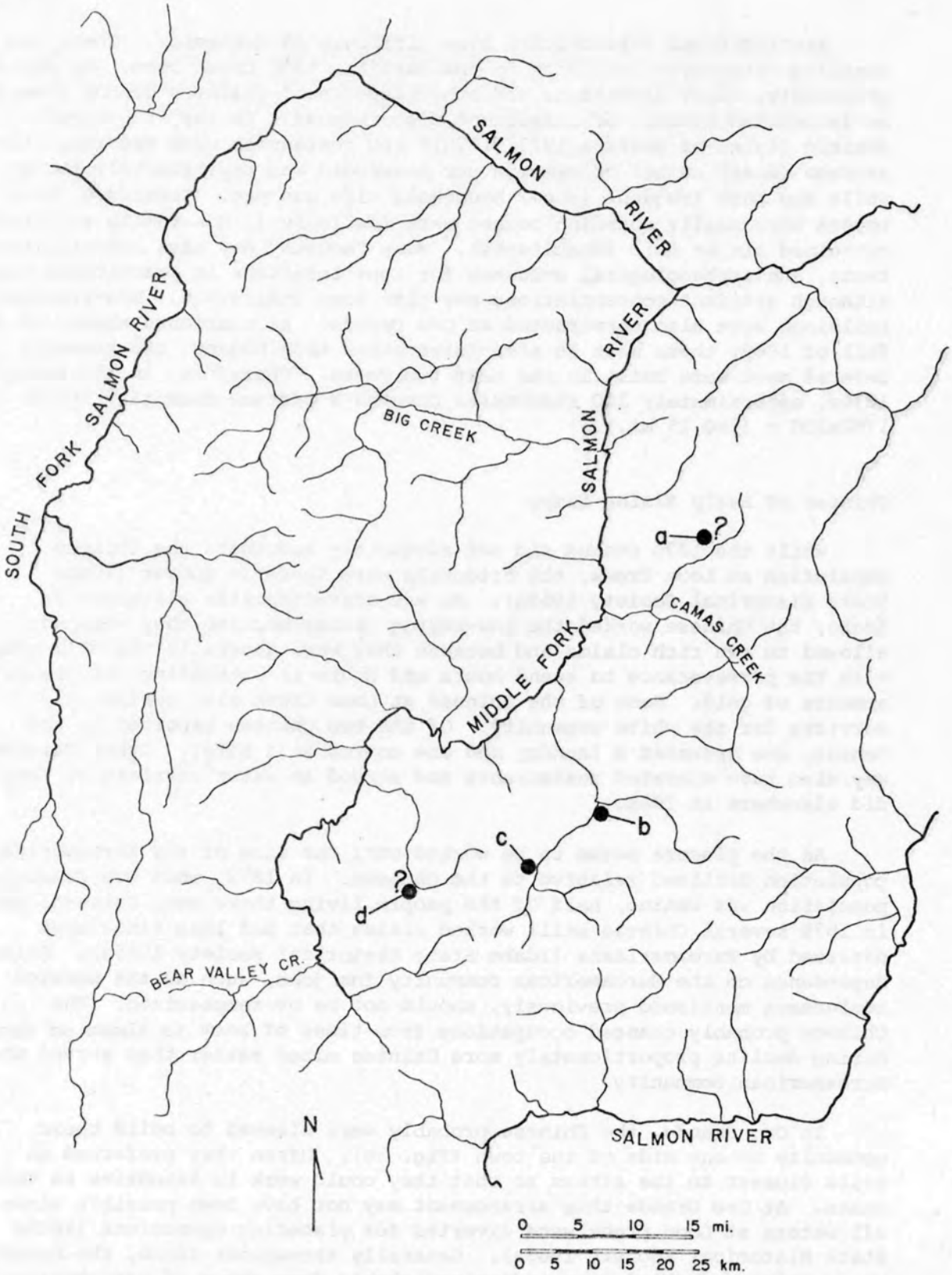

Fig. 5. Locations of Chinese settlements in the nineteenth century. *a*, Yellowjacket; *b*, Warm Springs Creek; *c*, Oro Grande; *d*, Seafoam; identification of Chinese at Yellowjacket and Seafoam is questionable.

have provided their occupants with good insulation from cold winter temperatures. Other houses in Idaho Chinatowns have been described as "clusters of small 8x12 ft. cabins huddled together, each one housing ten to twelve persons" (Derig 1972:18). The alleged size is not entirely believable, although the number of occupants may be.

It seems likely that Loon Creek Chinese mining operations were limited to the vicinity of Oro Grande, and that most or all of those Chinese performing services for the Euroamerican community also lived there. However, the historical record that Chinese gardens were grown as far away as Warm Springs Creek (Fig. 5b) indicates that the search for land with fertile soil and an adequate growing season led some Chinese to at least temporarily reside some distance from the main Loon Creek mining area.

No historic documentation was found for Chinese inhabitants at other Middle Fork mining camps. This does not necessarily mean they were confined to the Loon Creek area, however. Chinese were commonly resident at most mining camps in the Rocky Mountain West in the late nineteenth century. They were present, for example, at Leesburg, which is located only 40 mi. (65 km) east of the Yellowjacket area (Wayne O'Connor 1979:personal communication; O'Connor, now of Salmon, Idaho, spent his childhood in the 1910s and 1920s on a homestead on Panther Creek east of the Yellowjacket area). The question of the distribution and intensity of Chinese occupation in the Middle Fork area could profitably be pursued by archaeological and ethnohistoric research, as well as by further document searches.

Archaeological evidence of Chinese occupation at Loon Creek and elsewhere may include the presence of distinctive house styles, as indicated above. The absence of such does not eliminate the possibility of Chinese habitation. Distinctive Chinese artifacts, also mentioned previously, should be associated with Chinese households. Again, the presence of those artifacts does not necessarily identify the structure as Chinese, because such artifacts (e.g., opium pipes) were sometimes used by non-orientals as well. The more lines of evidence that indicate a Chinese presence, the stronger such an inference would be.

Attitude Toward Environment in the 1800s

> To the American colonists the forest was at the same time an impediment to be removed as rapidly as possible to make way for farms and villages, and a storehouse of materials needed for a wide variety of purposes [Dana 1956:3].

This statement was written about sixteenth century colonists on the Atlantic seaboard, yet with a few minor changes it could apply to nineteenth century miners in Idaho. They were not necessarily interested in farms and villages, but in gold, silver, or other ores. Yet they relied on the forested land for fuel, food, shelter, and the precious metals themselves. The miners' attitudes toward the wilderness they found in Idaho were typical of most Americans no matter where the frontier. The resources appeared to be endless--there were trees as far as the eye could see, game was abundant, soil erosion was minimal when the thousands of

remaining unspoiled mountain streams were considered. Since resources appeared endless, there was no logic in conservation. Besides, there usually was no commitment to the particular area being exploited. A miner went to a mining district to find gold, not to find a place to "settle down."

The environment suffered. As a rule, trees were clear-cut in the vicinity of mining camps, but because most camps were relatively small (less than 500 permanent residents) and were not occupied long (less than five years), damage to the forests was not extreme. Grass range lands probably did not fare as well. Since no wagon roads lead to Oro Grande and most of the other early mining camps, pack animals were used to transport goods into the area. Given the population of the area, the amount of ore extracted and an average pack train size of 20 animals (Beal and Wells 1959:393), during each peak year between 1865 and 1905 thousands of animals may have been packing and eating their way through the Middle Fork drainage basin (Fig. 6). It would not have been feasible or economic to carry food for all those animals, so most of their sustenance must have been provided by the local ranges, which were heavily used (Phillips 1972:2). Therefore not only was the range overgrazed, aiding in soil erosion, but the pack animals were in direct competition with big game.

When added to the large-scale killing of game animals to provide food for the miners (Phillips 1972:2), this competition greatly reduced the numbers of big game (principally deer, elk, and bighorn sheep) in the Middle Fork drainage. Furthermore, game populations were being decimated for yet

Fig. 6. Pack animals loaded and ready to travel, Ivers 1906. (Courtesy of the Idaho State Historical Society.)

other reasons. A miner at Thunder Mountain in 1902 estimated that "5000 head [of deer] had been illegally killed this summer" (Idaho Daily Statesman 1902b). By "illegally," he meant that the deer were not killed by miners to obtain adequate food in a poorly supplied region, a practice permissible at that time, but by others apparently either hunting for sport or to provide venison for people living outside the area. This means that, in addition to the 5000 deer killed *illegally* there were probably at least 1000 to 2000 killed *legally*.

Streams were also affected by early mining activities. The upper Marble Creek and Little Loon Creek channels were damaged by placer mining (Larson and Lovely 1972:25). Fish must have suffered from placering operations as previously clear streams became cloudy when miners disturbed sediments on the streams' banks.

Not all mining activities had the same effects on the environment. Panning for gold generally involved the least impact. The amount of earth moved was small and the number of miners was few. Panning was employed for prospecting and cleaning up gold sands from rockers and sluices. This meant short term occupation and therefore minimal damage to local resources.

If a deposit looked rich enough to warrant an extended stay in the area, larger scale and more efficient means of extracting the placer gold were used. These included use of the rocker or sluice boxes. (For an excellent description of placer mining methods with helpful diagrams, see Staley [1931].)

Of these more complex techniques, the rocker was the simpler, although the less efficient. The rocker was a device 4x1.5 ft. (1.2x0.45 m) that separated useless gravels from the finer gold particles by capturing the gravels in a sieve box on top, washing away the lighter sands and silts, and holding the gold particles in a canvas apron beneath the sieve or in the riffles at the bottom of the device. It usually required two men to operate a rocker. The rocker was preferred in locations where water was scarce, since it required less than all other placer mining techniques except panning.

Sluice boxes were the more productive of these "efficient" contraptions. Each box was 12-16 ft. (3.5-4.7 m) long and each sluice contained three or more boxes. At the beginning of the sluice, which was positioned near the gold-bearing gravel bar, was the head box and grizzly. The latter consisted of a series of bars, 3 in. (8 cm) apart, which prevented gravels and boulders from entering the sluice. In the sluice boxes, the riffles lay transverse to the flow of water and captured heavy gold particles. Sluicing required a large amount of water that was most often supplied by ditches that diverted stream waters to the sluice. Several men were involved in a sluicing operation, both in building and maintaining ditches and in shoveling gravel into the boxes (Staley 1931). A string of several sluice boxes sometimes was called a long tom.

The sequence from panning to sluicing then, is one of increased (but not greatly increased) efficiency, and of increasing labor force, duration of effort, amount of equipment, and amount of gravel moved. Consequently, it is also a sequence of increasing environmental impact.

When the claim promised to be profitable, an alternative method for placer mining was hydraulic mining. This generally involved building an extensive ditch system or length of pipe to carry water at high velocity and pressure to the site being mined. Near the gravel bar the water ran down a steep grade into sections of metal piping, each smaller in diameter than the one before, and then through a relatively small nozzle which was aimed at the streambank to erode it away. The murky, sediment-laden water flowed through a sluice box which captured the gold, while the large gravels settled into massive piles at the sides of the stream. Although hydraulic mining did not require capital investment and hence financial backing, several people were required for the operation. The ditch system was more complicated than that required for sluicing. Hydraulic pipe and nozzle had to be transported from the nearest market, often more than 50 mi. (80 km) away. A family or several miners could handle a hydraulic mining operation, but in the larger enterprises, as many as 15 people would be involved. Here again, there was increased impact to the environment; not only was erosion encouraged, grass rangeland depleted, and big game killed for food, but the landscape was esthetically marred as natural stream banks were changed to high barren gravel bars.

One method of mining placer gold that was even more environmentally damaging was not employed in the Middle Fork drainage area. This was dredging, which involved a huge piece of machinery that moved along a stream and rapidly sorted great quantities of sediments from the gold. As with hydraulic mining, dredging created huge mounds of gravel along the stream banks. Evidence of a fairly recent (1939) dredging operation can be seen on the Yankee Fork, 10 km (7 mi.) south of the study area. (A dredge was used to recover rare earth minerals, but not placer gold, in Bear Valley between 1953 and 1959 [Smith 1978:21].)

Except for dredging, all methods described above were employed both individually and often simultaneously to mine placer gold at locations in the Middle Fork Salmon basin. Even though the impact of a single hydraulic operation was moderate, numerous such operations on one short section of a creek had a very serious cumulative effect. The modified landscape along Loon Creek at Oro Grande testifies to this destruction. No laws regulated the exploitation and, as was mentioned before, the resources were viewed as inexhaustible.

The Sheepeater Campaign

Indian-Euroamerican relations during this period of exploitation must have been strained. Despite the fact that the Sheepeaters (*tûkudeka*) occasionally visited Oro Grande to obtain food and other goods (Idaho State Historical Society 1965a), they were probably concerned about the dwindling supply of game. (The *tûkudeka* are referred to as "Sheepeaters" throughout this section, since that is the name by which they were known after Euroamerican contact and the name used by historians of the Sheepeater Campaign.)

Meanwhile, other Indians throughout the Idaho Territory were objecting to shrinkage of their lands and loss of civil rights. The Nez Perce War of 1877 (Beal 1963) and the Bannock War of 1878 (Madsen 1958) reflected some of the unrest. Also, on the South Fork of the Salmon River, Sheepeater

Indians raided cattle ranches and killed two Euroamerican ranchers (Brown 1926:28). Undoubtedly, Euroamericans were becoming increasingly uneasy at having Indians nearby--the feeling was that when all Indians had been forced to move to (and stay on) reservations, Euroamericans could travel anywhere thoughout the territory without fear of attack.

The Loon Creek Massacre provided an excuse to remove the Sheepeater Indians to a reservation. On 12 February 1879, several Chinese (either five or eleven, depending on which account is read [Black n.d.:8 or Idaho Tri-Weekly Statesman 1879]) were murdered at their cabin on Loon Creek. They were the last of the Chinese miners still working placer deposits there. One man escaped to the town of Bonanza to tell of the murders, which were supposedly committed by Sheepeaters. These "Indians" may actually have been disguised white men (Idaho State Historical Society 1962). Whatever the case, the aroused Euroamerican community maintained that the Indians had gotten out of control and were a menace to society! Simply, the Sheepeater Indians had to be removed from central Idaho.

Numerous accounts have been written about the Sheepeater Campaign which followed (Hardin 1910; Parker 1925; Brown 1926; Corbett 1962; Yeckel 1971; Carrey and Conley 1977) and a detailed recounting here would be redundant. But, speaking in generalities, 10 cavalry and infantry officers, 149 enlisted men, and 20 Umatilla Indian scouts found out just how rugged are the mountains of the Middle Fork drainage. When two detachments began searching for the Indians in June 1879, snow still covered the ground in several places; thus, in addition to rugged terrain, the military was faced with deep snow and cold weather. They also were in the Sheepeaters' home territory, which gave the Indians a decided advantage. The military men seemed to be perpetually short of food, both because mules lost their footing and dropped their packs as they fell off steep mountain sides and because supply replenishments from Boise were delayed. Actual contact with the Sheepeaters was rare; they were not even sighted by the troops until mid-July. There were only two skirmishes in the entire campaign. Reading excerpts from the diaries of Capt. Bernard, 2nd Lt. Brown, and Private Hoffner (Carrey and Conley 1977:110-129, one feels that the "capture" of the Sheepeaters in the fall of 1879 was hardly climactic. The Sheepeaters lacked winter supplies as a result of military disturbance. After some negotiation following this awkward campaign, 51 Indians surrendered to Lt. Farrow, were first taken to Fort Vancouver, and during the following year, relocated at the Fort Hall Reservation.

Apparently not all Sheepeaters surrendered that fall (Liljeblad 1957: 103; Dominick 1964:141). Eagle Eye's Sheepeaters and a few other Salmon River Mountain Indians eluded Farrow's crew and finally settled in Dry Butte Basin near Timber Butte after spending some time in Long Valley. They remained there until after 1898 in a small, independent colony far from the Middle Fork of the Salmon (Merle Wells 1980:personal communication).

Maps appended to Brown's (1926) account of the Sheepeater Campaign show the routes which the Cavalry and Infantry took through the Middle Fork area. Also included in the article are schedules and therefore numbers of days spent at each camp. This information helps pinpoint potential archaeological sites associated with the Sheepeater Campaign. The William Carey Brown Papers (Brown 1978) also contain diaries and other information which

document camp locations. Sites where there may be evidence of temporary military or Indian camps, or skirmishes, include the area around the present Loon Creek Guard Station (Fig. 7f), Oro Grande (Fig. 7e), Cape Horn Creek near its headwaters (Fig. 7g), Vinegar Hill (Fig. 7b), Soldier Bar (Fig. 7d), an ambush site (1-2 mi. [1.5-3.2 km] downstream from Cabin Creek on Big Creek; Fig. 7c), and at the headwaters of Papoose Creek (Fig. 7a).

For two of those locations, Soldier Bar and Vinegar Hill, there is fair documentation of what artifacts were discarded during the campaign. Near Soldier Bar, Catley's command "destroyed six large [Indian] lodges and four smaller wickiups. The Indians left provisions, clothing, and utensils in their flight . . ." (Corbett 1962:10). It is not known if any of these materials have survived to the present, although evidence of burned structures should survive. At Vinegar Hill, Catley's command was forced to retreat after its first skirmish with the Sheepeaters, abandoning most of its supplies to facilitate a quick escape.

> Officers and men threw away the greater part of their effects, and I [Lieut. Catley] ordered most of the public property abandoned, so that the train might be as lightly loaded as possible with what was absolutely necessary. Some of this was lost in descending the mountain by rolling and straying of the mules [Carrey and Conley 1977:119].

A number of historic artifacts were collected at Vinegar Hill by Rex Lanham when he owned the nearby Cabin Creek property during the 1960s. Unfortunately, the collection has since been destroyed by fire (Al and Rita Romaine 1978:personal communication). It seems likely, however, that some artifacts dating from this incident were not collected and are still present at Vinegar Hill.

Mining 1880-1900

While the Sheepeater Campaign meant the end of the traditional way of life for the Indians of central Idaho, it also meant that Euroamericans could continue to pursue their search for riches without fear of the Indians' supposedly unpredictable reaction to continued damage to their social and physical environment. Although the financial returns were far from spectacular, there was a good deal of prospecting and mineral development in portions of the Middle Fork drainage during the late 1800s (Fig. 8).

Mineral discoveries were made on Sheep Mountain during Colonel R. F. Bernard's Sheepeater campaign, June 8 and August 21, 1879. Packers hauled Middle Fork mineral samples back to Boise that fall, and discoveries on Greyhound Ridge followed when they returned in 1880. More prospecting on Sheep Mountain in 1882 led to about 45 claims there (Merle Wells 1980:personal communication). Some existing discoveries at Seafoam further expanded Middle Fork mining in 1886. Greyhound and Seafoam ores were smelted at Clayton in 1885 and 1886 and that upper Middle Fork area held great promise until silver prices went into a decline in 1888.

Lode prospects also were located at Alton on Upper Big Creek in 1884 (Merle Wells 1980:personal communication). A hundred and fifty miners came in for a second season there, and extensive investigation led to the discovery of a number of properties in adjacent drainages above what later was Edwardsburg.

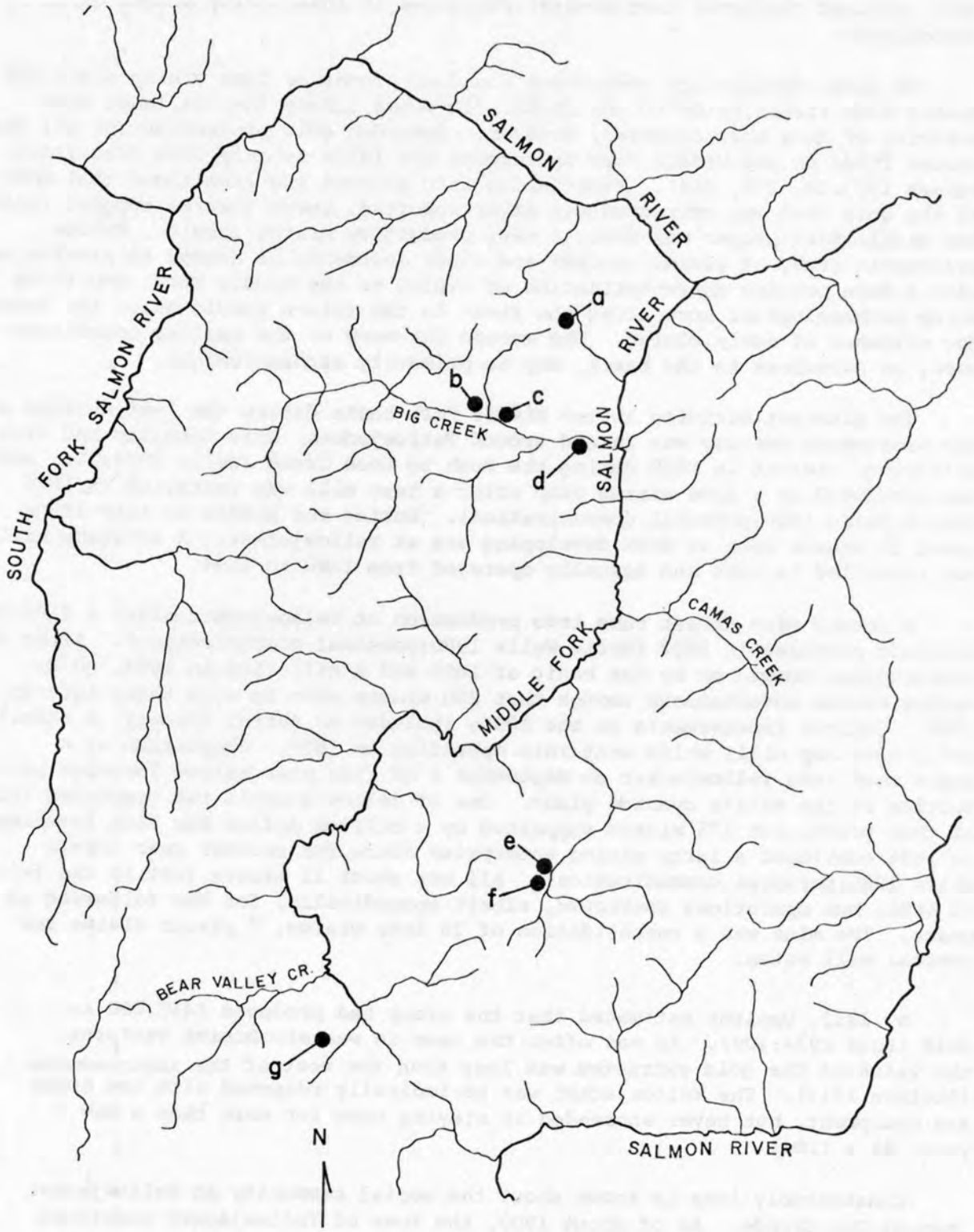

Fig. 7. Possible locations of archaeological sites associated with events of the Sheepeater Campaign. *a*, Papoose Creek headwaters; *b*, Vinegar Hill; *c*, ambush site; *d*, Soldier Bar; *e*, Oro Grande; *f*, Loon Creek Guard Station; *g*, Cape Horn Creek headwaters.

Like Sheep Mountain, Seafoam, and Greyhound Ridge, prospects at Big Creek developed very slowly--in part because of their isolation. These camps had more cultural resources than mineral resources in their early stages of exploration.

No clear documentary record was found of placer or lode mining along the Middle Fork itself prior to the 1900s. It seems likely that at least some activity of this sort occurred, however, Recorded gold production for all the claims filed on the Middle Fork up through the 1930s is only $186 (Cater and others 1973:38, 279, 284). Even taking into account the likelihood that most of the gold that was extracted was never reported, these figures suggest that the Middle Fork proper was never a very productive mining locale. Future systematic study of claims records and other documents is needed to provide us with a more precise characterization of mining on the Middle Fork, and those doing archaeological work along the river in the future should be on the lookout for evidence of early mining. The record for many of the smaller operations here, as elsewhere in the basin, may be primarily archaeological.

The greatest activity in the Middle Fork basin during the last decades of the nineteenth century was in and around Yellowjacket. This locality had first attracted interest in 1869 during the rush to Loon Creek (Wells 1974:78), and was developed as a lode mining camp after a test mill was installed in 1876 (Merle Wells 1980:personal communication). During the middle to late 1880s about 30 miners were at work developing ore at Yellowjacket. A 10-stamp mill was installed in 1884 and actually operated from 1888 to 1894.

A second mine almost came into production at Yellowjacket after a $100,000 Colorado purchase in 1892 (Merle Wells 1980:personal communication). After an interruption brought on by the Panic of 1893 and a mill fire in 1894, gold mining became advantageous enough that 200 miners went to work there late in 1894. Capital improvements in the 1890s included an aerial tramway, a sawmill, and a 60-stamp mill, which went into operation in 1895. Completion of a wagon road into Yellowjacket on September 1 of that year helped increase production of the mill's cyanide plant. One of Yellowjacket's two companies failed at that point, but 175 miners supported by a million dollar New York investment in 1896 continued a large mining enterprise there for another year (Merle Wells 1980:personal communication). All but about 15 miners left in the fall of 1896, but operations continued, albeit sporadically, for the following 40 years. The mine was a consolidation of 39 lode claims, 7 placer claims and several mill sites.

By 1912, Umpleby estimated that the group had produced $450,000 in gold (Ross 1934:109). As was often the case in western mining ventures, the value of the gold extracted was less than the cost of the improvements (Sheldon 1912). The Yellowjacket was periodically reopened with new hopes and equipment, but never succeeded in staying open for more than a few years at a time.

Considerably less is known about the social community at Yellowjacket than at Oro Grande. As of about 1900, the town of Yellowjacket consisted of approximately 100 buildings (Umpleby 1910-1911:41) (Fig. 9). Only the last of three pages reporting the 1900 census of Singiser Precinct is available at the Idaho State Archives (United States Census Bureau 1900b), so the total number of residents at that time has not been determined.

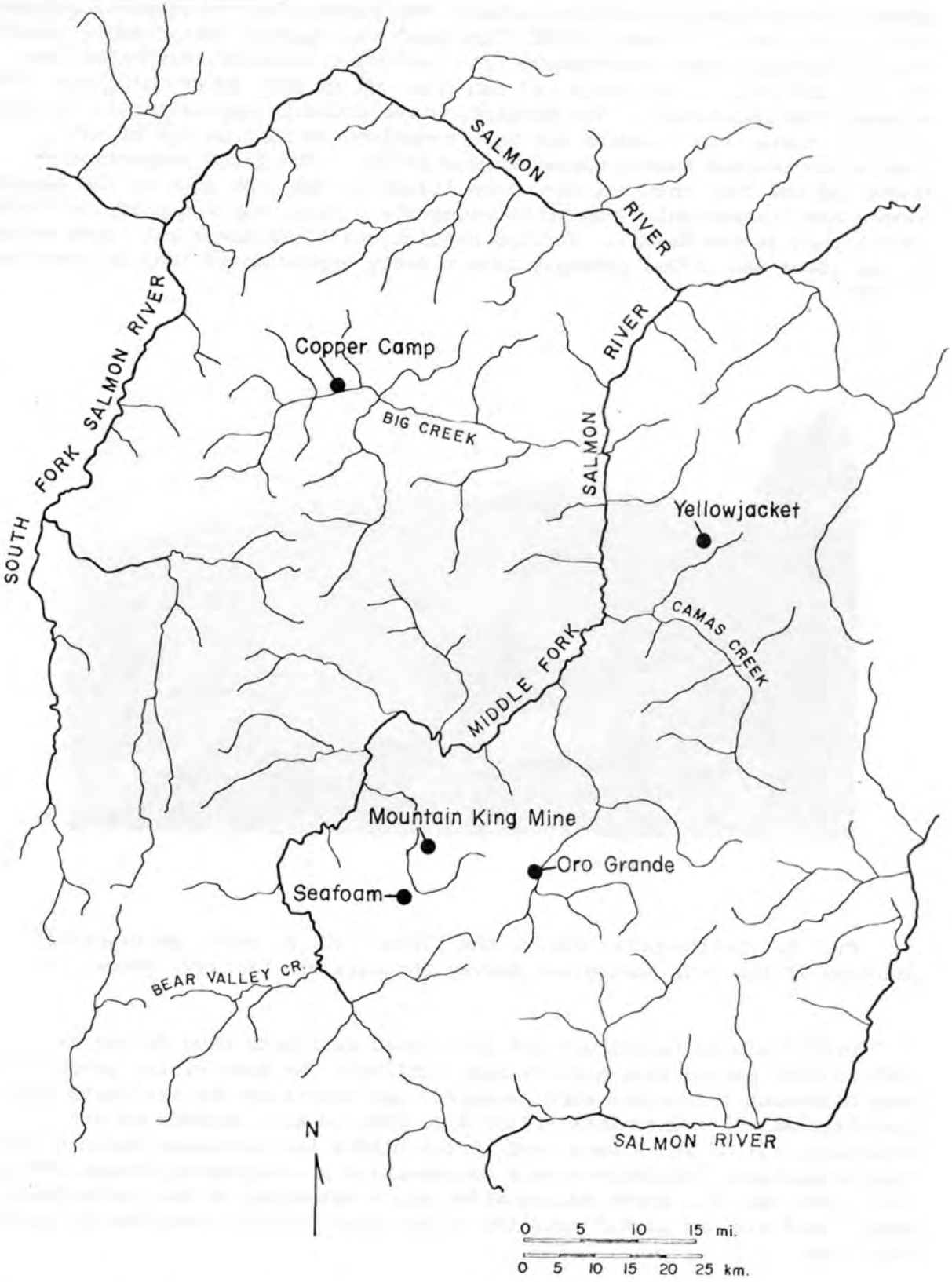

Fig. 8. Late nineteenth century mining areas in the Middle Fork basin.

(The boundaries of the Singiser Precinct as cited in the census are not known, but are assumed to have included the general area around Yellowjacket and Meyers Cove.) A total of 83 "families" was counted and probably slightly over 100 people were interviewed. One informant, however, estimated that 200 peoples lived at Yellowjacket and vicinity in 1907 (Wayne O'Connor 1978: personal communication). The population was probably approximately 75% male and 25% female, and children may have comprised as much as 10% of the population (United States Census Bureau 1900b). The large proportion of women and the fact that all the women listed on the last page of the Singiser census had "respectable" occupations suggests a more stable economy at Yellowjacket than at Oro Grande. Earlier populations at Yellowjacket, such as those in the 1860s and 1870s, probably more closely approximated that of Loon Creek in 1870.

Fig. 9. Yellowjacket during the 1920s. (C. P. Ross, photographer; courtesy of the U.S. Geological Survey Photographic Library, Denver.)

Placer mining techniques and associated artifacts used during the 1880 to 1900 period have already been outlined. On lode mining properties, very different techniques were employed, and therefore the artifacts were also dissimilar. Fahrenwald (1932) discusses several methods of ore reduction, all of which were used in the Middle Fork drainage basin at one time or another. Apparently only amalgamation was employed between 1880 and 1900, with the only known amalgamation mills operating at the Yellowjacket Mine. Gold ore was packed from the other mines to mills outside the Middle Fork area.

Yellowjacket undoubtedly had more contact with outside markets before 1900 than any of the other mining communities in the Middle Fork basin. By 1895 a wagon road had been built to the town (Smith n.d.:149) and the

relative stability of the economy probably encouraged an influx of material goods unprecedented in the Middle Fork area up to that time. As opposed to other early mining communities of the area, Yellowjacket should have a larger and more diverse assemblage of artifacts, and more luxury goods.

Earliest components of the Yellowjacket mining activities may be difficult to isolate. The numerous remodelings of the mills and probably of the town itself may have destroyed evidence of the early occupations.

Earliest Agricultural Attempts

The beginnings of agriculture in the Middle Fork drainage area are intimately connected with mining activities. Mining communities provided a relatively accessible market for the farmers' and ranchers' products. One would expect most farms and ranches to have been reasonably close to operating mines.

As mentioned before, cattle and possibly sheep may have been driven into the Loon Creek area by 1870, and a few Euroamerican and Chinese farmers grew crops for sale to miners. Early farms and ranches were rare, because of the economic risks involved, as well as unfamiliarity with the potentials and dangers of the country. If lode properties had been located at Loon Creek in those early days, perhaps the more stable economy would have encouraged agricultural development. But such was not the case in the 1870s.

In the same way at Yellowjacket, the first rush of miners into the area probably did not attract many farmers. Yet it is more likely that cattle were trailed into the area near Yellowjacket than at Loon Creek because outside markets were more accessible and income from lode properties was more stable. Since at least 1870 cattle had been grazing in the Salmon River valley near Salmon City (Shoup 1935:1). Although that town was about 110 km (70 mi.) from Yellowjacket by wagon road and trail, only one divide separated the two, and rich grasslands awaited any herds which made the journey to the Meyers Cove grazing lands not far from Yellowjacket. Because the mines at Yellowjacket were operating, albiet sporadically, from the 1860s to 1940 (Anderson 1953:16), the early attempts at permanent ranching and farming may well have been more extensive here than throughout the study area. Also, snow was not a serious problem for travel in the Meyers Cove area (Anderson 1943:4), and this relative ease of communication and transportation enhanced the value of agricultural properties there.

Even isolated references to farming before 1900 in the Middle Fork basin are rare. There was a small garden at Mormon Ranch (correspondence from C. W. Richie to W. C. Brown 2/14/98 [Brown 1978]). The Falconberry Ranch has been occupied since the 1880s (Carrey and Conley 1977:90). The Caswell brothers had sheep and a garden and hayfield at Big Creek in the 1890s (Caswell 1895-1899).

Historic documents have not dealt satisfactorily with the specifics of nineteenth century agricultural activities. Records are generally

confined to the time after the U.S. Forest Service was established, or about 40 years after the intial discovery of gold in the Middle Fork drainage basin.

The available historic evidence is insufficient to allow recognition of a pattern of early agricultural site locations. Several factors that usually limit agricultural site location were operating in the Middle Fork basin, however. If crops are to be raised, the growing season must be long enough, the precipitation great enough, and soils deep enough. In the Middle Fork area, these conditions were met only on stream terraces at low elevations. If livestock are to be raised, the amount of forage, the slope and ground moisture of the range, and the availability of winter feed either as standing plants or as hay must be considered. In cattle and/or sheep ranching, the requirements for temporary summer camps are different from those of the "home place." The former are generally located at higher elevations. Finally, the distance to markets, either within the Middle Fork basin or outside of it, had to be considered to some extent. Because of this last factor, we should expect most of the early agricultural sites to be located near mining activities, and especially near Yellowjacket, Loon Creek, and Seafoam. These factors have been used to develop a predictive model of ranching locations in the Middle Fork area, to be discussed later in this overview.

Instead of living in tents, farmers and ranchers usually built permanent structures. A house was absolutely necessary and a barn or at least some type of storage shed was also important. Not only would the barn house animals during the winter and protect hay from rotting, but it would also shelter any machinery and tools used in farm or ranch operation. At temporary summer camps for cattle or sheep grazing, portable structures were preferred, including sheepherders' wagons or tents.

Some of the most obvious archaeological evidence of farming and ranching are the remains of buildings. Associated artifacts may consist of feeding and watering troughs for animals, hay mowing equipment, hoes or plows, sheep shears, draft animal harness and shoes, plus general household goods. Archaeological evidences of temporary summer camps will be considerably more meager, but may include some household goods, horseshoes, saddle and harness parts, and perhaps wagon parts.

Field survey at the Cabin Creek Ranch (10-VY-143) did not reveal any surface evidence of the historically documented (Caswell 1895-1899) late 1890s occupation by the Caswell brothers. Although local legend has it that the two dugouts and one stone foundation at the southern end of the site near Big Creek belonged to the three men, the surface archaeological evidence is insufficient to either support or refute that claim. Few artifacts remain at those features, and fewer are temporally diagnostic (Rossillon and Sprague 1978).

For various reasons which are generally related to the isolation of the Middle Fork basin, such as long distances to regional markets, low population density, and use of inferior or dated machinery, the average income of Middle Fork residents was low. In order to build an even minimally suitable income, most individuals relied on activities in addition to their "main" occupations. Carrey and Conley (1977) cite numerous incidents of trappers who also raised horses, miners who had gardens, farmers who were part-time trappers and

miners, and men who began as trappers and then became miners. Lou Caswell's (1895-1899) diary described this kind of broad-based personal economy. For instance, on 15 August 1895, Caswell visited his sheep camp at the head of Lick Creek. From 1 to 5 October, he cut and put up hay. On 6 November, he started for Monumental Creek, probably to check on the claims which he worked with his brothers. Between 27 and 31 December, he killed eight deer for winter food. On 22 March of the next year he planted peach pits and at the beginning of April he caught fish. On 26 April, Caswell set a trap for mink, and in May he planted the garden.

Archaeological evidence of the Middle Fork residents' broad-based economy should be recognized for what it is. For example, the presence of hobnail boots at a site does not necessarily mean that a miner lived there, or the presence of traps that the resident was a trapper, for in fact both hobnail boots and traps may have been used by the same person. What these and other artifacts *do* mean is that household economies were broad-based, in contrast to others' adaptations to less isolated and more productive areas.

4. TWENTIETH CENTURY DEVELOPMENTS

Establishment of National Forests

On 1 July 1905, 85,693,423 acres of forest reserves in the United States were transferred from the jurisdiction of the General Land Office to the Department of Agriculture; the U.S. Forest Service had been established (Cameron 1928:219,240). Lands that were later to be included within the present-day Boise, Challis, Payette, and Salmon National Forests (the Middle Fork drainage includes parts of all four forests) were set aside for forest management. There have been a number of name and boundary changes in these forests since 1905, including the addition of more lands in 1907 and in 1919.

Establishment of national forests in the study area introduced changes in the land use pattern there. Some of these changes may be more apparent than real; the paperwork required in this new era documents previously unrecorded events. Homesteading was not permitted in the Middle Fork drainage before 1905 because the land was unsurveyed (Cameron 1928:249). Yet that did not prevent people from settling there with permanent residence in mind. After the Forest Reserves Homestead Act was passed in 1906, they could legally file for a homestead to insure ownership. Suddenly, with the keeping of records, those faceless settlers out in the forests had names, families, and possessions. Therefore any apparent increase in the number of permanent settlers in the Middle Fork drainage after establishment of the Forest Service may be misleading.

The new Forest Service policies, together with the growth in the legal ownership of land by individuals, led to more controlled exploitation of the area's resources. Timber sales were laid out by forest rangers (Tobias 1907-1911) and grazing permits were issued. Yet control was not absolute, nor management perfect. Even when grazing allotments were

finally established and enforced, range potential was not completely understood and overgrazing was not uncommon (Mains 1956). Mining operations were also only minimally regulated in the early days of the Forest Service in central Idaho, and mining claims were often developed without regard for aesthetic values. For example, at least 150 placer claims were located along the Middle Fork River (Cater and others 1973:259-262), most of them after the U.S. Forest Service had been established. Hydraulic mining at several of these (including the Greyhound Creek camp [10-CR-586] and Huntington's placer [10-CR-589]) created sterile gravel bars at the water's edge.

Throughout the West, people had objected to the new forest reserves, claiming that valuable resources were being tied up and the economy would suffer. Some of the same objections were raised in central Idaho (Smith 1978:45). Certainly resources in the Middle Fork area were "tied up," but this had been true for many years due to inaccessibility brought about by rugged terrain and heavy snowfall. It is interesting to speculate about what would have happened in the Middle Fork drainage area had the U.S. Forest Service never formed. The suspicion is that development would have been slow and spotty, and that the area would have remained essentially isolated.

On 11 June 1906, Congress passed the Forest Reserves Homestead Act (34 Stat. 233), to permit the settlement and development of agricultural land that had been included within national forest boundaries. Henceforth, homesteaders could file for 160 a. or fewer on lands that the Forest Service had classified as agricultural. Later, the Act was amended to allow up to 320 a. to be patented (36 Stat. 531). The Desert Land Act (19 Stat. 377, 26 Stat. 1096) also applied to lands within established national forests. Desert land entries could also be made for parcels as large as 320 a. Both a homestead entry and a desert land entry could be made by the same entryman, who could claim as many as 480 a. (39 Stat. 947).

In the Middle Fork drainage, agricultural lands are rare. Only 49 homesteads and 3 desert land entries were ever patented (Boise National Forest n.d.b; Challis National Forest n.d.d; Payette National Forest n.d.a; Salmon National Forest n.d.a; U.S. Department of the Interior n.d.c; Appendix here). Because these private inholdings were both small and few, they may have more often been an asset rather than a liability to the early management of the forests; landowners occasionally provided shelter for Forest Service employees (Tobias 1907-1911) and probably helped report and suppress forest fires. Since the establishment of the Idaho Primitive Area in 1931, many of these inholdings have been purchased by the U.S. Forest Service or the Idaho Department of Fish and Game. (A more detailed discussion of the Idaho Primitive Area is presented later in this report.)

Remains of U.S. Forest Service improvements, including guard stations, fire lookouts, roads, bridges, trails, and telephone lines, constitute a major component of the historic archaeological resources in the Middle Fork basin. Forest histories that have been written for the Boise, Challis, Payette, and Salmon National Forests provide the most detailed information about Forest Service improvements (Challis National Forest n.d.b; Hockaday 1968; Smith 1978, n.d.). Since these references are so complete, only a brief description of some Forest Service structures is included here.

Housing for employees was crude in the early years of the U.S. Forest Service.

> . . . the Ranger in 1905-1907 often lived in a tent, in an abandoned miner's cabin, or in a log cabin built by the Ranger himself. In 1908, cabins were furnished, or were built at Government expense by the personnel. A limit of $300 was allowed for any one building. Before 1920, this ceiling had been raised to $650, and this included everything [Smith 1978:48].

Also, when new guard stations were first established in the 1920s and 1930s, tents served as residences and offices for a few seasons before permanent structures were erected (Challis National Forest 1936). A typical station might have consisted of a log cabin, a barn or storehouse, and some fencing (Challis National Forest 1936, n.d.b:Sec. II, cl p. 8; Smith 1978:152).

As Forest responsibilities have changed, so has the physical appearance of the guard stations. The increased number of permanent and seasonal employees has required construction of more, and more modern, dwellings, or the use of portable trailers. In addition, development of varied recreational resources has increased the importance of several stations at key locations. For example, the Indian Creek station along the Middle Fork River witnessed much more traffic with the construction of an airfield there, and, more recently, with the growing numbers of white water enthusiasts running the river.

In addition to guard stations, in the 1930s and 1940s both the U.S. Forest Service and the Civilian Conservation Corps built temporary and permanent fire lookouts for fire detection. At least 25 permanent lookouts were erected and many are still intact. However, since the U.S. Forest Service has begun to rely more heavily on aircraft for fire detection (Pope 1978:4), the lookouts are being abandoned and, in many cases, dismantled. For instance, in the Idaho Primitive Area, the Horse Mountain Tower was recently burned since it was no longer manned and was therefore determined to be a "non-conforming, non-essential improvement [to] be removed from [the Idaho Primitive Area]" (Pope 1978:1). Continued rising costs in fuel may dictate a return to the previously abandoned lookout towers (Lee Bennett 1980:personal communication [archaeologist, Payette National Forest]).

Mining After 1900

Mining in the early twentieth century had a slightly different flavor from that of the 1800s. Techniques of ore reduction had been refined and, while transportation was still a major problem, trail systems and wagon roads were better developed within the region, and there were more railroad connections close to the edges of the drainage basin. Techniques of food preservation were improved. Permanent settlers who could provide agricultural products lived close by. Yet, an examination of distances to markets contradicts any impression that the Middle Fork basin was no longer isolated. The railroad station nearest Thunder Mountain was 130 km (80 mi.)

away at Cascade. From Ivers, the railroad at Blackfoot was 325 km (200 mi.) away; after the tracks came to Mackay in 1910, it was "only" 175 km (110 mi.) distant. Living conditions remained primitive. While most Americans were gradually acquiring such newfangled gadgets as electricity, indoor plumbing, telephones, and automobiles, most Middle Fork residents, miners or otherwise, could only see such oddities at "urban centers" long distances from their homes.

Encouraged by improving conditions and not discouraged by the area's primitiveness, miners poured into the Middle Fork drainage during the early 1900s, most going to Thunder Mountain or to Casto and Ivers near Loon Creek (Fig. 10). The Thunder Mountain boom began in 1902 when the regional newspapers proclaimed that the Caswell brothers, who had prospected in the area for at least seven years, had found a "mountain of gold." The towns of Casto and Ivers grew with the development of the Lost Packer Mine in 1904.

Even though Thunder Mountain's great 1902 excitement produced relatively little aside from an investment of well over a million dollars (Merle Wells 1980:personal communication)--much in totally unproductive mines--one property turned out some $350,000 before 1908 (Shenon and Ross 1936:19).

Considerable support from the mining and milling operations came from eastern United States sources. Claims within a hundred mile radius of the heart of the Thunder Mountain district were being sold to eastern investors (Montgomery 1973), often with the aid of unscrupulous techniques.

> The methods employed by many eastern mining companies and eastern stock brokers in the disposal of mining stocks are so coarse at times that it is surprising that any man of average intelligence should invest in their schemes. An elegant prospectus is filled with extravagant statements about the properties and the district which is gotten up for eastern circulation only. The more inflated the prospectus, the more extravagant language used therein, the more thousands of investors are apparently caught. These unscrupulous jobbers make it a point when possible to select a new mining region that is on the boom or is in such an undeveloped state that it is not easy for the investor to investigate its real merits. The Thunder Mountain region, inaccessible as it is, has proven a most fertile field for operations of this kind [Mining Record 1903:585].

With the rush to Thunder Mountain, mining districts in the immediate vicinity also experienced a boom of sorts. Claims were filed and worked on Profile Creek east of present-day Yellow Pine (Idaho World 1902), on Big Creek and its tributaries (Oregon Short Line Railroad 1902:27), at Edwardsburg, and at Copper Camp (Hockaday 1968:21). There also was active exploration in other parts of the Middle Fork basin in 1902, including a rush to Indian Creek (Merle Wells 1980:personal communication).

With the boom came civilization. A state wagon road was built to Thunder Mountain from Boise in 1904 and the Rocky Mountain Bell Telephone Company put up a telephone line along the same path (Idaho Daily Statesman

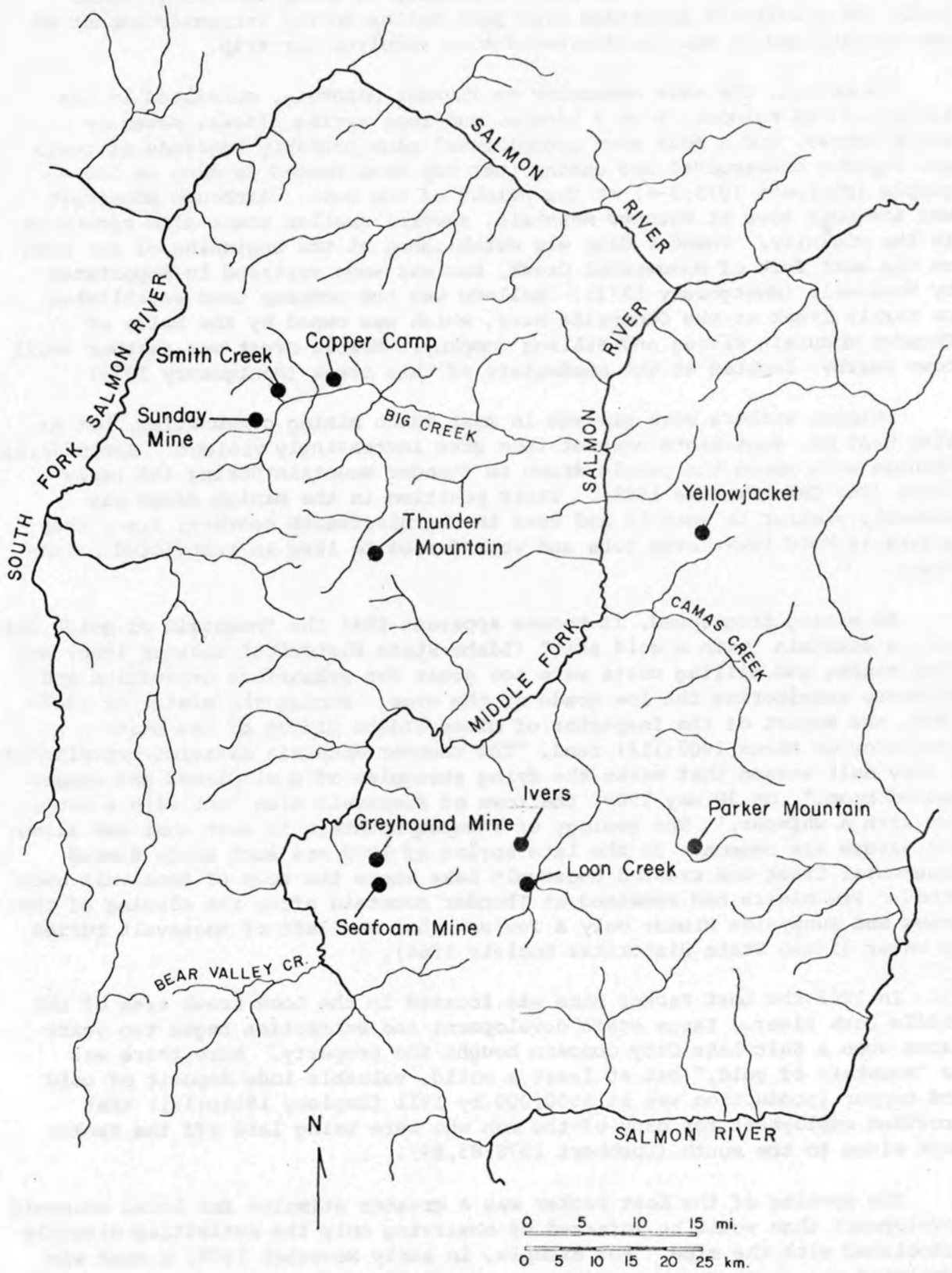

Fig. 10. Mining areas of the twentieth century in the Middle Fork basin.

1902a). Later, another wagon road was completed from Warrens to Thunder Mountain (Idaho Office of the State Inspector of Mines 1906:73). Wagon roads had a definite advantage over pack trains in the increased amount of merchandise hauled and the decreased time required per trip.

Roosevelt, the main community at Thunder Mountain, consisted in its heyday of "14 saloons, 2 or 3 hotels, numerous eating places, seven or eight stores, and a four room schoolhouse" plus probably hundreds of tents and rapidly constructed log cabins that may have housed as many as 500 people (Philpott 1975:3-6) at the height of the boom. Although Roosevelt was the main town at Thunder Mountain, several smaller towns also sprang up in the vicinity. Thunder City was established at the beginning of the rush on the west fork of Monumental Creek, but was soon replaced in importance by Roosevelt (Montgomery 1973). Belleco was the company town established on Marble Creek at the Sunnyside mine, which was owned by the Belle of Thunder Mountain Mining and Milling Company. Marble Creek was another small town nearby, located at the headwaters of this creek (Montgomery 1973).

Chinese workers were present in most Idaho mining communities, but as time went on, sentiments against them grew increasingly violent. Nevertheless, Chinese were among the people drawn to Thunder Mountain during the early 1900s (The Cascade News 1946). Their position in the mining camps was probably similar to what it had been in the nineteenth century, i.e., they generally held low-status jobs and were forced to live in restricted Chinatowns.

As mining progressed, it became apparent that the "mountain of gold" was only a mountain "with a gold skin" (Idaho State Historical Society 1966) and that mining and milling costs were too great for subsurface excavation and recovery considering the low grade of the ores. During the winter of 1907-1908, the Report of the Inspector of Mines (Idaho Office of the State Inspector of Mines 1907:112) read, "The Thunder Mountain district experienced a very dull season that marks the dying struggles of a misplaced and unwarranted boom." On 30 May 1909, the town of Roosevelt died 'not with a bang, but with a whimper.' The geology of Thunder Mountain is such that mud flows and slides are common. In the late spring of 1909 one such slide dammed Monumental Creek and created Roosevelt Lake where the town of Roosevelt once stood. Few miners had remained at Thunder Mountain after the closing of the Dewey and Sunnyside Mines; only a few saw what was left of Roosevelt buried by water (Idaho State Historical Society 1964).

In 1902 the Lost Packer Mine was located in the Loon Creek area of the Middle Fork River. Large scale development and extraction began two years later when a Salt Lake City concern bought the property. Here there was no "mountain of gold," but at least a solid, valuable lode deposit of gold and copper (production was at $500,000 by 1911 [Umpleby 1911b:19]) that provided employment for many of the men who were being laid off the Yankee Fork mines to the south (Luebbert 1978:85,89).

The opening of the Lost Packer was a greater stimulus for local economic development than would be inferred by observing only the activities directly associated with the mine. For example, in early November 1904, a road was completed over Loon Creek pass between Mayfield Creek and Jordan Creek (The Silver Messenger 1904b). Although the Lost Packer Mine was the main stimulus

for road construction, it undoubtedly improved transportation and communication for the community of Mayfield, which had been established several months earlier (The Silver Messenger 1904a) to service miners who were reworking placer deposits along Mayfield and Loon Creeks. McGown was another community that was founded or at least proposed as a result of the development of the Lost Packer (Challis National Forest n.d.b: Sec. II Cl p. 8). (The town apparently was named after one of the men who contracted construction of the Loon Creek Pass road [Yarber 1963:137].) In 1905, the Messenger reported that "stores, wayside inns, watering places, towns and townsites are scattered promiscuously over a vast area of the territory" (The Silver Messenger 1905).

The company that owned the Lost Packer employed approximately 100 men during the summers (Luebbert 1978:90), but probably at least another hundred benefited indirectly from the mine's operation. These included freighters and packers; stagecoach drivers; store owners in Casto, Custer, and Ivers; local farmers and cattlemen; and others who provided services and goods for the miners and their families.

Two major communities were started in the Loon Creek area after the discovery of the Lost Packer Mine. The first was Casto which was located at the juncture of Canyon Creek and Loon Creek. Bill Casto, a saloonkeeper at Custer, constructed a hotel at the future townsite, anticipating that the Lost Packer Mining Company smelter would be erected there, instead of several miles up Canyon Creek at the mine itself. Unfortunately for Casto, the mill was built at the mine and the mining community of Ivers developed around the mine and mill. Nevertheless, the town of Casto continued to exist, and acted as an overnight stop and supply center for miners at the Lost Packer and at claims along Loon Creek. The town consisted of a hotel, saloon, restaurant, freighting company office, butcher shop, blacksmith shop, and probably a few houses (Carrie Williams and Bill and Donna Phillips 1978:personal communication; Carrie Williams of Challis, Idaho, is the daughter of Bill Casto, spent much of her childhood in Custer, and later lived in the Sawtooth Valley of the upper Salmon River). The small (250 m long by a maximum of 30 m wide) river terrace on which Casto was located probably would not have permitted a great deal more development. Today only the wine cellar, hotel basement, freighting office foundation, and a large tin can and liquor bottle dump remain as testimony to the existence of the small town.

Ivers was the area's primary community in the early 1900s (Fig. 11). It was named after James Ivers from Salt Lake City, one of the owners of the Lost Packer. While it was not technically a company town, many of its stores and the boarding houses were owned by the Lost Packer Mining Company. Most if not all of the miners' families lived there. As many as 200 people may have lived at Ivers at one time, with the population greatly reduced during the winter when mining operations slowed considerably (Luebbert 1978:90).

Advances in mining technology in the twentieth century were accompanied by changes in the social aspects of mining communities. Since most major placer claims had been exhausted by 1900, lode mining was comparatively common. Lode mines were more conducive to permanence than placer mines, and the miners' incomes were comparatively reliable.

Fig. 11. Ivers ca. 1925. (C. P. Ross, photographer; courtesy of the U.S. Geological Survey Photographic Library, Denver.)

Consequently, lode miners were more likely to be married instead of single and to have children. At Ivers, the residents requested and received a school teacher for their children. Twelve pupils were the most that attended the school at any one time (Custer County Schools 1907-1915), although possibly up to twice that many lived at Ivers or in the vicinity. The twentieth century miners' families at Ivers seemed to have been searching harder for permanence than had the families at Oro Grande 35 years earlier, since to obtain a school teacher, the residents of Ivers had to present a stable permanent community for inspection by the county school superintendent. Although no evidence of churches has been uncovered, it seems very likely that Ivers had at least one church (non-denominational?). A permanent community generally had a church to show its good intentions. The area had a post office as well (Schell 1973:81).

Ivers was established and deserted in concert with the Lost Packer Mine. It was built in 1904, and by 1912, when almost all activity had stopped at the mine, Ivers was no longer a permanent settlement. The low price of copper in 1907 eventually spelled the end of mining there for a time, since the gold could only be mined profitably with copper matte as a valuable byproduct (Luebbert 1978:110).

During a partial survey of the town of Ivers (10-CR-613) approximately ten features were mapped, leaving possibly three times that number

unrecorded. Many log and plant structures presumably dating to the early 1900s remain standing, although others were destroyed during a forest fire in the 1930s. Artifacts occur at all features and in great number. Apparently there has been very little bottle collecting or treasure hunting at the site, and thus Ivers is definitely a valuable archaeological resource.

Thunder Mountain and Loon Creek were not the only active mining districts in the Middle Fork drainage at the beginning of this century. By 1904 Parker Mountain, at the very eastern border of the Middle Fork drainage, had been discovered and a 6-ton roller mill was being built for ore reductions (Umpleby 1910-1911:70-71, 1913b:177; Ross 1927:5). Placer and lode deposits along Big, Logan, and Smith Creeks at the western edge of the Middle Fork area were also being worked. The Greyhound Mining and Milling Company, Ltd., built a toll road from Cape Horn to its mine in the Seafoam district. To further facilitate shipments of gold and supplies, the company built a bunkhouse, boarding house, saloon, and stables at Wagontown, a way station along the toll road (Challis National Forest n.d.e). When Umpleby visited the camp at Greyhound in 1913, he noted approximately 12 cabins, which at one time housed between 50 and 100 men (Umpleby 1913a:19) (Fig. 12). Forest Service survey maps show 15 structures probably owned by the mining company which were probably in addition to the 12 residential buildings (Challis National Forest n.d.c). The camp served a large enough population both at and near the Greyhound Mine to support a post office from 1906 to 1910 (Schell 1973:78).

The Yellowjacket mining district, dominated by the Yellowjacket Mine, was trying to make one of its numerous comebacks in 1923. A new 50-room hotel was constructed, but rather unsurprisingly, it never opened when the hope of a comeback was not fulfilled (Anderson 1953:16).

The 1920s saw renewed enthusiasm for mining in the Seafoam district as well. After the Greyhound Mine had declined about 1910, the area became inactive. But in 1927 and 1928, 30-40 men were employed at the Seafoam Mine at the headwaters of Harlan Creek (Ross 1930:3). Most of the lower set of buildings that can still be seen today at the camp and mine in various stages of disrepair date to the mid-1920s development of the Seafoam. At approximately the same time, there was renewed development of the Mountain King Mine. The Silverbell was also in operation before 1929 (Ross 1930:4,6).

On and near the Middle Fork Salmon River there was more placer and gold mining in the early 1900s than in the previous century. This was despite the fact that the terraces there were not particularly rich in gold, as indicated by a recent U.S. Bureau of Mines analysis (Cater and others 1973:39). Of the placer claims that have been filed in Middle Fork gravel bars, most are in an 8 km (5 mi) stretch between Indian Creek and Lake Creek. Most of the Middle Fork claims were worked during the 1930s' depression (Cater and others 1973). Remains of placering operations are still in evidence near Joe Bump's cabin, at Greyhound Creek Camp, and at the Huntington Placer. The latter was worked during the late 1930s; dates for the first two camps are unknown (Carrey and Conley 1977:26-32). Lode mines were generally located above the Middle Fork terraces and often in small tributaries a few miles upstream from the Middle Fork. For example, there were active prospects in Sammys Gulch, Thomas Creek, and Survey Creek near the turn of the century (Cater and others 1973:264-273). The White Goat claim

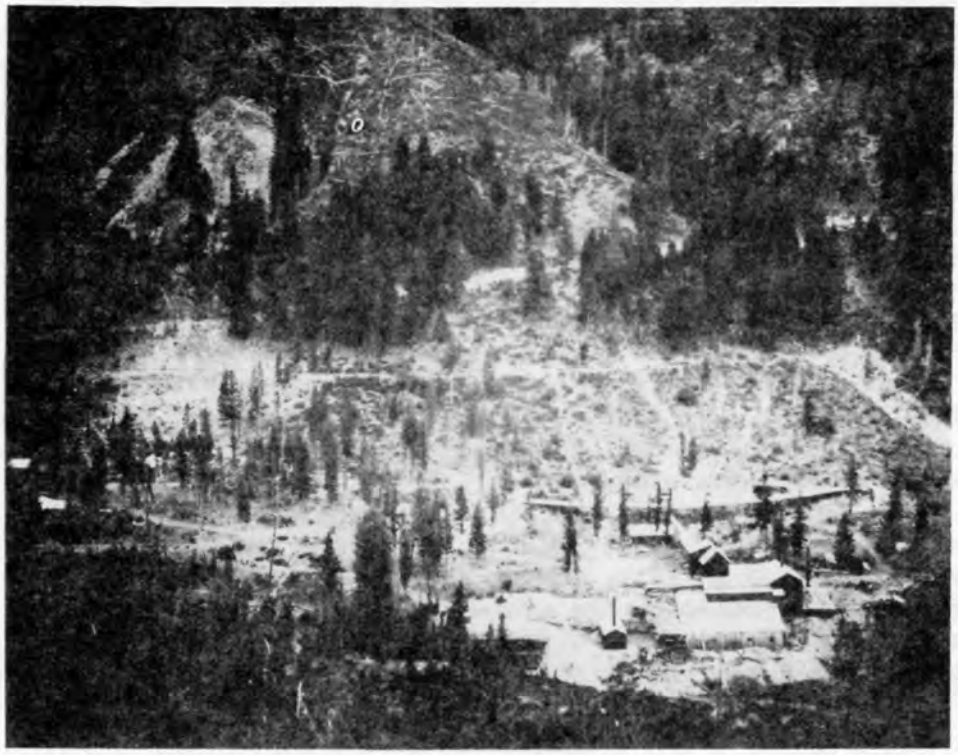

Fig. 12. Greyhound Mine and Mill. (J. B. Umpleby, photographer; courtesy of the U.S. Geological Survey Photographic Library, Denver.)

had been worked by Smith and Hussey at least as early as 1913 (Umpleby 1913a:20) and remains of the associated water-powered stamp mill can still be seen above Powerhouse Rapids.

Archaeological evidence of twentieth century mining activities will generally be more conspicuous, better preserved, and less disturbed by bottle-digging parties than will earlier materials. Most of the equipment, however, will probably be very similar to that of the earlier period; for example, hydraulic mining hoses of the late nineteenth and early twentieth centuries are much alike. Associated household artifacts of the later period will reflect changes in the canning, bottle glass, plastics, and other industries.

During the summer of 1978 several mining-related sites dating to the first half of the 1900s were visited. These included the Sunday Mine and camp on Logan Creek (10-VY-145), and the Scott cabin on Smith Creek (10-VY-148). In the Seafoam district, the survey party visited part of the Greyhound Mine's camp (10-CR-609), the Silverbell Mine and camp (10-CR-603), the Josephus Mine, and the Seafoam Mine and camp (10-CR-604) and Wagontown (10-CR-608). As previously mentioned, Casto (10-CR-613) and Ivers (10-CR-613) were surveyed in the Loon Creek area, as were Joe Bump's Cabin (10-VY-137),

the Smith and Hussey camp (10-CR-595), and Greyhound Creek camp (10-CR-586) on the upper reaches of the Middle Fork (Fig. 13). At most sites there was standing structural evidence of past occupation. Since most of the sites have been reoccupied since the initial mining operation, the archaeological record is fairly complex. Broken artifacts of questionable esthetic value, but of considerable importance to a variety of research questions, were not uncommon. These are described in Stapp and others (n.d.).

From the previous discussion, it would appear that mining was widespread in the Middle Fork basin except for Bear Valley. In fact, while the total population of sites was well scattered, there was a clustering of activity at Thunder Mountain, Loon Creek, Seafoam, and the upper portion of Big Creek. Activity at three major and two minor lode claims in the Seafoam district within a 15-20 year period may indicate that success at one mine encouraged assessment work and improvements at surrounding mines. A concentration of camps could be better supplied than could isolated groups, since a larger local population generally meant lower transportation costs for supplies. Clustering of mines may also have permitted lower costs for shipping out milled ores. For mining companies, it was also more economical to support mines in those more densely populated areas, since labor and perhaps milling equipment were already available within reasonable distance of the claims.

Agriculture in the Twentieth Century

Although it may seem that undue emphasis has been given to the role of mining in the Middle Fork drainage, mining was in fact the activity upon which most other "businesses," including agriculture, relied. As other mining regions in California, Colorado, Montana, and Idaho evolved from unstable mining communities to stable agricultural and/or market centers (Smith 1967:124-134), the Middle Fork area remained in an "arrested state," so to speak. Agriculture was always secondary in importance to mining. Most agricultural pursuits were begun to supply food and livestock to local miners, or as a supplement to personal mining interests, and they generally did not develop further. Distance from regional markets usually prevented effective competition with other agriculturalists in those regional markets.

It therefore is not surprising to read in various historical accounts that Asa Clark packed food to Thunder Mountain on dairy cows (Carrey and Conley 1977:90), that William Edwards trailed cattle to Thunder Mountain from upper Big Creek to be butchered there for the miners (Kathy Gillihan 1978:personal communication), or that Joe and Belle Hash moved from the Yankee Fork to Little Creek so they could pack their vegetables over to Thunder Mountain (Yarber 1963:21). These people and others probably would not have been able to raise livestock or have grown fruits and vegetables in quantity without the local market provided by miners.

"Squatting" was common in the Middle Fork basin. Except for mineral claims, land could not be patented before 1906 because it had not been surveyed. After 1906 (or later for some portions of the Middle Fork, such as Thunder Mountain and Yellowjacket) patents for agricultural land could be made if the U.S. Forest Service had listed the property as eligible

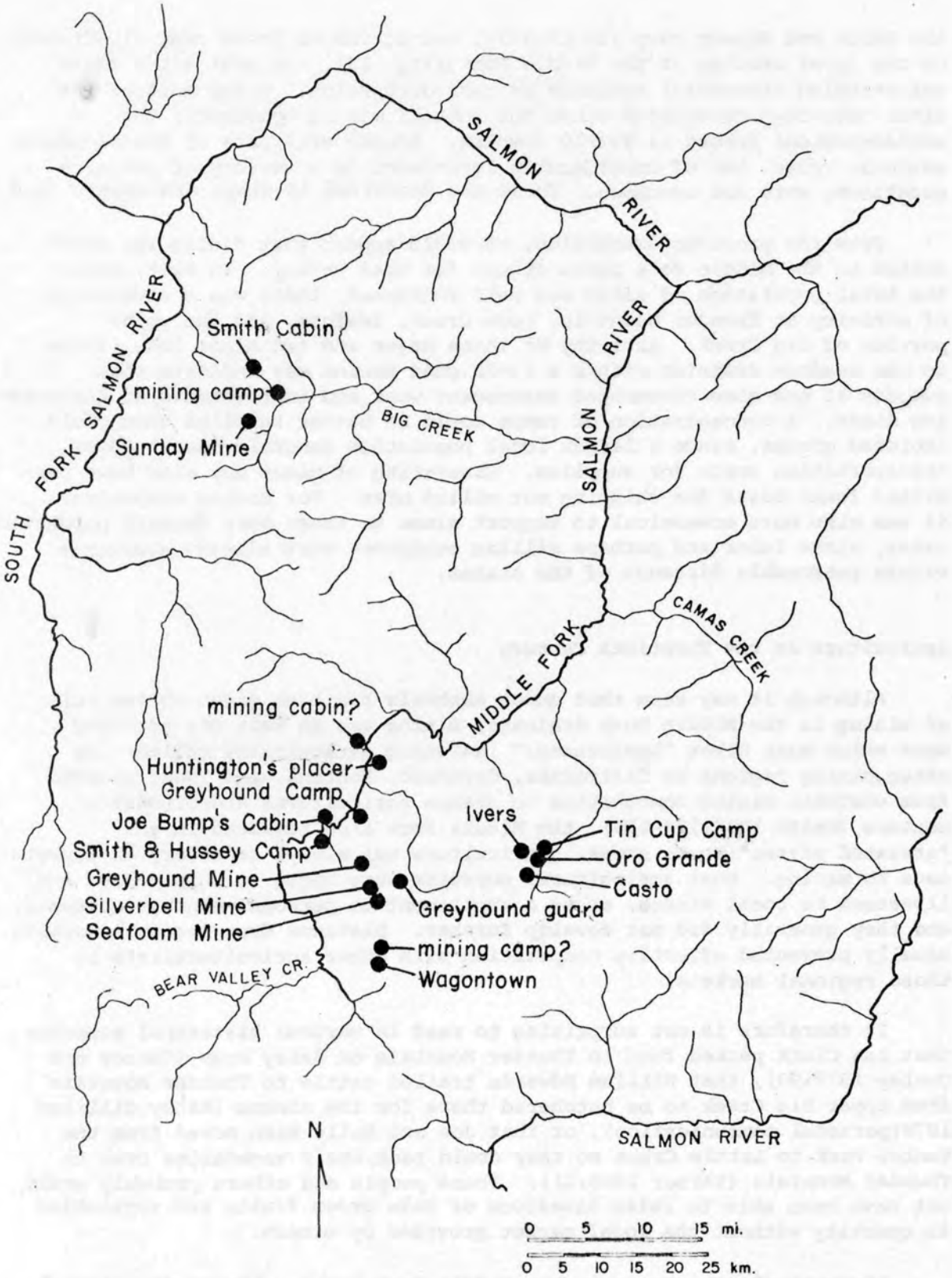

Fig. 13. Recently surveyed twentieth century mining sites of historic significance.

and if the homestead was then proved up. Not having legal license to a particular piece of property did not prevent squatters from acting as if they actually owned the land. The right to occupy a certain piece of land as well as ownership of improvements, such as buildings and fencing, were bought and sold as if the land in question was legally owned by the seller. For example, in 1897 the Watsons "sold" to Mr. and Mrs. George Risley, who patented the property in 1923 (Carrey and Conley 1977:39). After 1906, with the establishment of the U.S. Forest Service and the opening of agricultural lands within Forest boundaries, squatters became increasingly scarce. Occupants increasingly took the actions necessary to legalize ownership of their properties (Appendix).

The squatters or homesteaders (Fig. 14) who depended mostly on farming or livestock raising could scarcely have harbored illusions about eventually "making it rich." They could hope to live at a subsistence level or perhaps to make a small profit--especially if they diversified their sources of income--but they could never have expected great profits. The fact of the matter is that they must have liked it that way. The land was free; grazing land was practically free; neighbors, though often separated by miles of mountains, were friendly.

Who were the people who applied for and/or received homestead patents in the Middle Fork area? Over 100 applications were filed and, of those, 52 homestead or desert land patents (Appendix) were filed. Of the 43 applicants for which information was available, approximately 60% were single. About two-thirds of the homesteaders who were married had children. Only three applicants were women, and only two of those eventually patented their claims. Several of the homesteaders were related to each other by blood or marriage. The sense of community along the Middle Fork was probably reinforced by the fact that neighbors were sometimes relatives (Challis National Forest n.d.f; Payette National Forest n.d.b; Salmon National Forest n.d.b; Carrey and Conley 1977).

More than 60% of the Middle Fork patents were granted between 1920 and 1930. On the average, homesteads west of the Middle Fork River were patented later than those on the east. This is at least partially because the "Thunder Mountain Country," including portions of Big Creek and possibly Bear Valley, was not included within National Forest boundaries until 1919.

On Middle Fork farms the most common crop was probably hay to be used for feeding cattle, sheep, or horses. Since the winters in the lower valley of the Middle Fork are considerably milder than those in the surrounding areas, and since the growing season is correspondingly longer, many domestic plants generally believed unsuitable to mountain climates were raised. Along the banks of the Middle Fork River itself, fruit trees were planted and small crops of apples, cherries, pears, plums, and peaches were harvested. Wheat and oats were occasionally grown. Vegetables, which do not require such long growing seasons as do fruits, were not uncommon at any of the Middle Fork basin homesteads although most gardens were small. Potatoes, carrots, turnips, beans, peas, beets, onions, and radishes were commonly grown (Challis National Forest n.d.f; Payette National Forest n.d.b; Salmon National Forest n.d.b).

Fig. 14. Boyle homestead on Loon Creek ca. 1925. (C. P. Ross, photographer; U.S. Geological Survey Photographic Library, Denver.)

Both sheep and cattle were raised by homesteaders. However, it appears that most of the sheep and cattle that grazed in the Middle Fork drainage area did not belong to local residents but rather to outsiders in need of summer range for their stock (Boise National Forest n.d.a; Challis National Forest 1907-; Payette National Forest 1924-; Salmon National Forest 1918-). Chickens were occasionally raised in the backcountry, as were a few hogs.

As noted before, the Middle Fork headwaters are in Bear Valley, an area that contrasts with the rest of the drainage basin. The land is relatively flat, grasses are abundant, drainage is moderate to poor, and access is easy. Such trapping as occurred in the early 1800s was confined to this part of the Middle Fork drainage. From the late 1800s until today, the meadows along Elk Creek, Marsh Creek, Bear Valley Creek, and Cape Horn Creek were favored grazing areas for sheep and cattle (Challis National Forest 1907-; Smith 1978:32,108). Sheep were trailed from as far away as Emmett (Smith 1978:107) to this summer range.

Bear Valley, a general term that includes most if not all of the drainages just mentioned, was also the scene of some late nineteenth to early twentieth century homesteading, some of it apparently on the basis of legitimate homestead claims, some by squatters. The Forest Service closed large portions of its holdings in the area to legitimate homesteading in the early 1900s by classifying them as non-agricultural. Smith (1978:110) reports that a "two-mile limit" restriction on sheep grazing near homesteads led squatters to settle temporarily in Bear Valley in order to collect damages from sheepmen. Although she attributes this restriction to the 1906 Homestead Act, it does not appear as part of this law, and presumably would not in any case apply to squatters. During the research for this overview, the source of this regulation or law was not found.

Parts of Bear Valley may have been included within the general grazing area called Thunder Mountain. When the national forests of central Idaho were established, Thunder Mountain was not included within forest boundaries because of the gold rush that had begun a few years before. The range was excellent and, even better, use was unregulated and free since the land was not managed by any particular federal agency or owned by any private landholder. More than 200,000 sheep were trailed to Thunder Mountain during World War I and overgrazing was serious. Furthermore both the Forest Service and local landholders had problems with trespassing as the herds were trailed over their properties enroute to their summer range (Mains 1956:608). Because of these problems plus a lack of fire protection for Thunder Mountain and its boom to bust transformation, the Thunder Mountain area was added to the Idaho (Later Payette) National Forest by 1919 (Payette National Forest 1919). By 1937, if not earlier, all sheep grazing had been eliminated from the Middle Fork area west of the river and north of Sulphur Creek (Rutledge 1937:3).

After enactment of the Forest Reserves Homestead Act, squatters in the Middle Fork basin were probably few, except possibly in Bear Valley. Mapped homestead locations (Fig. 15) therefore probably represent fairly accurately the maximum extension of permanent homesteading. (The Appendix gives the names of the homesteaders and patent dates for most locations.) Applications for homesteads were made soon after the eligible agricultural areas were listed by the U.S. Forest Service. However, some properties, notably those in Bear Valley, would have made suitable homesteads but were not listed as agricultural. To date, no historic documents explaining the U.S. Forest Service's reasons for this classification have been found. One can guess at the reasoning. Since the 1870s or 1880s Bear Valley had been used for grazing livestock. Fencing the area into numerous homesteads would have caused quite an uproar from ranchers--a conflict that the Forest Service may have wished to avoid, considering the antagonism generated simply by the creation of the National Forests. Whatever the reason for the non-agricultural listing of lands in Bear Valley, there is evidence that squatters lived in the area without the benefit of legal ownership. (Note the previous discussion of the "two-mile-limit.") Thus, knowledge

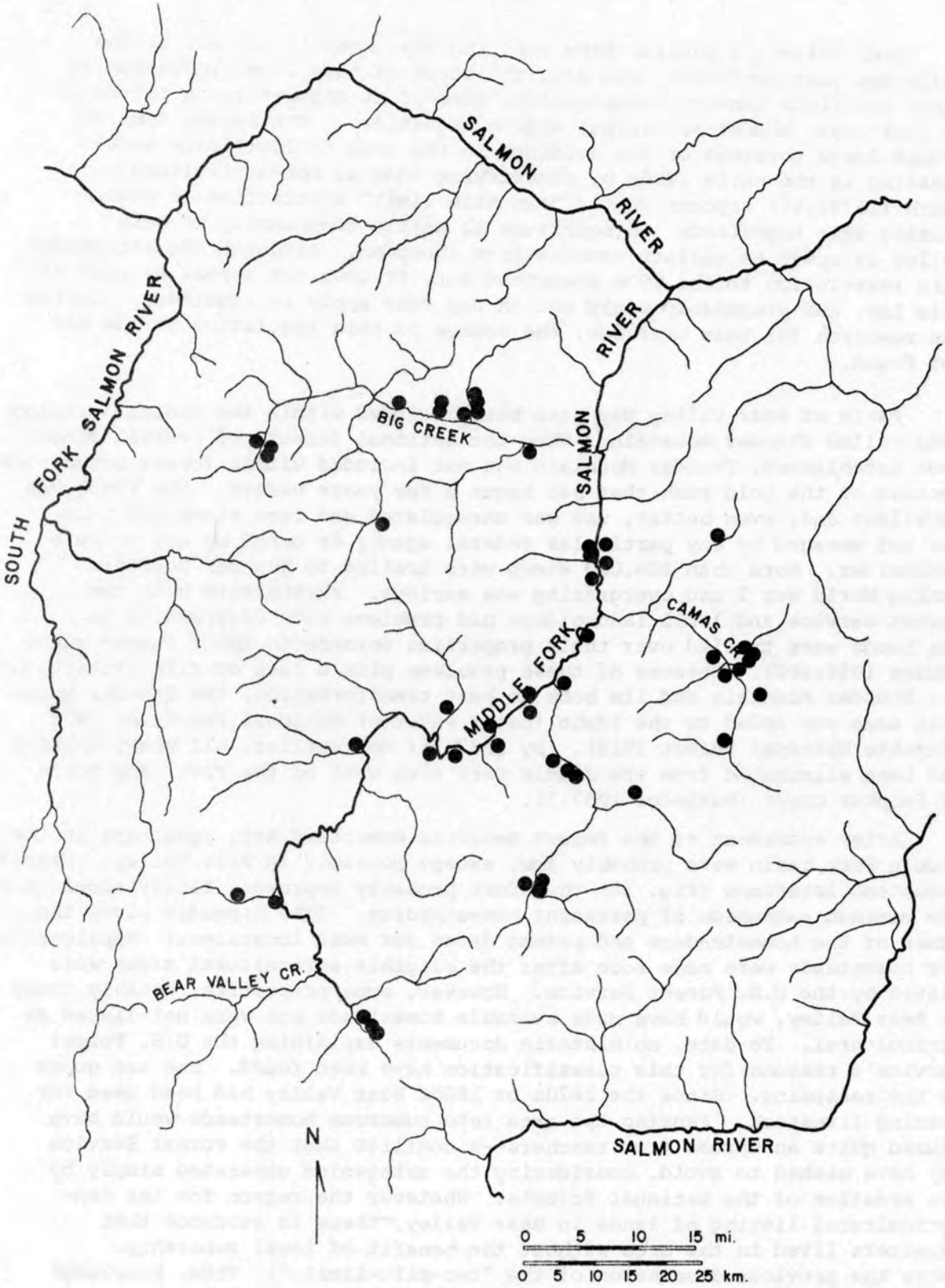

Fig. 15. Distribution of twentieth century patented homesteads in the Middle Fork Salmon River drainage basin. See Appendix for specific locations.

of early twentieth century Middle Fork homestead applications and final proofs does not guarantee that all long-term ranching and farming sites have been located (or included on Fig. 15). While the map is probably accurate for most Middle Fork farms and ranches of the early twentieth century, it is not an adequate representation for the Bear Valley area.

Four homesteads were visited during the 1978 historic sites field survey. The Walter Gray homestead (10-CR-606) at Seafoam was never patented after an early 1910s application, and so today nothing remains but a partial foundation and a thin, wide scatter of small broken artifacts. Four homesteads patented between 1918 and 1930 were consolidated into one dude ranch (10-VY-143) at Cabin Creek during the 1940s (Rossillon and Sprague 1978), near Big Creek. Heavy use of the ranch involved fairly constant remodelling and destruction of older structures that were no longer deemed useful so that today only four standing structures and three foundations there date to the early homesteading days. Surface artifacts at 10-VY-143 date to the 1940s-1960s, but subsurface materials of earlier dates may be present at the older features. In contrast, the Edwards and Davis homesteads along the upper portion of Big Creek have many standing structures that date to 1904 and before 1928 respectively. Edwardsburg (10-VY-146), as the Edwards homestead was known, consists of four standing features including the large main structure that served as a residence, post office, general store, and boarding house. Most of the artifacts associated with the features date to the 1930s; no artifact dumps were discovered in the vicinity of the site. The archaeological remains at the Davis homestead consist of the main residence (with a recent addition), blacksmith shop, and barn. The dumps at the site are very recent and no artifacts from the original homestead application and patent dated period were observed. These are described in more detail in Stapp and others (n.d.)

The 1930s

The 1930s saw the beginning of a new phase in Middle Fork history. Before that time people came to the Middle Fork to trap for furs, to fight Indians, to prospect or mine for minerals, to find pasture for livestock, or to manage the National Forest. During the 1930s, the area's recreational potential became more widely recognized and began to be developed. The area had traditionally been known for its excellent big game hunting. At first game was hunted for food, but hunting for sport became increasingly popular. The 1930s also witnessed several attempts to float the Middle Fork River; commercial river-running did not start, however, until the late 1940s (Carrey and Conley 1977:21-22). Finally, this was the decade of Civilian Conservation Corps activities in the Rocky Mountains. The CCC built bridges and roads, cleared trails, developed campgrounds, and constructed other tourist accommodations. As the nation was moving toward increased urbanization, a desire for "things as they used to be" created greater demands for access to "unspoiled" environments.

The fact that six temporary or "spike" camps were located within the Middle Fork drainage reflects the level of CCC activity there. There were spike camps at Shake Creek (10-CR-602) (Fig. 16f), along Mayfield Creek at Mystery Creek (Fig. 16e; Lloyd Salmon 1978:personal communication), at the Loon Creek Ranger Station (Fig. 16d) and at Grouse Creek (Fig. 16c)

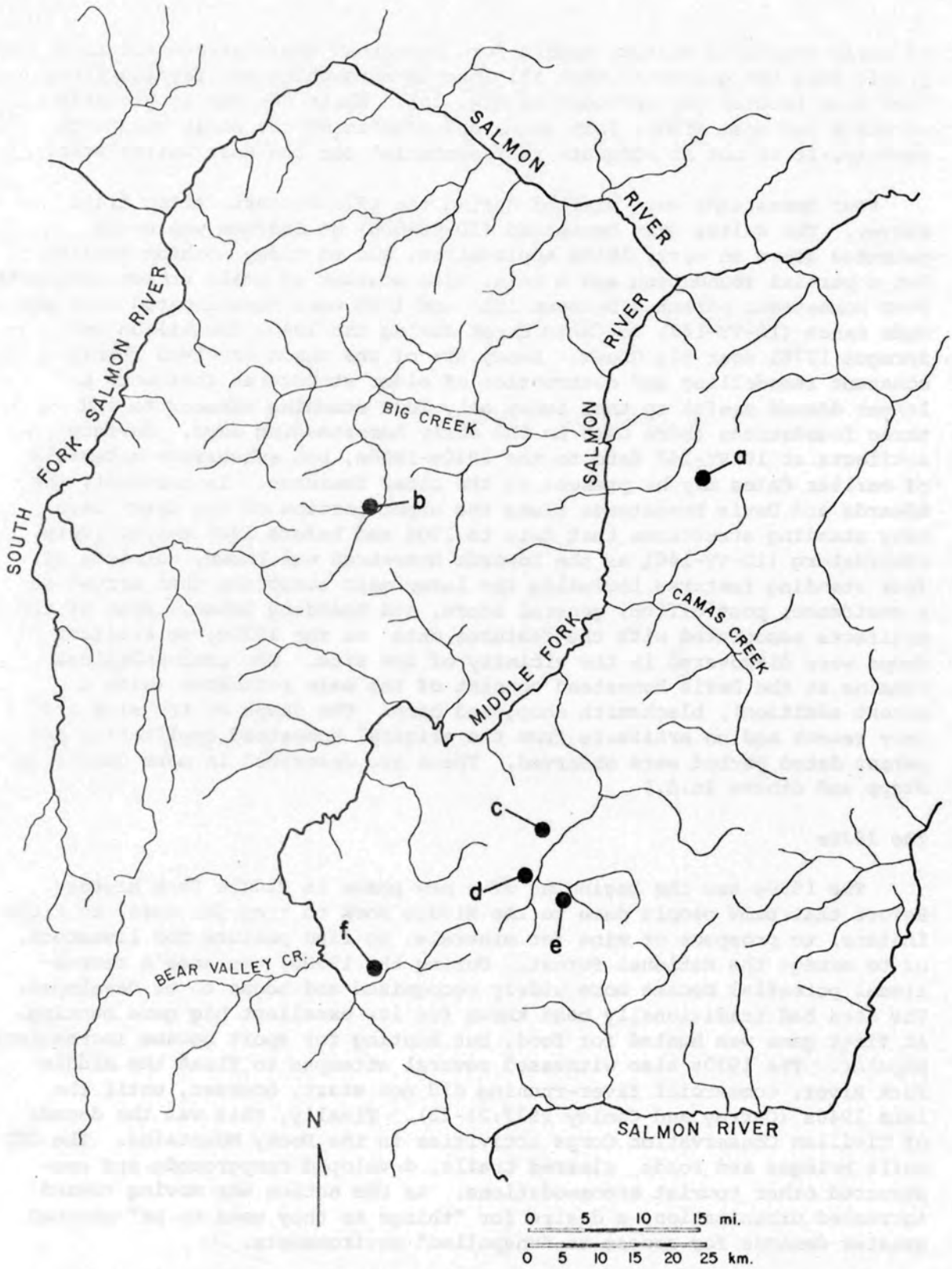

Fig. 16. Distribution of Civilian Conservation Corps spike camps in the Middle Fork Salmon drainage basin. *a*, Hoodoo Meadows; *b*, Monumental Creek; *c*, Grouse Creek; *d*, Loon Creek Ranger Station; *e*, Mystery Creek; *f*, Shake Creek.

(Challis National Forest n.d.b:Sec. 11E1), at Hoodoo Meadows (Fig. 16a) (Salmon National Forest 1935), and on Monumental Creek (Fig. 16b) (Hartung 1978:128). No permanent CCC camps were established in the Middle Fork area. Men from the spike camps built the area's first professionally planned campgrounds (Hockaday 1968:126), and constructed the Salmon River road.

One of the CCC's most active functions was forest fire protection in the isolated reaches of the Middle Fork drainage. As mentioned previously, this involved the construction of fire lookout stations and towers. In the Idaho Primitive Area west of the Middle Fork River the young men built permanent lookouts at Acorn Butte, Horse Mountain, and Rush Point, plus numerous temporary lookouts. The latter were open air platforms on which wall tents were erected to provide shelter (Hartung 1978:122,126). The temporary lookouts were dismantled during the 1940s (Hartung 1978:122) and several of the permanent ones within the past few years (Pope 1978).

The Shake Creek CCC spike camp (10-CR-602) was recorded in 1978. The CCC policy of dismantling all standing features and removing most surface trash after site abandonment resulted in few archaeological remains at Shake Creek. However, the former camp location is still marked by concrete building-foundations, concrete basins, rock alignments that outlined pathways, and one large outhouse depression. In the same general vicinity, three brick and stone foundations and one large can dump containing mostly institutional size cans (to feed large numbers of people) were discovered; these features appear to have been associated with the nearby spike camp.

The spike camp at Mystery Creek, in the Loon Creek drainage, was apparently much smaller than that at Shake Creek. Only two or three cement foundations offer evidence of former site use.

The Depression brought not only the Civilian Conservation Corps but also numerous others to the backcountry (Phillips and Welch 1972:17). While statistics are lacking and even local informants disagree among themselves, it still appears that--like other backcountries throughout the Rocky Mountains--the Middle Fork was a place to return to nature, the one thing on which a person could depend for a living. Homestead patents were no longer granted there, but mining claims were available; if a person could not buy one, he could attempt to locate his own. Patents of such claims were rare; the claims often were not worth much and, in addition, most backcountry stays were to ride out the storm of the depression. Hunting and fishing were good, gardens could be developed, and the "rent" was low indeed. This same phenomenon of riding out the depression in the backcountry may have accounted for some immigration into the area during the middle 1890s after the 1893 Panic, but again, documentation is lacking.

Conservation Efforts

During the early 1920s, officials of the Idaho Game Department and the Payette and Salmon National Forests began investigating an area which in 1925 became the Middle Fork Game Preserve (Fig. 17). They wanted to increase game production along the Middle Fork from Marble Creek to Camas Creek, the area of the big game winter range. To do so they proposed to enforce a buck law (does and fawns could not be hunted), buy out private

inholdings to keep domestic animals from competing with big game for range, introduce elk, and encourage extermination of predatory animals (Locke 1925). Several years later, it became obvious to U.S. Forest Service rangers, Idaho Department of Fish and Game officials, and concerned sportsmen that the Middle Fork Game Preserve was not working. Size of the deer herds could not be substantially increased in the preserve area because of the limits of available winter range. For the deer, establishment of the preserve resulted in death by starvation, instead of predation or hunting (U.S. Department of Agriculture 1972a:10). The Middle Fork Game Preserve was abolished in 1933 (Rutledge 1937:2).

At the same time that the game preserve was being established, Forest Service personnel, state officials, and others were thinking along a slightly different line. They not only were interested in increasing game production, but also wanted

> . . . to conserve primitive conditions of environment, habitation, subsistence and transportation for the enjoyment of those who cherish the early traditions and history of this country and desire to preserve to some degree, the traits, qualities and characteristics upon which this nation was founded. To make it possible for people to detach themselves, at least temporarily, from the strain and turmoil of modern existence, and to revert to simple types of existence in conditions of relatively unmodified nature. To afford unique opportunities for physical, mental and spiritual recreation or regeneration. [Governor's Committee on the Proposed Idaho Primitive Area 1930:304].

They wanted to create the Idaho Primitive Area (Fig. 17). In 1931, the state and the Payette and Salmon National Forests accepted S. C. Scribner's (Payette National Forest Supervisor) proposal to designate over one million acres of central Idaho as a primitive area (Hartung 1978:133). Six years later the Idaho Primitive Area was slightly enlarged with the addition of the Marble and Indian Creek drainages. Finally, in July 1980, President Carter signed PL 96-312 (94 Stat. 948) and thereby created the new 2.2 million a. River of No Return Wilderness that incorporates most of the IPS and the original Game Preserve (Fig. 17).

Generally, reactions to the establishment of the Idaho Primitive Area were favorable, although local landowners were concerned about being forced off their property. Miners were almost unanimously against the proposed primitive area. They relied on the Forest Service for construction and maintenance of trails and roads in the area for easier access to their claims, and feared that not only would the Forest Service discontinue any future road construction but that it would also prevent others such activity. They

> . . . pretty firmly believe that the state was settled by miners, ranchers, stockmen, etc., and their rights have been established by priority if not legalized, and that lines of business such as mining, grazing, etc., should not be hampered in their natural pursuits [Governor's Committee on the Proposed Idaho Primitive Area 1930:12-13].

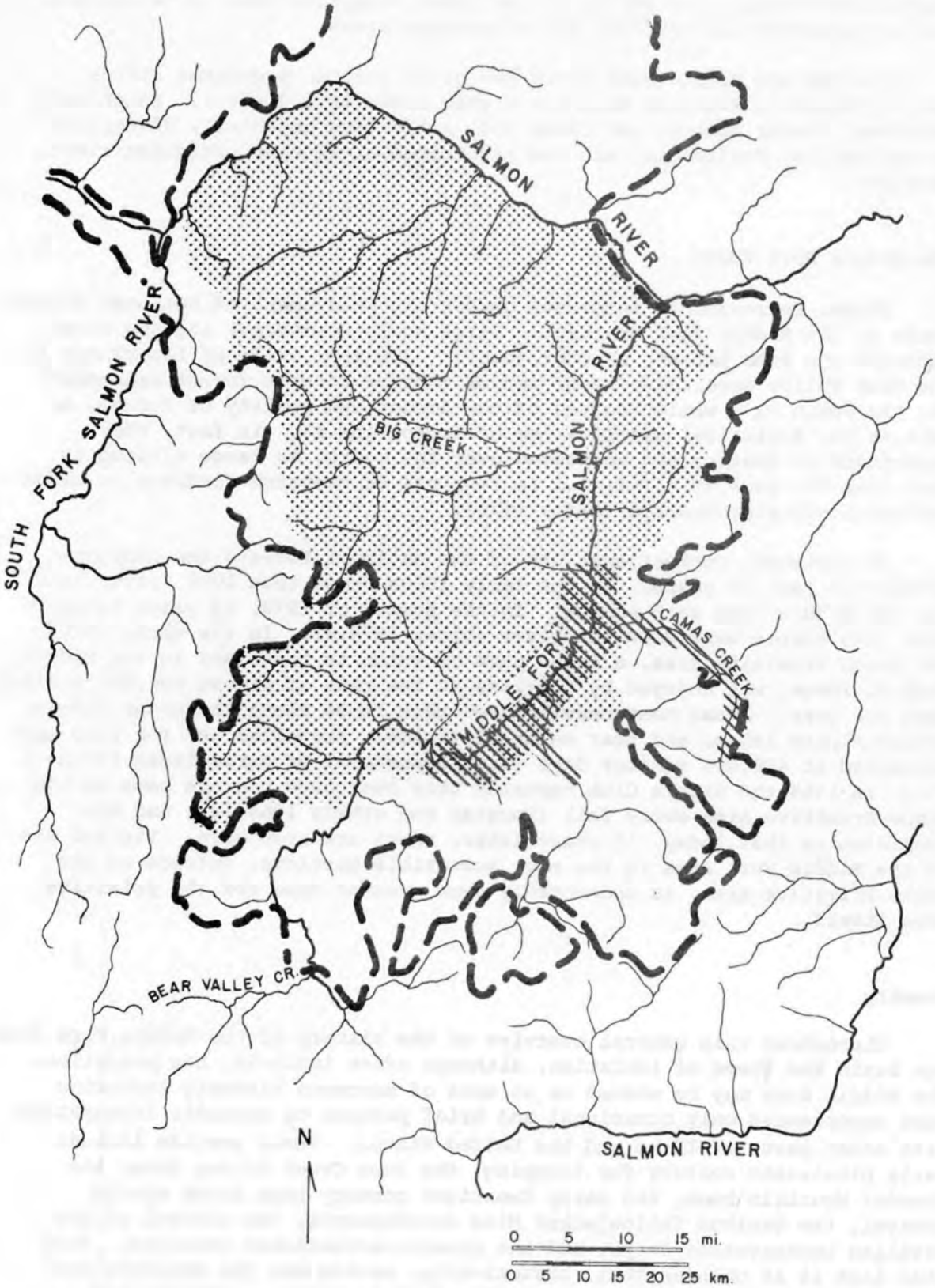

Fig. 17. The River of No Return Wilderness (1980), Idaho Primitive Area (1971-1980), and Middle Fork Game Preserve (1925-1933). The smaller, hatched area was the game preserve; the heavy dotted line approximates the new wilderness boundaries.

These same objections are being raised today by local miners who have opposed to changing the status of the Idaho Primitive Area to "wilderness" and to expanding the roadless and wilderness areas.

In 1968 the Middle Fork River was given further protected status when it became a National Wild and Scenic River (P.L 90-542). Motorized vehicles, placer mining, and other such activities especially disruptive to the natural environment are now prohibited along that protected river corridor.

The Middle Fork Today

Today, recreational interests govern the management of National Forest lands in the Middle Fork drainage. Large scale commercial logging never affected the area because of poor access. Grazing, while of importance in the Bear Valley area, also never played a major role in forest management for the basin as a whole because of the amount and quality of forage, as well as the logistical difficulties of exploiting it. In fact, the importance of grazing has decreased over the years, as range allotments have been cut back or eliminated in response to research findings on range potential and regeneration (Mains 1956).

In contrast, recreational use of the National Forests has blossomed within the last 30 years. In the early 1960s, fewer than 1000 "river rats" ran the Middle Fork each summer. In the summer of 1979, 15 years later, over 7000 people went down the river (Utter 1979:4). In the early 1970s the Idaho Primitive Area, a large part of which is contained in the Middle Fork drainage, was enjoyed by tourists at the rate of almost 200,000 visitor days per year. Areas most heavily used were those along the major rivers, around alpine lakes, and near major airfields. Projected use for 1980 was estimated at 400,000 visitor days (U.S. Department of Agriculture 1972a:11, 15). In 1964 the Sierra Club reported that over 5000 hunters came to the Idaho Primitive Area every fall (Douglas and others 1964:18), and the suspicion is that today, 15 years later, there are even more. Visitor use of the Middle Fork area in the more accessible portions, outside of the Idaho Primitive Area, is undoubtedly even greater than for the primitive area itself.

Summary

Throughout this general overview of the history of the Middle Fork drainage basin the theme of isolation, although often implicit, has prevailed. The Middle Fork may be viewed as an area of uncommon historic isolation that experienced only occasional and brief periods of economic integration with other parts of Idaho and the United States. These periods include early nineteenth century fur trapping, the Loon Creek mining boom, the Thunder Mountain boom, the early twentieth century Loon Creek mining revival, the various Yellowjacket Mine developments, the arrival of the Civilian Conservation Corps, and the recent recreational interest. From this list it is obvious that, historically, mining was the activity most responsible for interruptions to Middle Fork isolation. Farmers and ranchers also came to the Middle Fork, but neither their total population

size nor aggregation was large enough to change the primitive character of the land, and certainly their contact with outside markets was limited.

The frontier character of most of Middle Fork history is evident from the low population density, the limited transportation systems, and the isolation from state and national political, economic, and social trends that this study has documented. Further research on the history of the Middle Fork area, especially through historic archaeological survey and excavation, will not only provide additional necessary information about these aspects of Middle Fork history, but can test specific hypotheses about frontier adaptations that may be generated from the data presented here.

5. A PREDICTIVE MODEL FOR SOME HISTORIC SITE LOCATIONS

Research done while preparing earlier sections of this overview revealed that both primary and secondary written sources have not adequately addressed a very important component of Middle Fork Salmon history--cattle and sheep raising in the late nineteenth century. Although historic documents contain little information about livestock raising, data may be forthcoming from oral histories or historic archaeology. Before historic archaeology can address questions concerning stockmen's culture, including trade networks, food resources, and household structure, however, the physical site locations must be discovered. Thus, as part of the Middle Fork historic overview, a model to predict livestock raising site locations of the late nineteenth century has been developed for future testing.

Most historical studies or summaries of areas within the Middle Fork Salmon drainage basin are dominated by accounts of mining operations or of homesteading and Forest Service activities in the twentieth century. This is at least partly because there are very few primary documents (especially newspaper accounts) about nineteenth century agriculture in the Middle Fork area. One of the few documents that reports early agricultural activities is the 1870 population census from Loon Creek, a major tributary of the Middle Fork and the site of an 1869-1872 mining boom (see pp. 10-15). It shows that ten people, or about 5% of the reported population, were involved in farming or ranching in the Loon Creek area at the time (United States of America 1973 [1870]), though this census did not include the Chinese, many of whom were probably farmers. Most other references to nineteenth century agriculture in the Middle Fork area are concerned with occupations immediately before the turn of the century and make no mention of what happened between 1870 and 1895 (Carrey 1968; Carrey and Conley 1977; Caswell 1895-1899; Hartung 1978; Smith 1978).

The model that has been developed to predict livestock raising site locations is based on the assumption that both summer and winter grazing locations were primarily dictated by livestock needs--forage, water, and protection from severe weather conditions and wild predators. It assumes that the need for forage is dominant, and in consequence this factor has been chosen as the major point for consideration in the model. However,

human requirements must also be met in ranching operations, especially the requirement that markets be accessible to insure a favorable return on the stockman's investment. Thus I have developed a two stage model that uses range productivity (an indication of amount of forage available) for predicting potential site locations, and then eliminates those sites that are located at unreasonable distances from markets.

The aspects of a range that are of most concern to stockmen are palatability and vegetation production yield. Livestock also have nutritional requirements, but according to Preston and Willis (1970:25), "The specific nutrient requirements have little value in the general context of a ranching operation . . . the overall aim must be to carry as many [animals] as possible without reducing fertility . . . ."

Palatability, as defined in the U.S. Department of Agriculture (1937: III) *Range Plant Handbook*, is "the percentage of the readily accessible herbage of a species that is grazed when the range is properly utilized." Palatability varies with the plant species from ratings of unpalatable to excellent. In assessing the value of a parcel of land based on palatability, it is also necessary to know the percent coverage of each plant species for which a palatability percentage value can be assigned. For use in the model presented here, a palatability index has been developed that indicates the relative desirability of a particular unit of rangeland.

Palatability Index Value =
% coverage per species x % palatability per species

Percentage palatability for each plant species may be obtained from several sources (e.g., Donahue, Evans, and Jones 1956; Hermann 1970; Van Dyne 1958), but the most comprehensive is the above-cited *Range Plant Handbook*. Percent vegetation coverage per species is available from habitat type studies. Steele and others (1975) have reported forest vegetation coverage for central Idaho. Brandborg (1950), Hickey (1977), Lauer (1973), Mueggler and Harris (1969), Presby (1963), and Schlatterer (1972) provide information about vegetation coverage in grass and shrub communities.

Determination of vegetation production yields per unit of land, the other aspect of concern to stockmen, is often made by clipping and weighing the plants from a test plot (Shepherd 1962). The weight is the measurement of vegetation yield. Such measurements have not been made for the different forest habitat types defined by Steele and others (1975); vegetation yield data for similar habitat types in nearby areas are of limited utility since not all habitat types are described (Schlatterer 1972). There is information on vegetation production, however, for the three grass habitat types that we have recognized for the study area (Schlatterer 1972). These data will be used in calculating potential hay production. (Note, however, that range ecologists maintain that the vegetation yield of plants within a particular habitat type may vary considerably at different locations due to differences in soils, drainage, aspect, and the like [Carl Goebel 1979: personal communication]. The model presented here assumes that these possible differences in yields of grass habitat types are negligible considering the size of the sample units and the likely diversity within each unit.)

It was originally hoped that the model would predict locations of cattle and sheep raising sites through consideration of both palatability and vegetation production yield. Because of limitations in the published information on yield, this variable is used in a limited way and only for winter site prediction. It cannot be used at all for summer sites that are largely in forest dominated areas for which we have no vegetation production yield data. It is unfortunate that these data are not more widely available, since they could have provided estimates of the number of animal units (a cow and her calf) that a range could support. Availability of vegetation yield data would have allowed identification of a specific cut-off level below which livestock raising would not have been feasible. Nevertheless, the model for summer and winter site locations, based solely on palatability requirements, should prove useful in predicting areas most and least likely to have been exploited for livestock raising. Also, since vegetation production yield data are available for potential hay producing areas, a cut-off level is designated for potential winter site locations.

While palatability index values can be calculated for certain habitat types, the spatial distribution of those habitat types in the study area has not previously been determined. However, Steven Hackenberger and I have produced a map that we believe locates with sufficient accuracy the various forest habitat types around the Middle Fork drainage basin. (Hackenberger uses this same data base in his plant resource use model for prehistoric inhabitants of central Idaho [Hackenberger n.d.].) This mapping was accomplished with the aid of Forest Service timber type maps and elevational data from U.S. Geological Survey topographic maps.

Timber type maps (Fig. 18) outline the locations of stands of different tree species. For each stand, they also rate the commercial quality of the timber and give the stand class (average tree size). The timber type maps are about 90% accurate; some tree species were misidentified from aerial photographs during mapping (Dave McClymonds 1980:personal communication). The forest habitat types, defined by Steele and others (1975), are named by their dominant tree and understory species. This made possible their correlation with the vegetation areas on the timber type maps. The commercial classification of the timber stand, its elevation, and the moisture requirements of the habitat type were also used to some extent in assigning each vegetation area on the timber type maps to a habitat type or group of similar habitat types. For example, it was judged that a stand of non-commercial *Pinus ponderosa* at 5000-7000 ft. elevation belongs to the *Pinus ponderosa-Festuca idahoensis* habitat type of Steele and others (1975).

In order to manage and interpret the large data base that was produced, we calculated the area of each habitat type within a series of 3x3 mi. grid squares. There are 520 such squares in the study area, arbitrarily defined as a rectangle including all the Middle Fork basin and adjoining parts of the Salmon and South Fork drainages. To measure the area of each habitat type, we overlaid on each unit a pattern of 125 dots--15 rows and 15 columns; each dot then became a count in the systematic sample of vegetation types. Each 9 square mile unit was given four summary palatability index values--summer cattle, winter cattle, summer sheep, winter sheep--based on the relative proportions of the different habitat types.

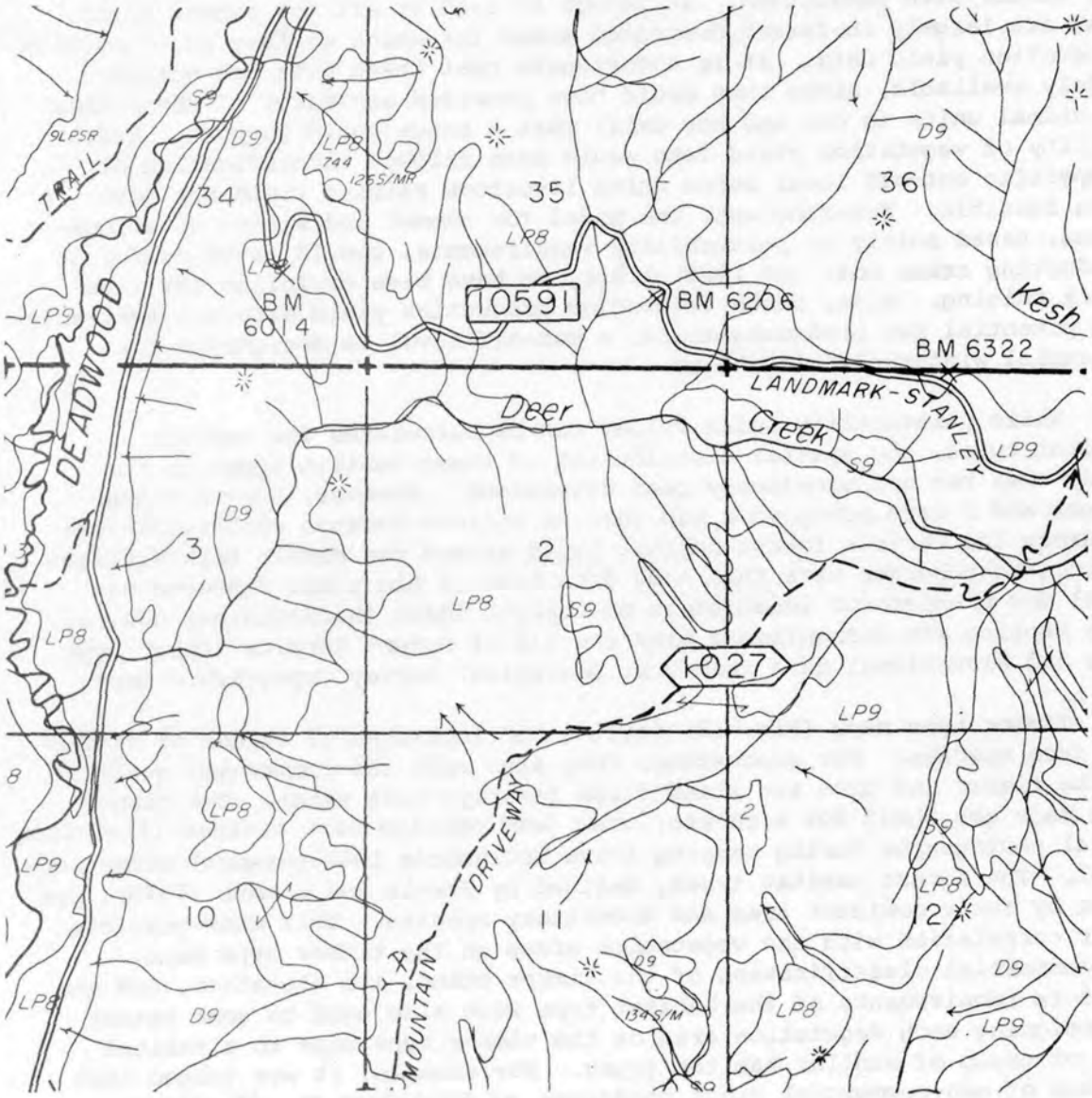

Fig. 18. Nine square mile section from a Forest Service timber type map.

For example, a unit between 3000-5000 ft. elevation with 10% *Picea* (estimated 2.2% palatability value for the plant association), 50% commercial quality *Pseudotsuga menziesii* (12.2% palatability), and 40% commercial quality *Pinus ponderosa* (14.8% palatability) would have, for cattle, a summary palatability index value of 15.228.

Picea	12 dots (10%) x .022	.264
Pseudotsuga	62 dots (50%) x .122	7.564
Pinus	50 dots (40%) x .148	7.400
Summary palatability index value		= 15.228

While modern plant habitat distributions are being used, the model aims to predict site locations for a time period approximately 100 years ago. In this area of central Idaho the assumption that modern plant habitat distributions have not changed significantly in 100 years is fairly reasonable. Considering the large area of land that is encompassed in the study area, comparatively little disturbance has occurred. While particularly bad at some locations, overgrazing has been of little consequence overall, and "many areas show considerable recovery" (Steele and others 1975:17). In his selection of study plots for habitat type identification, Robert Steele (1979:personal communication with Steven Hackenberger) tended to describe areas undisturbed by overgrazing. Further, the distribution of habitat types, especially as indicated by dominant tree species, has probably remained fairly constant for the past century. No significant logging operations have taken place in the area. Fires have occurred in the basin, but for our purposes, their effects on the vegetation have probably not been great. After fires in both Douglas fir and subalpine fir forests, the seral dominant tree species is lodgepole pine (Schlatterer 1972:6,17). Since lodgepole pine and subalpine fir habitat types have similar understories (Robert Steele 1979:personal communication with Steven Hackenberger), fire has little long term effect on the palatability index for this habitat type. Concerning Douglas fir, areas dominated by this species comprised only 15% of the forested area, of which something less than half has remained unaffected by fire during the past 100 years. If areas that are lodgepole pine dominated today were actually Douglas fir habitat types during the nineteenth century, the predicted palatability values would be slightly lower than they should be. Finally, after fires, ponderosa pine habitat is replaced by new ponderosa pine, so the palatability index should remain the same (Weaver 1974:292).

The National Forests which administer lands in the Middle Fork drainage basin have records of grazing allotments for cattle/horses and sheep/goats that occasionally date as early as 1907 (Boise National Forest n.d.a; Challis National Forest 1907; Payette National Forest 1924; Salmon National Forest 1918). In this study, these grazing allotment maps were not used to predict late nineteenth century site locations because they almost certainly do not include all the desirable rangeland in the Middle Fork drainage during the late nineteenth century. Some ranges had already been depleted by the early twentieth century and were eliminated when early range allotments were made. Records have also been lost for many of the grazing allotments that were made soon after forest establishment but that have since been discontinued. Finally, some grazing allotments included the watersheds of several small tributaries and hence large areas of land. Not all the land within the allotment was suitable for grazing, but was merely included to simplify boundaries.

Simple flow charts illustrating the decisions assumed to be involved in selecting locations for winter or summer sites are shown in Figs. 19 and 20. Note that for the initial choice, range productivity was considered in both winter and summer site selections for both meat and wool production. For winter locations, stockmen must also have considered the likelihood that forage would be covered with snow, and hence be less accessible to stock. According to big game range studies, accessible forage during winter is always below 6000 ft. elevation and sometimes below 4000 ft. during severe winters (Brandborg 1950:14,77; Leege and Hickey 1977:11). Below these elevations the standing snow depth is generally less than 15 in., and livestock can dig through the snow to forage. Even if there was not sufficient accessible winter forage, a stockman could still have located his ranch (winter site) in an area where enough hay could be grown and stored to last through the winter. Finally, if the ranch's main product was wool, the winter site would have been reasonably close to a rail head, since sheep are shorn and the wool marketed at the end of the winter season.

For summer site locations, not only was sufficient summer forage necessary, but the stockman should also have taken into account distance to markets. Here, a "market" includes any concentration of people who would buy meat, wool, or animals. This would have included both mining communities and local concentrations of trappers or homesteaders within the Middle Fork drainage (internal markets), and railroad heads and urban centers outside the drainage area (external markets). Internal and nearby external markets for the study area during the late nineteenth century are shown in Fig. 21. Most of the markets shown were not available during the entire late nineteenth century. For example, the large early Loon Creek market of over 500 people was only present from 1869 to 1872. After the boom only a few miners worked the area at any one time. Also, the markets varied considerably in size. Copper Camp, even at its busiest, was never as large as Yellowjacket. With meat as the main agricultural product, distance to markets, which should take into account not only actual distance but also any obstacles to transportation, is considered in conjunction with summer (temporary) site location because livestock sales were best conducted in the fall when the animals were fat. Fall sales also reduced the herd size that had to have been fed and cared for over the winter season (Snapp 1939:214).

Fig. 22 was constructed by grouping comparable values of summary palatability. Larger dots (higher palatability) indicate areas of predicted high summer use by sheep herds. Four areas of exceptionally high predicted use are, from north to south, Chamberlain Basin, the north side of Camas Creek, Johnson Creek-Indian Creek-Pistol Creek, and Bear Valley. A minor concentration of predicted high use values occurs at Rapid River just north of Bear Valley. Low use areas were at the headwaters of Mayfield and Yankee Fork creeks, along the lower one-third of the Middle Fork (Impassable Canyon), and along the southern border of the Salmon River at the north end of the study area.

Historically Bear Valley was (and for that matter still is to some extent) a popular summer grazing range for sheep. The area's popularity was enhanced by its relative accessibility. After 1884, Bear Valley summer sheep could be trailed through the Sawtooth Valley and then over Galena Pass to the rail head at Ketchum. Before that time, Blackfoot would probably have been their destination (Beal 1962:62,177). Many if not

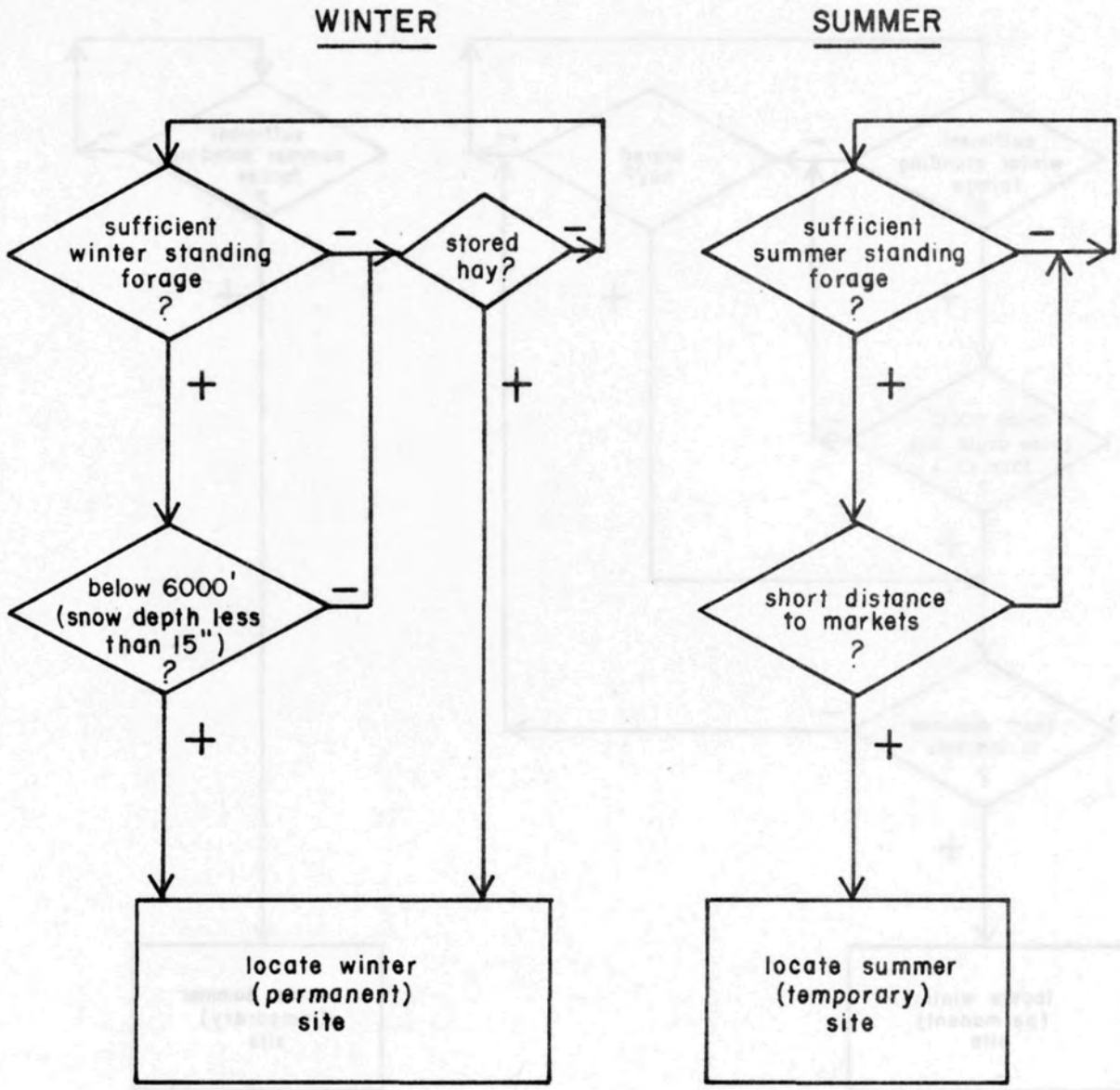

Fig. 19. Factors affecting site selection when meat was the main agricultural product.

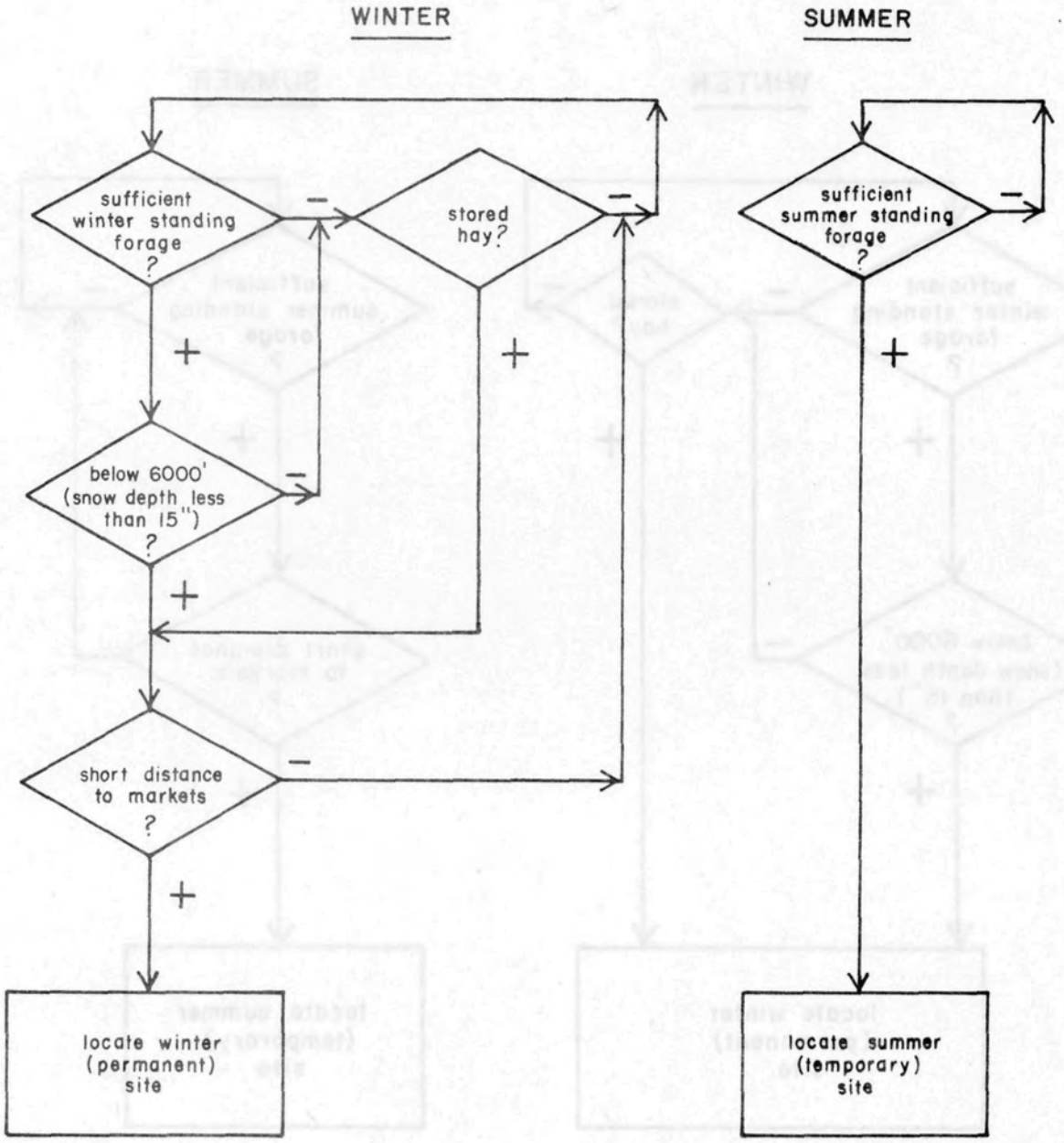

Fig. 20. Factors affecting site selection when wool was an important agricultural product.

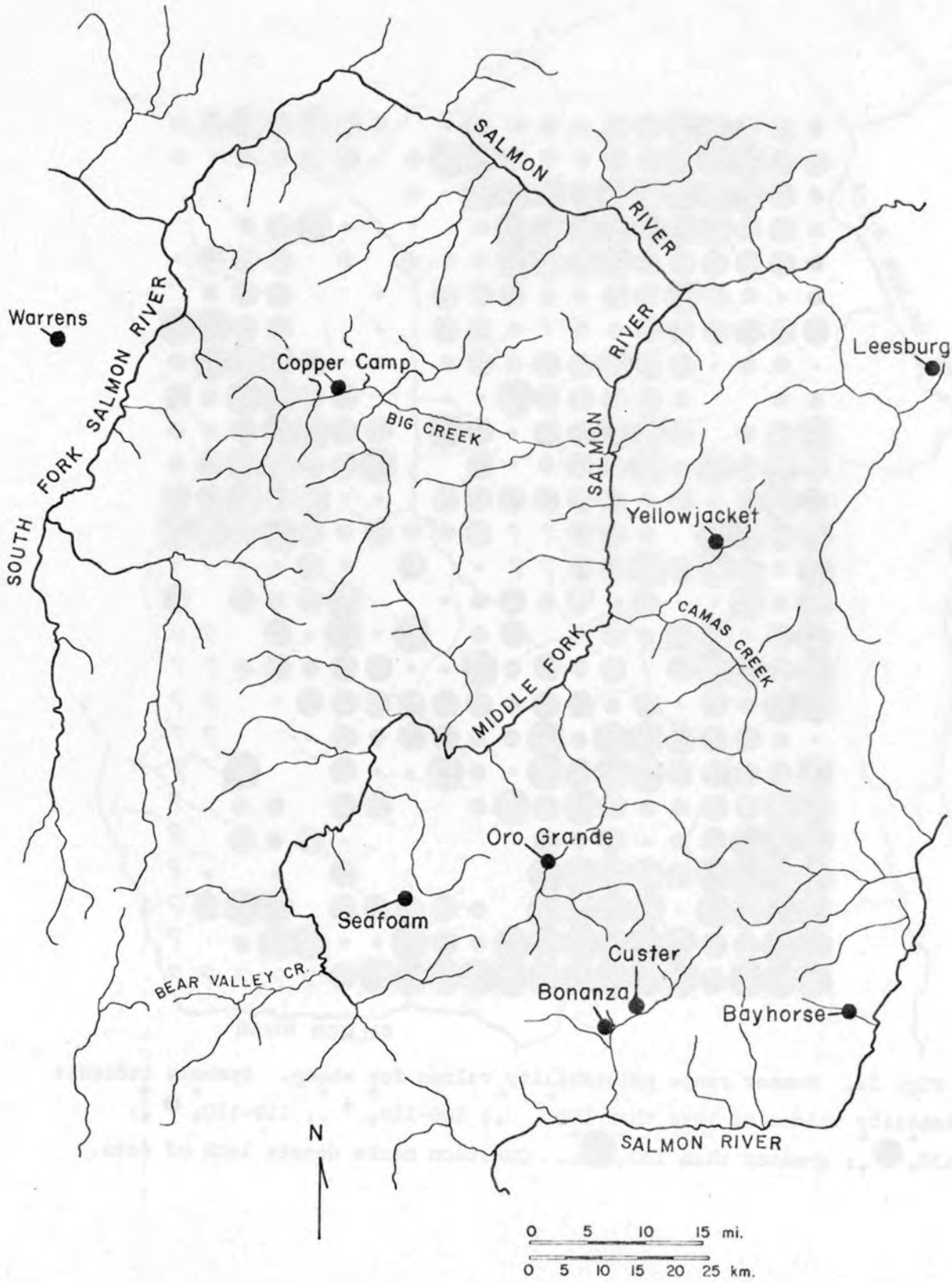

Fig. 21. Late nineteenth century local markets of the Middle Fork Salmon River drainage basin and adjacent areas.

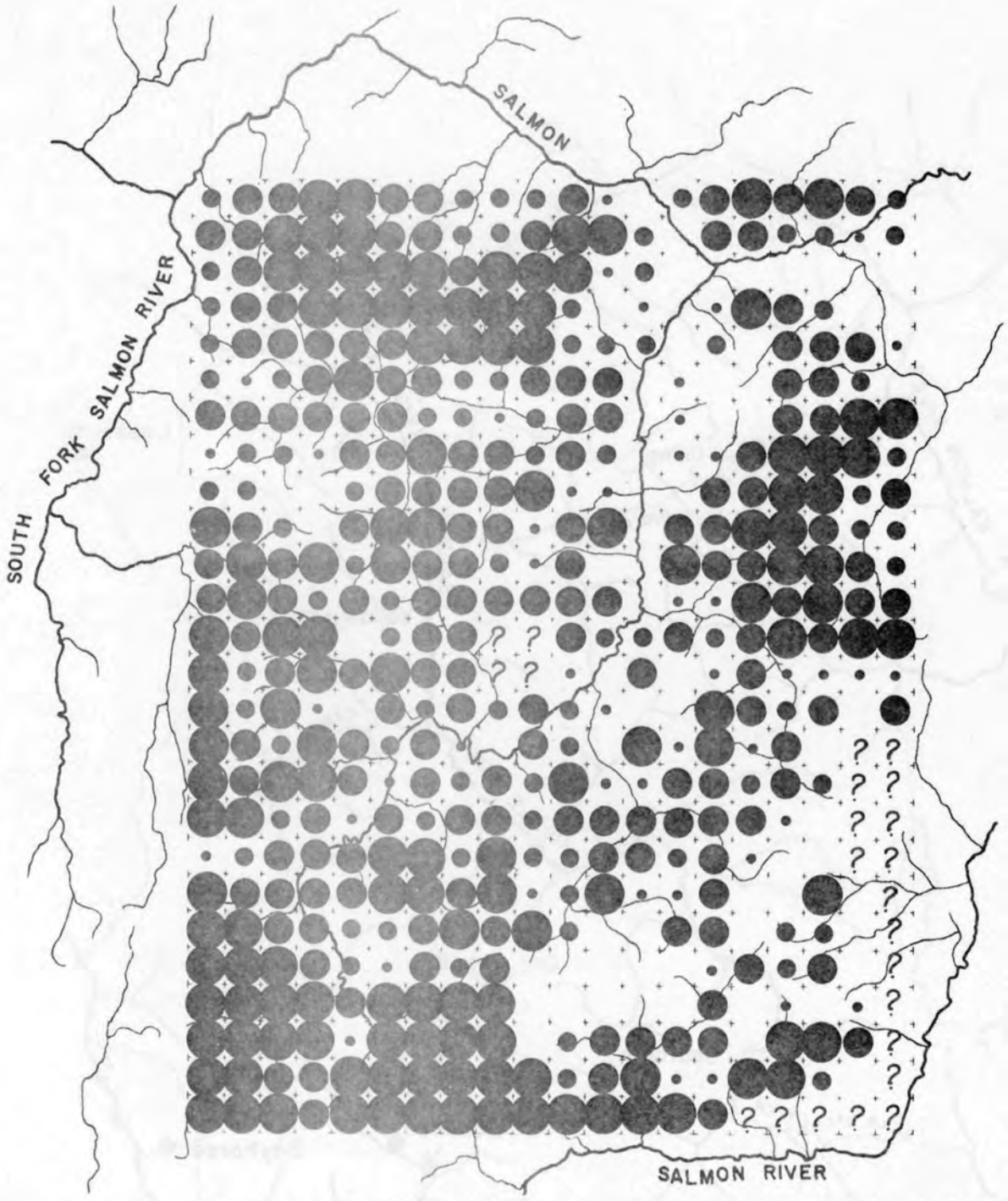

Fig. 22. Summer range palatability values for sheep. Symbols indicate palatability values of less than 100; 100-110; 110-120; 120-130; greater than 130. Question marks denote lack of data.

most of the sheep that grazed in that area were wintered outside of the Middle Fork drainage basin (Smith 1978:107; Yarber 1976:102).

In contrast to the large numbers of predicted high summer use areas for sheep, the summer palatability index values for cattle are low (Fig. 23). Also, the distribution of high and medium values are different for the two species of animals. Chamberlain Basin and Johnson Creek-Indian Creek-Pistol Creek are predicted as comparatively low use areas. The north side of Camas Creek and Bear Valley are some of the predicted highest summer use areas for cattle. Of equal or even greater importance were the Yankee Fork area north of the Salmon River, and the Loon Creek and Rapid River watersheds.

Summer sites may have been located at any of the areas with high palatability index values. However, they were probably above 6000 ft. (1800 m) in elevation or at least away from winter sites to allow hay production and standing forage accumulation for later winter use. A comparison of the summer palatability index value maps for sheep and cattle with the 6000 ft. contour map (Fig. 24 includes both 6000 ft. and 4000 ft. [1200 m] contour lines) show that, for sheep, most predicted high use areas are above 6000 ft. and for cattle all high and medium use areas are at high elevations except for portions of the Loon Creek watershed. Any cattle raised along Loon Creek probably wintered below 6000 ft. and summered above that elevation in the surrounding hills.

Distances to known internal and external markets affected summer short-term occupation. For example, the small area of predicted high value on Monumental Creek was rather far from known markets, except for Copper Camp, which remained very small until the turn of the century and even then was never a major market (Peterson 1958:2).

In general, the palatability index calculations indicate that during the summer, the Middle Fork basin was and is better suited to sheep than to cattle grazing. This general pattern is reversed, however, during the winter. Figs. 25 and 26 show areas of predicted high and low sheep and cattle use. (Note the difference between the scales for summer and winter use; the average summer value is at least twice as large as the winter value for both sheep and cattle.)

Few areas are of predicted high value for sheep during the winter months. The Yankee Fork area north of the Salmon River, Loon Creek, and Camas Creek have the highest values. For cattle, these three areas plus Rapid River and Marble Creek exhibit high predicted use values.

As noted previously, high palatability values are not the only criteria by which the desirability of winter livestock use was assessed. The predicted winter use areas must have been below 6000 ft. elevation, or the land must have been able to produce enough hay to provide for wintering the livestock.

Hay production was measured as the natural vegetation productivity of grasses within each 9 mi.^{2} unit. As mentioned earlier, calculations of probable winter site locations based on hay production differ from estimates of summer and winter locations based on plant palatability.

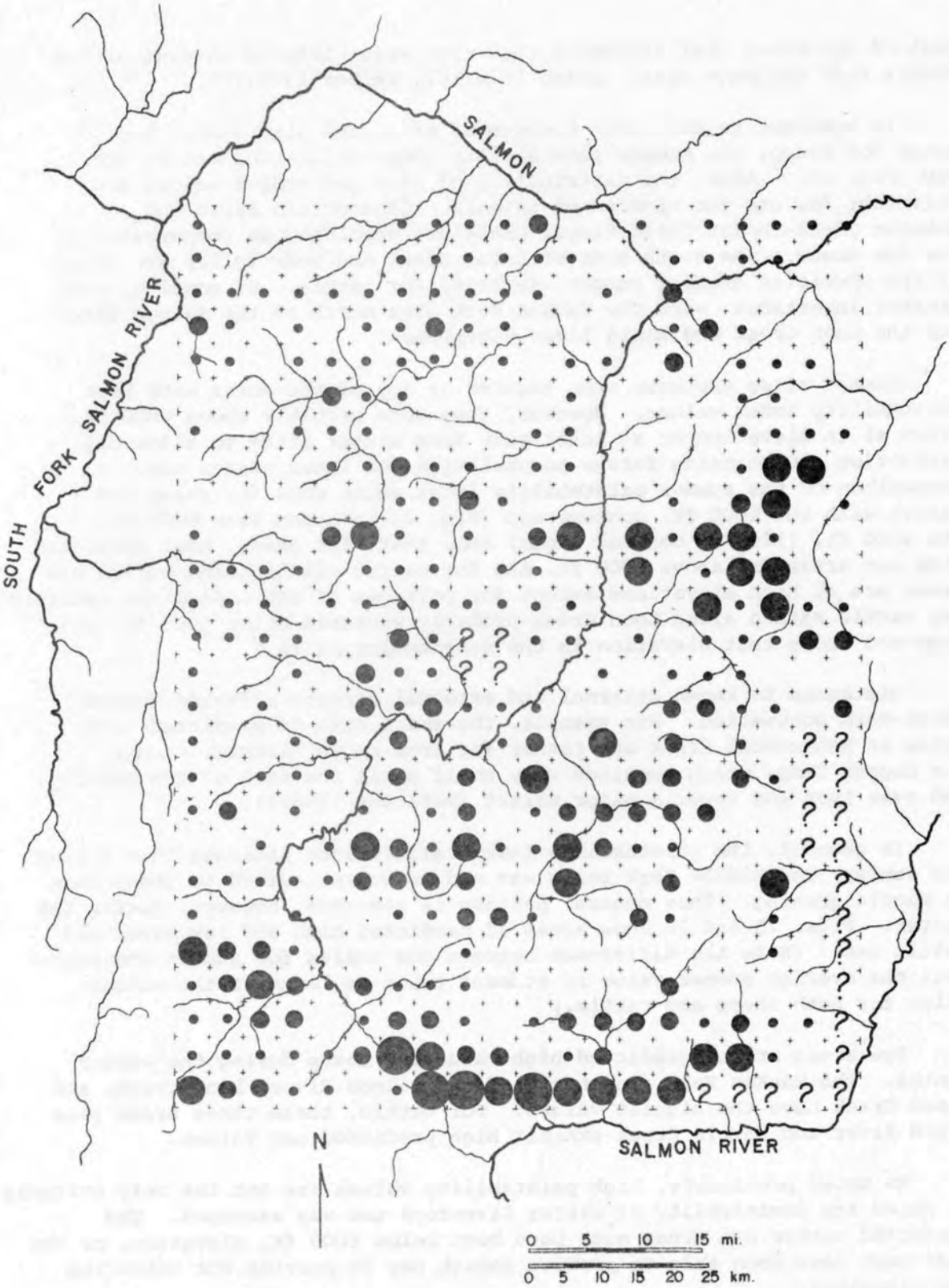

Fig. 23. Summer range palatability values for cattle. Symbols represent the same values as those in Fig. 22.

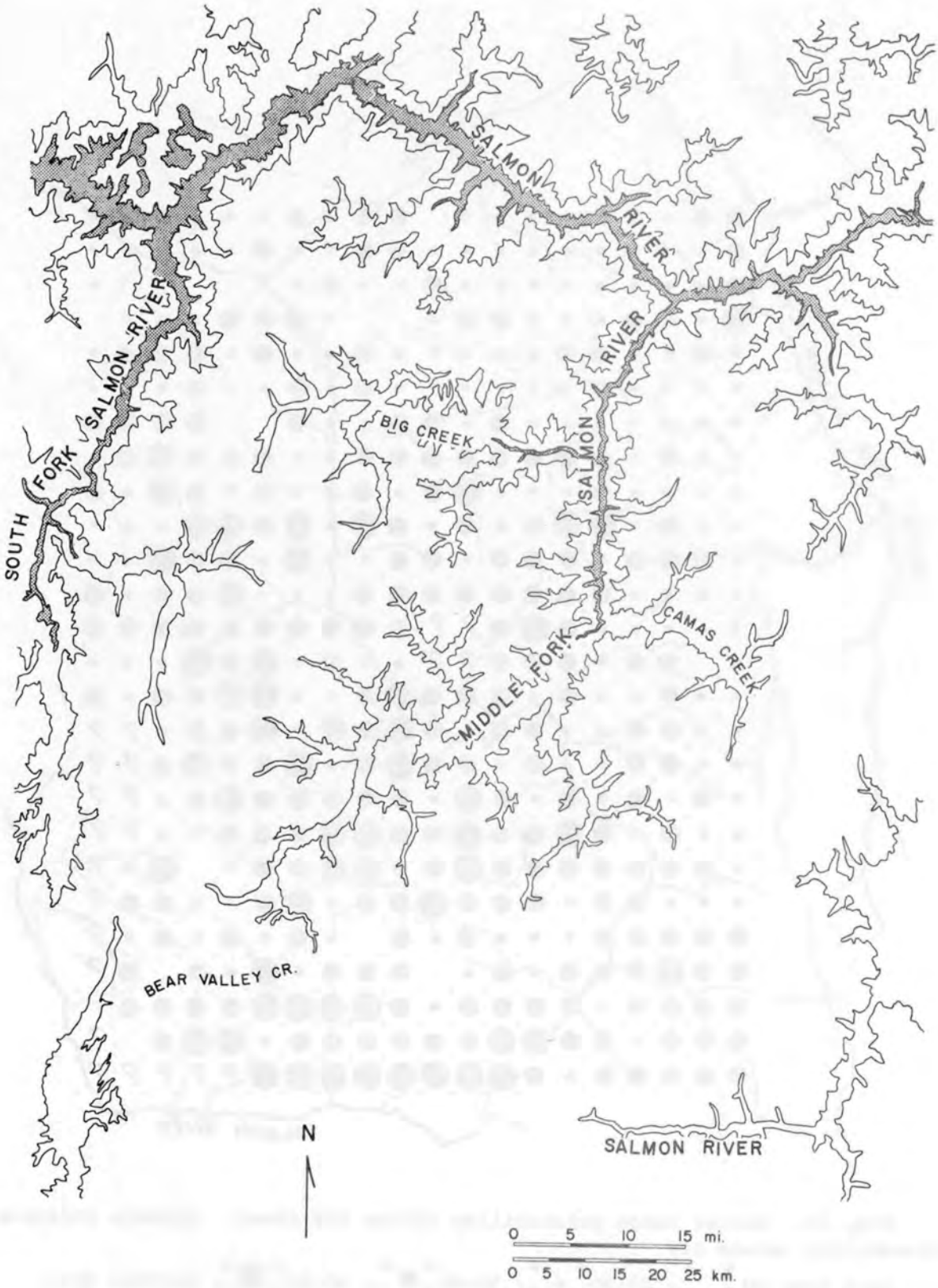

Fig. 24. 6000 ft. and 4000 ft. contour lines. Lands below 4000 ft. in elevation are shaded.

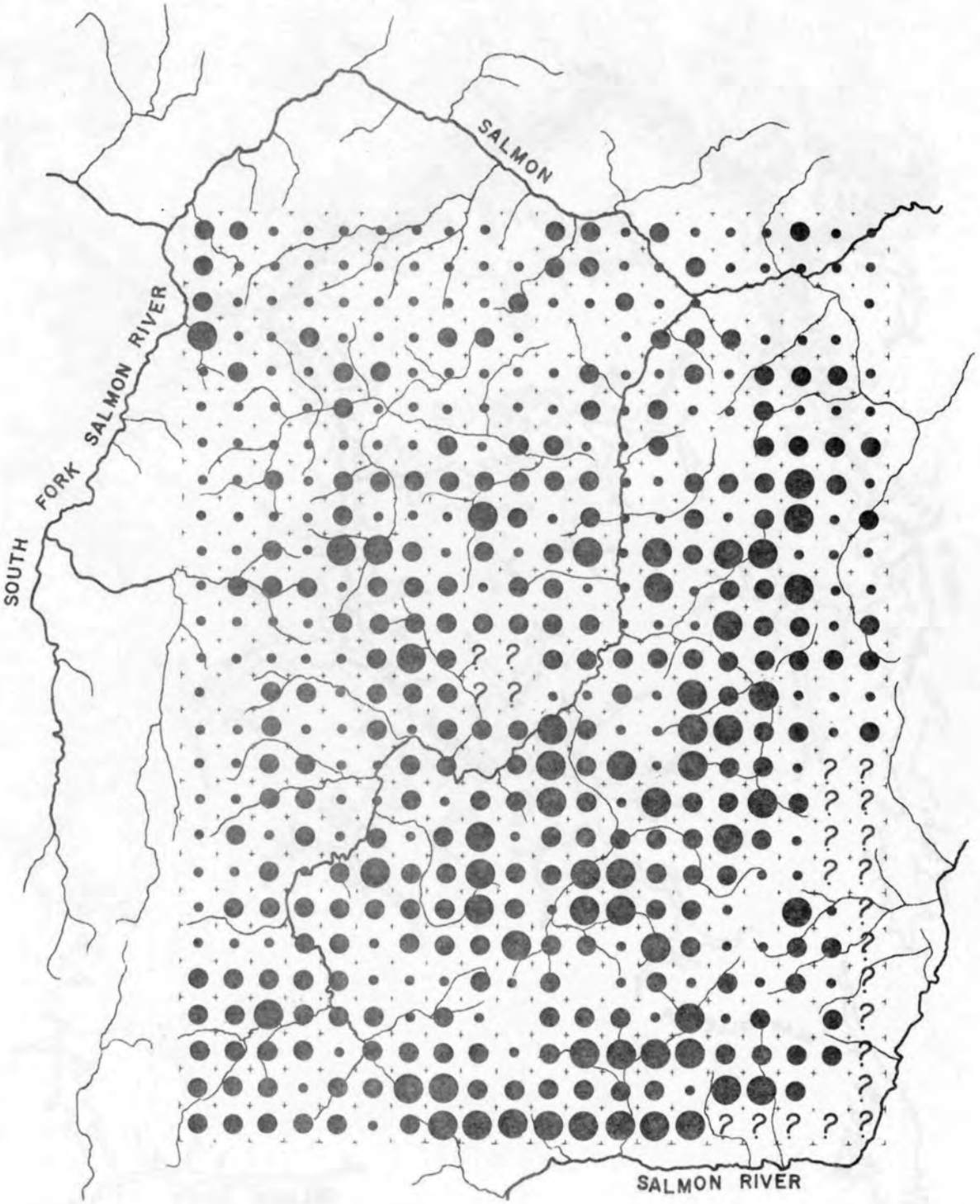

Fig. 25. Winter range palatability values for sheep. Symbols indicate palatability values of:

less than 20; 20-30; 30-40; 40-50; greater than 50. Question marks denote lack of data.

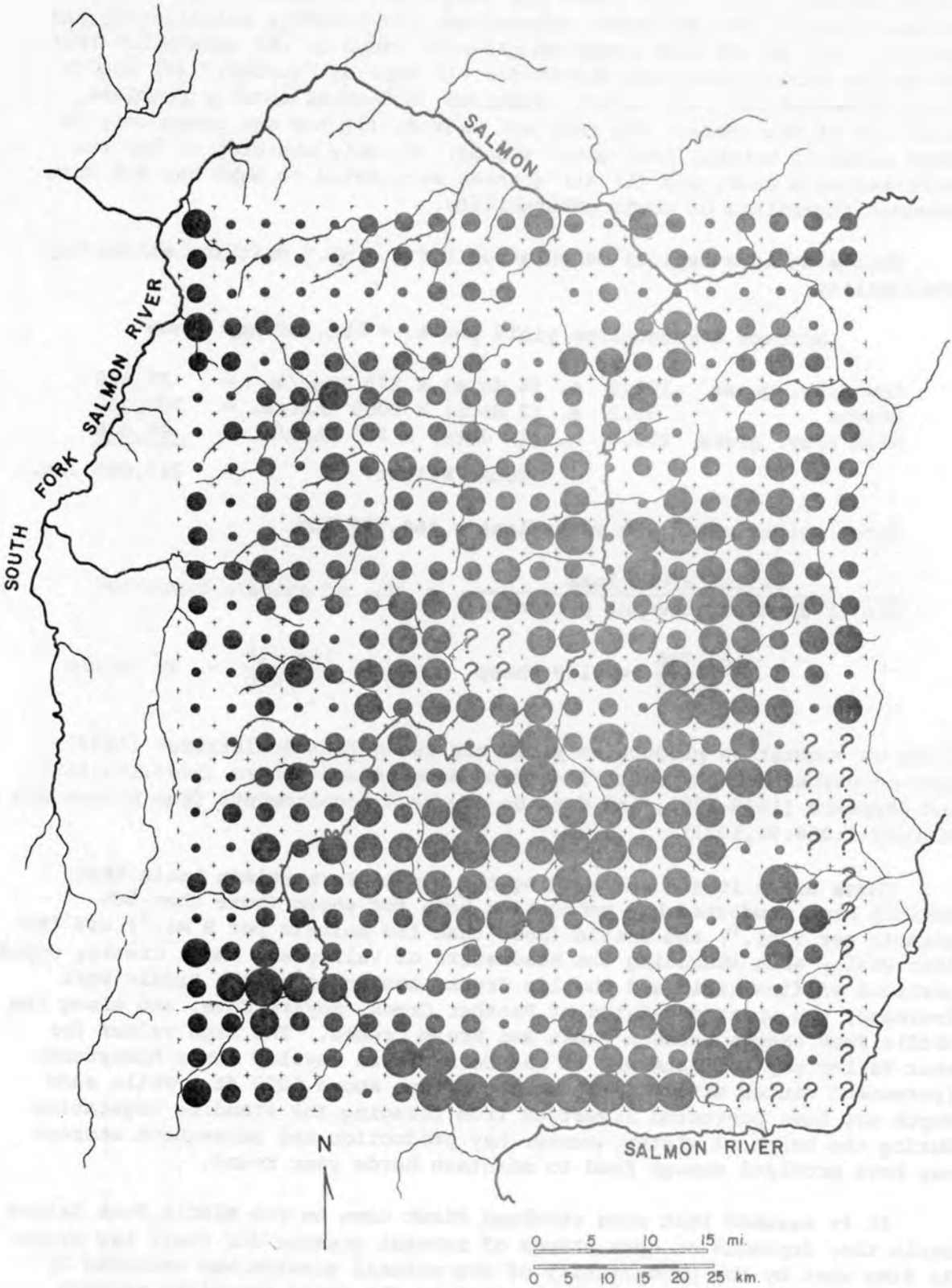

Fig. 26. Winter range palatability values for cattle. Symbols represent the same values as those in Fig. 25.

Figs. 27 and 28 indicate the number of animals that could have been supported on each 9 mi.^{2} unit given hay production by the natural grass community only. The following assumptions affected the calculations and results: (1) animal feed requirements were based on the assumption that enough hay should have been stored for 215 days of "winter;" (2) due to field fermentation, poor curing practices, and other storage problems, about 25% of the average hay crop was wasted; (3) hay was grown only in those areas of natural open grass stands; (4) only one crop of hay was harvested each year, and (5) all grasses were dried to make hay and were consumed regardless of their palatability.

Following is a typical calculation for a 9 mi.^{2} unit for winter hay availability:

Acreage x vegetation yield per a. = Lbs. of hay grown

Low elev. grass	102.4 a.	(4 dots) x 270 lbs./a.	=	27,648
Meadow	51.2 a.	(2 dots) x 2000 lbs./a.	=	102,400
High elev. grass	256.0 a.	(10 dots) x 350 lbs./a.	=	89,600
		Total Weight	=	219,648 lbs.

Total weight after 25% waste/loss = 164,736 lbs.

$$\frac{\text{Weight after loss}}{\text{Winter feed requirement per animal}} = \text{No. of animals supported}$$

$$\frac{164{,}736}{1{,}505} = 109 \text{ sheep} \qquad \frac{164{,}736}{6{,}450} = 26 \text{ cattle}$$

(Data on vegetation production yield are taken from Schlatterer [1972], data on percentage hay/waste/loss from Hodgson and others [1948:163,165] and Shepherd [1948:178], and data on dry feed requirements from Altman and Dittmer [1968:98,102]).

Those areas in and surrounding the Middle Fork Salmon basin that exhibit high predicted hay production both for sheep (more than 600 animals per 9 mi.^{2}) and cattle (more than 150 animals per 9 mi.^{2}) are the Bear Valley area including the headwaters of Valley and Marsh Creeks, upper portions of Kinnikinic and Challis Creeks southeast of the Middle Fork drainage, the upper one-third of Panther Creek, Meyers Cove, and along the Middle Fork canyon between Camas and Brush Creeks. The high values for Bear Valley may indicate why it was feasible to develop three homesteads (permanent winter sites) there at elevations above 6000 ft. While snow depth may have prevented livestock from foraging for standing vegetation during the heart of winter, summer hay production and subsequent storage may have provided enough feed to maintain herds year round.

It is assumed that when stockmen first came to the Middle Fork Salmon basin they depended on open stands of natural grasses for their hay crops. As time went by the productivity of the natural grasses was enhanced by plantings of imported hay seed, so that by the early twentieth century hay crops produced many times the dry matter of predicted natural grass harvests. Vegetation productivity may therefore be grossly underestimated

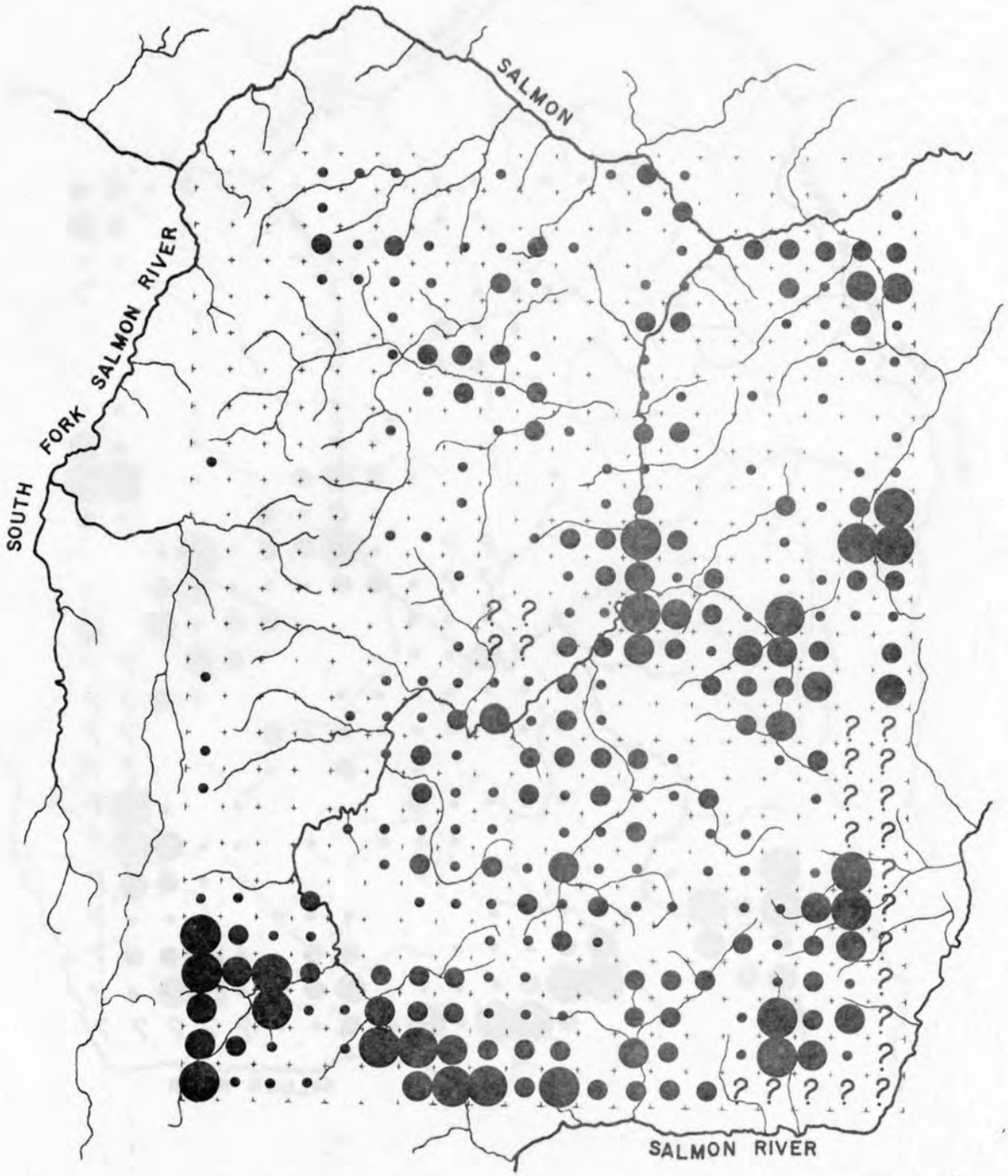

Fig. 27. Predicted hay production rated according to number of sheep supported per grid unit. Symbols indicate the number of animals: 0-15 ; 15-100 ; 100-350 ; 350-600 ; greater than 600 . The last group ranges between 621 and 1960, and 159 grid units have zero ratings and could support no sheep. Question marks denote lack of data.

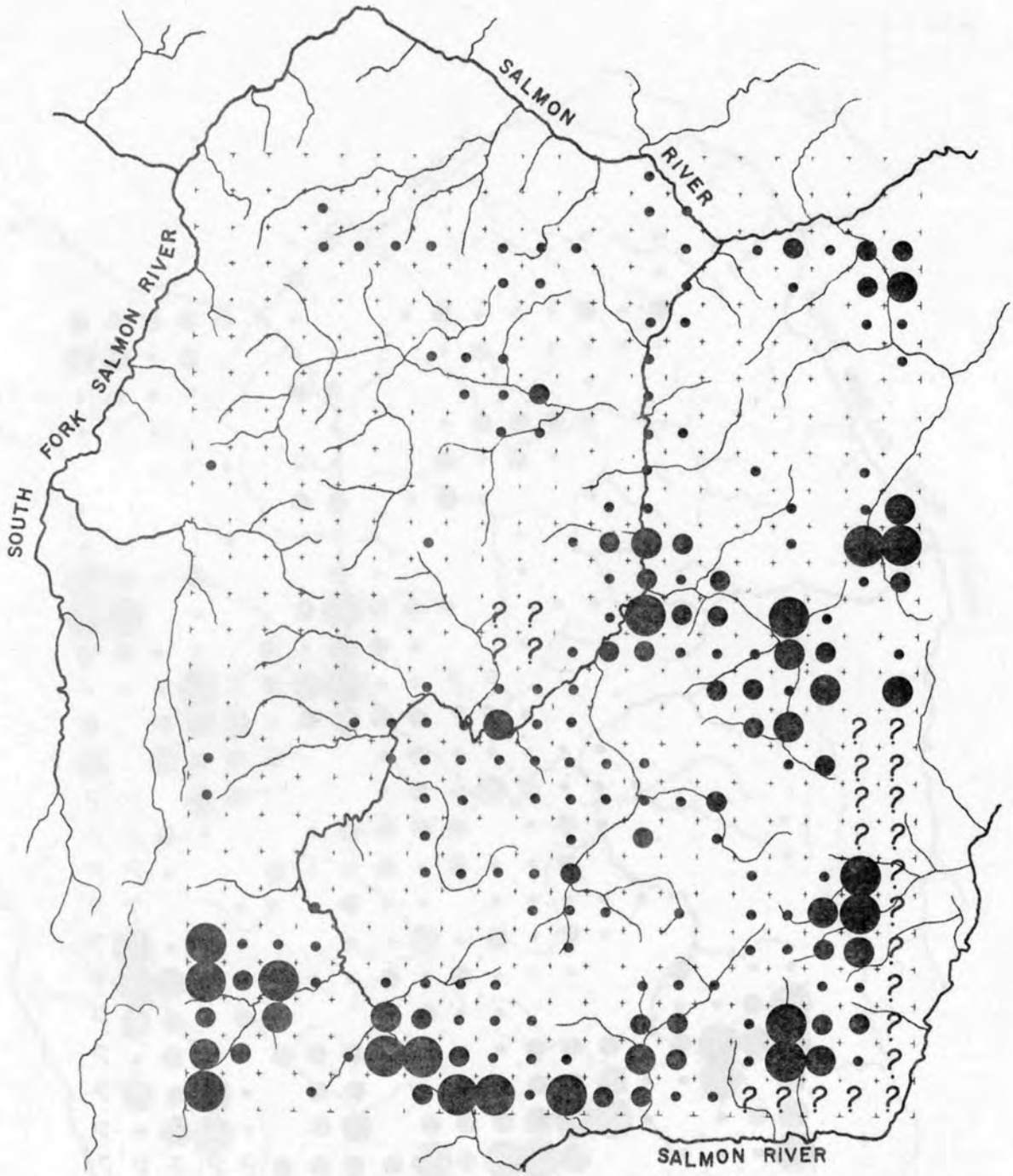

Fig. 28. Predicted hay production rated according to number of cattle supported per grid unit. Symbols indicate the number of animals: 0-10 ; 10-50 ; 50-100 ; 100-150 ; greater than 150 . The last group ranges between 152 and 458 animals, and 262 grid units with ratings of zero could support no cattle. Question marks denote no data.

for those areas where imported hay seed was used, but Figs. 27 and 28 should nevertheless be helpful in identifying winter livestock-related site locations. The values are reflective, in part, of the acreage of pure stands of grass--those areas that most likely would have been hay fields, whether seeded or not. These fields would certainly have been the most economical, in requiring the least initial investment of labor for land clearing. The relative production values of the natural grasses also reflect soil, microclimate, drainage, and other factors that would affect domestic plant growth.

Because two different methods have been used to predict winter site locations, one based on hay production (Figs. 27 and 28) and the other on plant palatability (Figs. 25 and 26), the data cannot be combined to make one all-inclusive prediction. Not only are the methods dissimilar but even what is being measured is different. Figs. 27 and 28 show the number of animals supportable on hay production alone. These estimates would have been higher if productivity of standing winter forage had been included in the calculations. This was impossible because of insufficient data on vegetation production yield. On the other hand Figs. 25 and 26 indicate the relative palatability value of each unit based on standing forage only. Because hay production does not necessarily correspond with standing winter forage coverage and palatability, a comparison of Fig. 25 with Fig. 27 and of Fig. 26 with Fig. 28 is impossible.

It seems reasonable, however, that winter use was most likely at locations that exhibit both a high palatability index and a large predicted hay harvest. It is also probably safe to say that the 9 mi.^{2} units having a low hay production rating probably did not support either cattle or sheep ranches of large enough size to supply either internal or external markets. Approximately one-half of the hay production ratings for cattle and one-fourth of those for sheep were zero. Furthermore, in those grid units with hay production ratings of 0-15 sheep, excluding those that could support no animals at all, the average (mean) number of animals is less than 8. For cattle, for the lowest group of ratings for hay production (0-10 animals, again exluding "zero" ratings), the average (mean) number of animals is less than 5. Assuming that the rancher wanted to maintain his livestock herd size and that no horses or mules at the ranch were fed any hay, the average animal production for the lowest productivity units would be one cow per year, which would feed four people, or four sheep, which would feed four people. The few animals that would have been produced in those units could only have fed the rancher, his family, and perhaps a neighbor. The rancher could make no contribution to local or outside markets. Considering the above calculations, it appears that the model may most accurately identify locations at which winter sites *could not* have been established.

In several instances there is a correspondence between those areas of predicted high winter use (either based on hay or standing forage) and twentieth century homestead locations. Fig. 15 shows the patented homestead locations for the Middle Fork drainage only. It is known that homesteads were also patented on Panther Creek, in Chamberlain Basin, and in other areas that are covered by the grid system but are outside the Middle Fork drainage. Because this study was initially designed to focus on the Middle Fork basin, no systematic data were gathered on homesteads in adjacent regions.

Because there is an overlap in predicted nineteenth century sites and known twentieth century sites, we should expect a mixture of archaeological deposits at these points, probably with considerable destruction to evidence of the nineteenth century winter occupations. The Cabin Creek property on Big Creek provides a good example of more recent occupation having disturbed early deposits (Rossillon and Sprague 1978).

The archaeological potential of summer sites is problematical. Summer sites were usually occupied for short periods of time and permanent structures were seldom built. The sites are probably not as disturbed as winter sites, but few artifacts and structures were present originally, and their archaeological manifestations are likely to be scant.

What types of artifacts, features, and structures can be expected at winter and summer livestock raising sites in the Middle Fork drainage basin? At winter cattle sites, the requirements included shelters for animals, fences feed troughs, and water tanks (Snapp 1939:92). In addition to these same features at winter sheep raising sites where the main product was wool, there would have been a cutting chute (for sorting sheep) and a dipping vat (Kammlade 1947:192-198). At all permanent winter ranches there would have been a house for the rancher and possibly his family, a barn for storing hay, an outbuilding or two for storing tools and equipment, and possibly a root cellar.

At summer sites, structures were rare; tents or sheep-herders' wagons were commonly the shelters used by stockmen and their helpers. Associated artifacts and features may include a small hearth with a nearby dump of tin cans and some bottles, but few dishes or other household items. Few if any artifacts or structures would be required for care of the livestock. There were corrals or stock pens, however, at some locations, such as at the aptly named "Pen Basin" (Smith 1978:32).

In summary, according to the model presented here, the most likely locations for summer sites for either sheep or cattle grazing, and therefore temporary herders' camps, are those areas in and surrounding the Middle Fork basin above 6000 ft. (1800 m) in elevation in the vicinity of Bear Valley, Meyers Cove, Seafoam-Loon Creek, and possibly Chamberlain Basin. Winter agricultural habitation sites of the late nineteenth century should have been located below 6000 ft. (1800 m) in elevation or in those areas with predicted high hay productivity. Predicted high use areas for both sheep and cattle include Meyers Cove, Seafoam-Loon Creek, Yankee Fork, the Middle Fork Canyon between Camas and Brush Creeks, and possibly Bear Valley.

In conclusion, while historic documents are lacking for the late nineteenth century livestock raising activities, the model developed here may predict general areas of winter and summer site location. The validity of the model must be tested through historic archaeological survey, but it may, in the long run, save considerable effort in identifying specific site locations. In turn, the data base for describing and explaining late nineteenth century livestock raising culture will be more accessible so that a more complete history of the Middle Fork drainage can be written. Field testing of the model will also allow the model's parameters to be evaluated and then refined. Ultimately, it may be possible to generalize about the relative effects of economic, natural resource, and cultural/historical factors on the spatial organization of livestock raising in the Middle Fork basin during the late nineteenth century.

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APPENDIX

MIDDLE FORK SALMON PATENTED HOMESTEADS

Homesteader	Patent information[a]		GLO information[b]		Legal description[c]			UTM location[d]		USFS[e]	
	Date	Survey no.	Serial no.	Survey no.	Section(s)	Township north	Range east	Northing	Easting	Forest	District
Robert McAllister	6/14/28	..	..	HES 575	13	12	11	649400	4914500	C	YF
Luna Lanier	10/11/22	882830	H. 022730	HES 574	18	12	12	655000	4914000	C	YF
E. W. Fox	(after 1913)	..	..	HES 79	2	12	11	647400	4917400	C	YF
John H. Sater	(after 1916)	584576	..	HES 387	15,16	16	12	658700	4954300	C	MF
James Fuller	6/05/30	..	025271	..	13	14	9	643700	4934500	C	MF
Samuel Phillips	12/3/23	..	025266	..	21,22	14	9	629700	4932700	C	MF
James Voller	(before 1918)	333095	..	HES 77	20,21	16	12	657600	4953300	C	MF
William Mitchell	11/26/23	924481	025474	..	27,34	17	12	659280	4957400	C	MF
John Metcalfe	5/04/17	582437	H. 010666	HES 135	10,11,14,15	14	13	670250	4934900	C	MF
Frank Coleman	5/22/13	336069	H. 08453	HES 74	14,15	14	13	669900	4934400	C	MF
Robert L. Ramey	7/28/16	540314	H. 09190	HES 90	13	17	13	673300	4963800	C	MF
George Frinklin	3/17/24	934093	..	HES 580	14,15,23	16	14	674260	4953740	C	MF
Rubert Falconberry	3/20/22	855373	..	HES 581	24,25	16	14	677750	4951200	C	MF
Rubert Falconberry	6/19/17	588629	..	HES 73	24,25	16	14	676650	4952000	C	MF
Horace W. Johnson	9/10/19	705970	..	HES 110	17,18	15	15	686500	4947100	C	MF
John Bernston	4/28/23	904680	025084	HES 424	27,24	19	14	679700	4879780	C	MF
Willis Jones	2/06/28	1012404	BL. 039141	HES 498	30	18	14	676340	4970940	C	MF
Joseph M. Culver	2/16/22	..	..	HES 579	27	17	13	669550	4960900	C	MF
Charles T. W. Metz	10/25/21	..	..	HES 499	5,8	16	17	698750	4957000	C	MF
John C. Helmke	(1914-1929)	..	..	HES 78	5,7	16	13	664720	4955820	C	MF
John Berntson	2/03/30	1046439	..	DLE	34	19	14	679200	4978700	C	MF
Albert Kurry	12/22/26	977611	026083 or 038791	..	27	19	14	678600	4980400	C	MF
Albert Kurry	1/13/27	996989	..	..	22	19	14	678550	4982700	C	MF
Alvah M. Beadle	12/4/23	925451	..	..	22	19	14	679200	4881800	C	MF
John P. Boyle	12/20/24	950249	..	HES 605	11,14	14	13	670900	4935150	C	MF
George L. Risley	12/17/23	926902	026445	CE	..	..	..	647000	4955000	C	MF
Kenneth Cameron	2/20/24	..	025058	..	6	16	13	665000	4958500	C	MF
Lawrence Phelan	6/22/21	811188	025060	CE	27	17	13	698000	4960900	C	MF
Andrew Lee	(1917-1919)	..	06282	HES 53	6	17	17	697300	4966700	S	CO
Jesse Mills	5/03/28	..	039274	HES 622	36	19	16	696780	4983760	S	CO
Ernest R. Splettstosser	(after 1918)	..	..	HES 325	11	17	17	703200	4965880	S	CO
Frank Allison	2/16/22	..	014779	HES 627	22,27	18	17	701000	4971850	S	CO
Andrew Lee	(before 1919)	..	020756	HES 626	19	17	17	..	..	S	CO
William W. Wilson	6/30/36	..	044365	HES 584	6	17	17	697000	4967100	S	CO
Max Ayler	6/30/36	..	..	HES 628	27	18	17	700800	4969800	S	CO
William Beck	2/06/18	..	011009	HES 240	26	18	17	703250	4971200	S	CO
Walter A. Estep	5/09/29	1027284	BL. 039586 or 027657	HES 810	23	21	11	651200	5001200	P	BC
Joseph B. Elliott	5/07/20	748436	014020	..	17,20,21	21	21	654800	5002800	P	BC
Arthur E. Garden	3/18/14	393389	010551	..	28,29	21	12	656600	5001000	P	BC
Elizabeth Bellingham	8/20/19	702963	015709	..	24.	21	12	664100	5002400	P	BC
Merl Wallace	4/14/37	1089584	045155	..	24	21	12	663100	5004000	P	BC
Orlando M. Abel	1/31/18	615566	010343	..	25	21	12	663000	4999000	P	BC
Archibald Bacon	9/27/18	649173	010554	..	25,26	21	12	662000	4999600	P	BC
David Lewis	2/01/28	1011565	BL. 039621	HES 809	2	20	13	669000	4996400	P	BC
William Edwards	(about 1925)	..	023443	..	35	21	9	631740	4997100	P	BC
Annesley N. Edwards	8/09/28	..	026399		35 and 2	21 / 20	9 / 9	632000	4997100	P	BC
Roy A. Elliott	8/04/28	054034	BL. 039632 or 027711	HES 813	1	19	11	638300	4986200	P	BC
Joseph Davis	6/24/28	..	..	..	2	20	9	631600	4995500	P	BC

[a]Dates in parentheses are approximate.

[b]Only those homesteads with boundaries defined by metes and bounds received Government Land Office (GLO) survey numbers. Serial numbers refer to records of the Blackfoot (BL) and Hailey (H) District offices; survey numbers refer to homestead entries (HES), desert land entries (DLE), and cash entries (CE).

[c]Legal descriptions are in reference to the Boise meridian.

[d]Universal Transverse Mercator (UTM) readings are in Zone 11, and denote the center of each homestead area.

[e]U.S. Forest Serivce (USFS) admininstrative units include Challis (CH), Payette (P), and Salmon (S) National forests, and the Yankee Fork (YF), Middle Fork (MF), Cobalt (CO), and Big Creek (BC) ranger districts within the forests.