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Survey of Columbia River Basin Streams for Columbia Pebblesnail *Fluminicola columbiana* and Shortface Lanx *Fisherola nuttalli*

D. A. Neitzel
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August 1992

Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RLO 1830

Pacific Northwest Laboratory
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SURVEY OF COLUMBIA RIVER BASIN STREAMS FOR COLUMBIA PEBBLESNAIL *Fluminicola columbiana* AND SHORTFACE LANX *Fisherola nuttalli*

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Pacific Northwest Laboratory
Richland, Washington 99352

(a) Deixis Consultants
Seattle, Washington

SUMMARY

At present, there are only two remaining sizable populations of Columbia pebblesnails *Fluminicola columbiana*; those in the Methow and Okanogan rivers, Washington. Smaller populations survive in the Hanford Reach of the Columbia River, Washington, and the lower Salmon River, Idaho, and possibly in the middle Snake River, Idaho; Hells Canyon of the Snake River, Idaho, Washington, and Oregon, and the Grande Ronde River, Oregon and Washington. Neither large population is at present protected, and there has been a substantial documented reduction in the species' historic range.

Large populations of the shortface lanx *Fisherolla nuttalli* persist in four streams: the Deschutes River, Oregon; the Hanford Reach and Bonneville Dam area of the Columbia River, Washington and Oregon; Hells Canyon of the Snake River, Idaho and Oregon; and the Okanogan River, Washington. Smaller populations, or ones of uncertain size, are known from the lower Salmon and middle Snake rivers, Idaho; the Grande RondeWashington and Oregon; Imnaha, and John Day rivers, Oregon; and the Methow River, Washington. While substantial range reduction has occurred in this species, and the large populations are not well protected, the problem is not as severe as in the case of the Columbia pebblesnail.

Both species appear to have been widespread historically in the mainstem Columbia River and the Columbia River Basin prior to the installation of the current dam system. Both are now apparently reduced within the Columbia River to populations in the Hanford Reach and possibly other sites that are now separated by large areas of unsuitable habitat from those in the river's major tributaries.

ACKNOWLEDGMENTS

E. William Lusty, Alan J. Scott, Ted M. Poston, George Watters, and Gregg A. Martenson at the Pacific Northwest Laboratory, Richland, Washington, and Kirk Wright and Edward Johannes of Seattle, Washington, provided field support for field collections. Mr. Lusty prepared the field collection materials and transportation equipment. Edward Johannes helped with the taxonomic identifications and report preparation. We also thank Bill Muir, National Marine Fisheries Service, Star, Washington, for information on benthic invertebrates in the Bonneville Dam area. Joe B. Flynn edited the manuscript.

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INTRODUCTION

Two aquatic animals that occur in the Columbia River at Hanford, the Columbia pebblesnail *Fluminicola columbiana* and the shortface lanx *Fisherola nuttalli*, are federally listed candidate species. As candidate species, the pebblesnail and lanx are not protected by law; however, the U.S. Fish and Wildlife Service (USFWS) monitors anthropogenic activities that may affect candidate species.

Between 1970 and 1988, Hanford was the only collection site for the Columbia pebblesnail and one of two collection sites for the shortface lanx. Activities that affect the known habitat of candidate species can result in listing them as protected species, providing the USFWS with an administrative tool that allows habitat protection. Thus, all U. S. Department of Energy Richland Field Office (RL) activities at Hanford that potentially affect the Columbia River are managed with an assessment of the pebblesnail and lanx in mind.

Assessment of the beneficial uses of the Columbia River at Hanford is enhanced by knowing the distribution of the pebblesnail and the lanx. Therefore, RL requested that the Pacific Northwest Laboratory (PNL) conduct a survey of streams in the Columbia River Basin to determine the distribution of Columbia pebblesnail and shortface lanx populations.

This report describes the literature, field, map, and museum surveys that were conducted during 1988 through 1991, the survey results, the taxonomy and ecology of the Columbia pebblesnail and shortface lanx, and discusses the possible listing recommendations that will be made for these species. Additionally, we present a list of the survey sites with geographic and legal descriptions (Appendix A) and a list of the survey sites with the results or our survey and our observations about the condition of the site (Appendix B).

SURVEYS

We studied the distribution of the Columbia pebblesnail and shortface lanx by first examining U.S. Geologic Survey 7.5' and 15' and 7.5' U.S. Forest Service topographic maps of the Columbia River Basin. We reviewed the technical literature that described surveys of the Columbia River Basin snails. Based on the map and literature information, we constructed a list of "all" the sites within the Columbia River Basin where we should look for lanx and pebblesnails (Neitzel and Frest 1989).

Most of the streams had never been surveyed for freshwater mollusks, and none has been adequately surveyed according to standards used in other portions of the United States for determining whether a mollusk should be protected. For the streams for which records are available, in most instances, only single sites have been recently or historically sampled. The major exception is Taylor's (1982a,b) work on a 24.5-mile stretch of the Snake River, Idaho. Reevaluation of old records was long overdue, as many were suspect and others were so vague as to be of extremely limited value (e.g., compare Taylor 1982a,b with Burch and Tottenham 1980 and Burch 1982).

The very large number of possible sites was daunting, but not unreasonable. As it is, the average spacing is approximately 5 miles, far greater than would be considered adequate intervals in river surveys for mollusks in other regions. The lack of detailed systematic work on most western streams is noticeable for malacological surveys. Similarly, the usual museum surveys have not furnished much additional unpublished data. Museum records for eastern U.S. streams, which are often much more extensive than the published records, are important for assessing the status of a species being considered for protection. However, the total number of specimens of both taxa in museum collections is quite small.

The collection methods included techniques that have been successful in past efforts to collect mollusks in the Columbia River Basin. Wire-basket benthos samplers (Mason et al. 1967; Jacobi 1971) were placed in streams in which we expected to find mollusks, and the samplers were left to incubate for about 3 months. Before retrieving the baskets, we placed them into cloth bags. The bagged baskets were returned to the surface and tagged to identify sample location and date. Benthic organisms were removed from the rocks and baskets and washed into 600-µm-mesh sieving buckets. The washed samples were preserved in 70% isopropyl alcohol. Additional surveys were accomplished by wading into the stream, removing rocks from the stream, and collecting snails from the rocks. These snails were placed in jars and preserved with alcohol.

Sample collections were mostly scheduled for late summer and early fall. This schedule coincided with the more successful collections at Hanford (Wolf 1976; Clarke 1976; Beak 1980; Page et al. 1979, 1982; Supply System 1985, 1986, 1987). Deixus collections were conducted in all months except January and February.

Preserved pebblesnail and lanx samples were shipped to the Thomas Burke Memorial Washington State Museum at the University of Washington or to the Deixis Consultants collection, both in Seattle, Washington. Individual specimens were identified to species, if possible, and prepared for storage and placed in the archives at the Burke Museum. Samples will be maintained in perpetuity at the museum. Samples are assigned unique identification numbers in the Burke Museum system, providing an easy retrieval system for all samples.

SURVEY RESULTS

There are two streams with sizable populations of Columbia pebblesnails and four streams with sizable populations of shortface lanx. Healthy populations of Columbia pebblesnails are in the Methow and Okanogan rivers in Washington. Smaller populations of Columbia pebblesnails were found in the Hanford Reach of the Columbia River, Washington and in the lower Salmon River, Idaho. Good habitat and possible populations may be found in the Hells Canyon of the Snake River, Grande Ronde River, Washington and Oregon, and the middle Snake River Idaho, however, we did not find definite Columbia pebblesnails in Hells Canyon or the Grande Ronde River during our surveys.

Healthy populations of shortface lanx persist in the Deschutes River, Oregon; Okanogan River, Washington; the Hanford Reach of the Columbia River, Washington; and the Snake River, Oregon and Idaho. Smaller populations of the shortface lanx were found in the Methow River, Washington; Salmon River, Idaho; Grande Ronde River, Washington and Oregon; and John Day and Imnaha rivers, Oregon. A small population persists in the lower Columbia River near Bonneville Dam, Oregon.

LITERATURE REVIEW

Pre-1988 collections of the Columbia pebblesnail are from Columbia, Spokane, Little Spokane, and Payette rivers (Table 1; Figure 1). Columbia River sites extend from Portland, Oregon, upstream to the mouth of the Wenatchee River. Specific collection sites include Portland and The Dalles, Oregon; and Wallula, the Hanford Reach, and the mouth of the Wenatchee River, Washington. The Spokane and Little Spokane river sites were near Spokane, Washington. The Payette River site was upstream of Black Canyon in Idaho. All of these sites, except the Hanford Reach, were originally surveyed before dam construction in the Pacific Northwest and are now within impoundments. Thus, eight of the ten sites (Table 1) may have been eliminated as viable habitat for pebblesnails.

Macroinvertebrate collections during the 1970s and 1980s documented the existence of pebblesnails throughout the Hanford Reach. Taxonomic work indicates there are two to three species of *Fluminicola*, including *F. columbiana*, at Hanford.

Pre-1987 collections of the shortface lanx are reported from Columbia and Spokane rivers, Washington; Snake and Salmon rivers, Idaho; Deschutes River, Oregon; and Kootenai River, British Columbia (Table 2; Figure 2). Sites in the Columbia River extend from Portland, Oregon, to the Hanford Reach, Washington. All these sites, except the Hanford Reach, were first surveyed before dam construction on the Columbia River. These sites are now within impoundments that have eliminated most viable habitat for lanx. Most of the pre-1988 collection sites have been impounded or affected by irrigation withdrawals and pollutants. Shortface lanx were collected at Hanford during the 1970s and 1980s.

Subsequent to the completion of our field surveys in 1991, additional distribution and biological information became available. Bill Muir of the National Marine Fisheries Service in Portland, Oregon, submitted to Deixis Consultants, shortface lanx specimens collected in 1990. The collection site was from the Columbia River, Multnomah County, Oregon near Bonneville Dam, River Mile (RM)142.8. Frest and Johannes (1991) reported a live population of shortface lanx from Kanaka Rapids, middle Snake River, Twin Falls County, Idaho, RM 591.7. Frest and Johannes (1992a) collected live shortface lanx from Hells Canyon, Snake River, Washington (RM 145.0 to RM 145.5). New biological information is discussed in Frest and Johannes (1992b).

TABLE 1. Pre-1987 Collection Sites for the Columbia Pebblesnail *Fluminicola columbiana*

State	River	Site Description[(a)]	Comments	Reference
Washington	Spokane	Spokane Falls, Spokane County	By H. Hemphill and others	Museum collections
Washington	Little Spokane	near confluence with Spokane River	By H. Hemphill	Museum collections
Washington	Columbia	Wenatchee River, Chelan County	By P.B. Randolph, no date	Taylor 1982a
Washington	Columbia	Hanford Reach, Benton County	By A.H. Clarke during 1970s	Clarke 1976
Washington	Columbia	Hanford Reach, RM 380[a] Benton County	1973-1974, sampling with rock-filled baskets	Wolf 1976
Washington	Columbia	Hanford Reach, RM 361; Benton County	1981-1982, grab and sampling with rock-filled baskets	Page et al. 1982
Washington	Columbia	Hanford Reach, RM 352; Benton County	1974-1986, sampling with rock-filled baskets	Page et al. 1979; Beak 1980; Supply System 1985, 1986, 1987
Washington	Columbia	Near Wallula, Walla Walla County	By H. Hemphill about 1889	Taylor 1982a
Oregon	Columbia	The Dalles, Wasco County	Old record, sampled during 1988 by T. Frest, population may be extinct	Taylor 1982a
Oregon	Columbia	Near Portland, Multnomah County	Old record; sampled during 1988 by T. Frest, population may be extinct	Taylor 1982a

TABLE 1. (contd)

State	River	Site Description[a]	Comments	Reference
Idaho	Payette	Upstream of Black Canyon Reservoir	By D.W. Taylor in 1950s population reported extinct by Taylor	Taylor 1966, 1982a
Idaho/Wyoming	Snake	Upper Snake, eastern Idaho, Western Wyoming	No recent records, could be extinct	Beetle 1988

(a) Sites listed from most upstream to most downstream for a given river.
(b) RM = river mile.

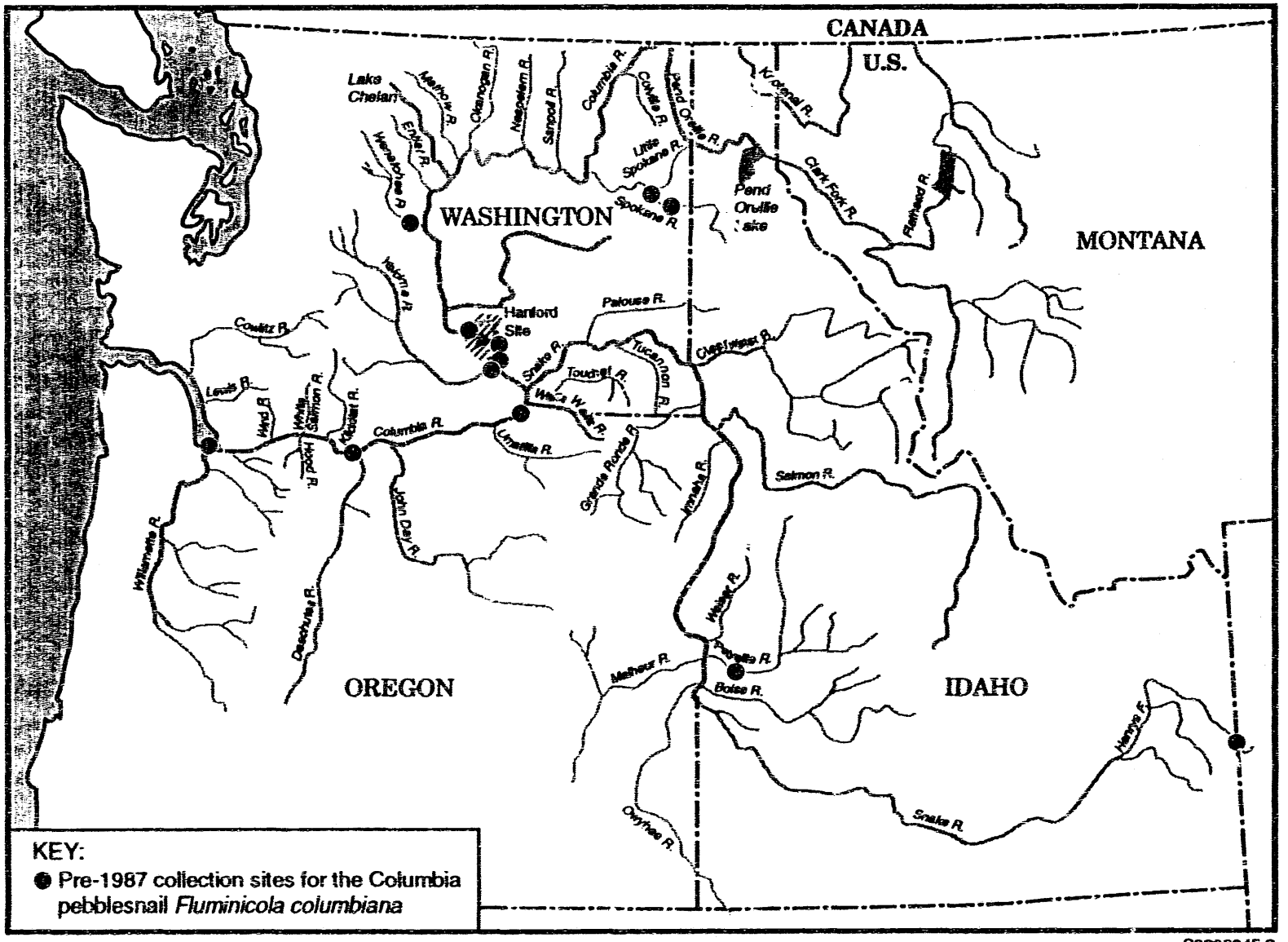

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FIGURE 1. Pre-1987 Collection Sites (large dots) for the Columbia Pebblesnail *Fluminicola columbiana*

TABLE 2. Pre-1987 Collection Sites for the Shortface Lanx *Fisherola nuttalli*

State/ Province	River	Site Description[a]	Comments	Reference
Washington	Columbia	Hanford Reach, Benton County	1969-1970	Coutant and Becker 1970
Washington	Columbia	Hanford Reach, RM[b] 380; Benton County	1973-1974, sampling with rock-filled baskets	Wolf 1976
Washington	Columbia	Hanford Reach, RM 361; Benton County	1981-1982	Page et al. 1982
Washington	Columbia	Near Ringold, Benton County	1970s	Clarke 1976; Taylor 1985
Washington	Columbia RM 352;	Hanford Reach, Benton County	1974-1986 Beak 1980;	Page et al. 1979; Supply System 1985, 1986, 1987
Washington	Columbia	Near Wallula, Benton County	No date	Taylor 1982b, 1985
Oregon	Columbia	Mouth of the Deschutes River, Wasco County	Old record; sampled by Frest during 1988; population may be extinct	Taylor 1982b, 1985
Oregon	Columbia	Near The Dalles, Wasco County	Old record; sampled by Frest during 1988; population may be extinct	Taylor 1982b, 1985
Oregon	Columbia	Near Portland, Multnomah County	Old record; sampled by Frest during 1988; population may be extinct	Taylor 1982b, 1985

TABLE 2. (contd)

State/ Province	River	Site Description[a]	Comments	Reference
Idaho	Snake County	Near Rupert, Minidoka	By F. Kenagy during 1913 Taylor 1982b,	Henderson and Daniels 1917; 1985
Idaho	Snake	Lower Salmon Falls to Clover Creek, Elmore/ Gooding Counties	No date	Taylor 1982b, 1985
Idaho	Snake	Bancroft Springs, Gooding County	1980-1982	Taylor 1982b, 1985
Idaho	Snake	Near mouth of Clover Creek, Gooding County	1980-1982	Taylor 1982b, 1985
Idaho	Snake	Indian Cove Bridge	Shell only	Taylor 1975, 1985
Idaho	Snake	Near Lewiston, Nez Perce County	No date	Taylor 1982b, 1985
Idaho	Snake	Box Canyon Creek (Snake River tributary), Sculpin Pool, Gooding County	Shells only	Taylor 1982b, 1985
Idaho	Salmon	Idaho County	No date	Taylor 1982b
Washington	Little Spokane	Near Little Falls, Stevens County	No date	Taylor 1975
Washington	Spokane	Near Spokane, Spokane County	No date	Taylor 1975
Oregon	Deschutes	Near Sherars Bridge, Wasco County	No date	Taylor 1975, 1985

TABLE 2. (contd)

State/ Province	River	Site Description[a]	Comments	Reference
Oregon	Deschutes	Near Maupern, Wasco County	No date	Taylor 1975, 1985
Oregon	Deschutes	Near Grandview, Wasco County	No date	Taylor 1975
British Columbia	Kootenai	Kootenai	No date	Taylor 1975

(a) Sites listed from most upstream to most downstream for a given river.
(b) RM = river mile.

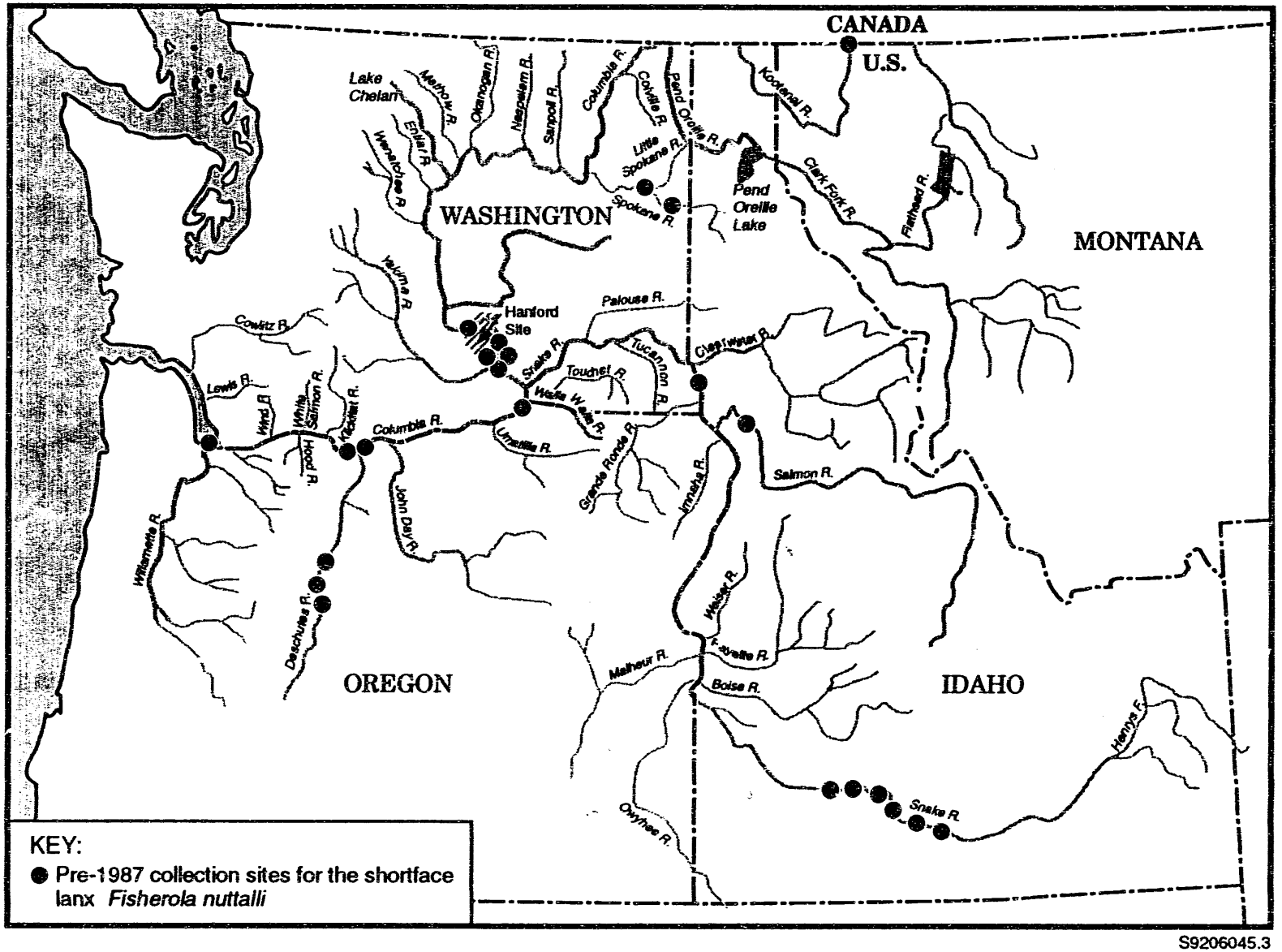

FIGURE 2. Pre-1987 Collection Sites (large dots) for the Shortface Lanx *Fisherola nuttalli*

SITE SURVEYS

We visited more than 500 sites at more than 30 streams in the Columbia River Basin. At 280 of these sites we collected mollusks. Columbia pebblesnails were collected from five streams (Figure 3). Shortface lanx were collected from nine streams (Figure 4). The sites that we studied are listed in Appendices A and B. Appendix A notes where collections were made and at which sites Columbia pebblesnails and shortface lanx were found. Assoiciated mollusk species are also tabulated. We also provide comments about the condition of the habitat at most of these sites. Appendix B provides the locality information for each of the sites.

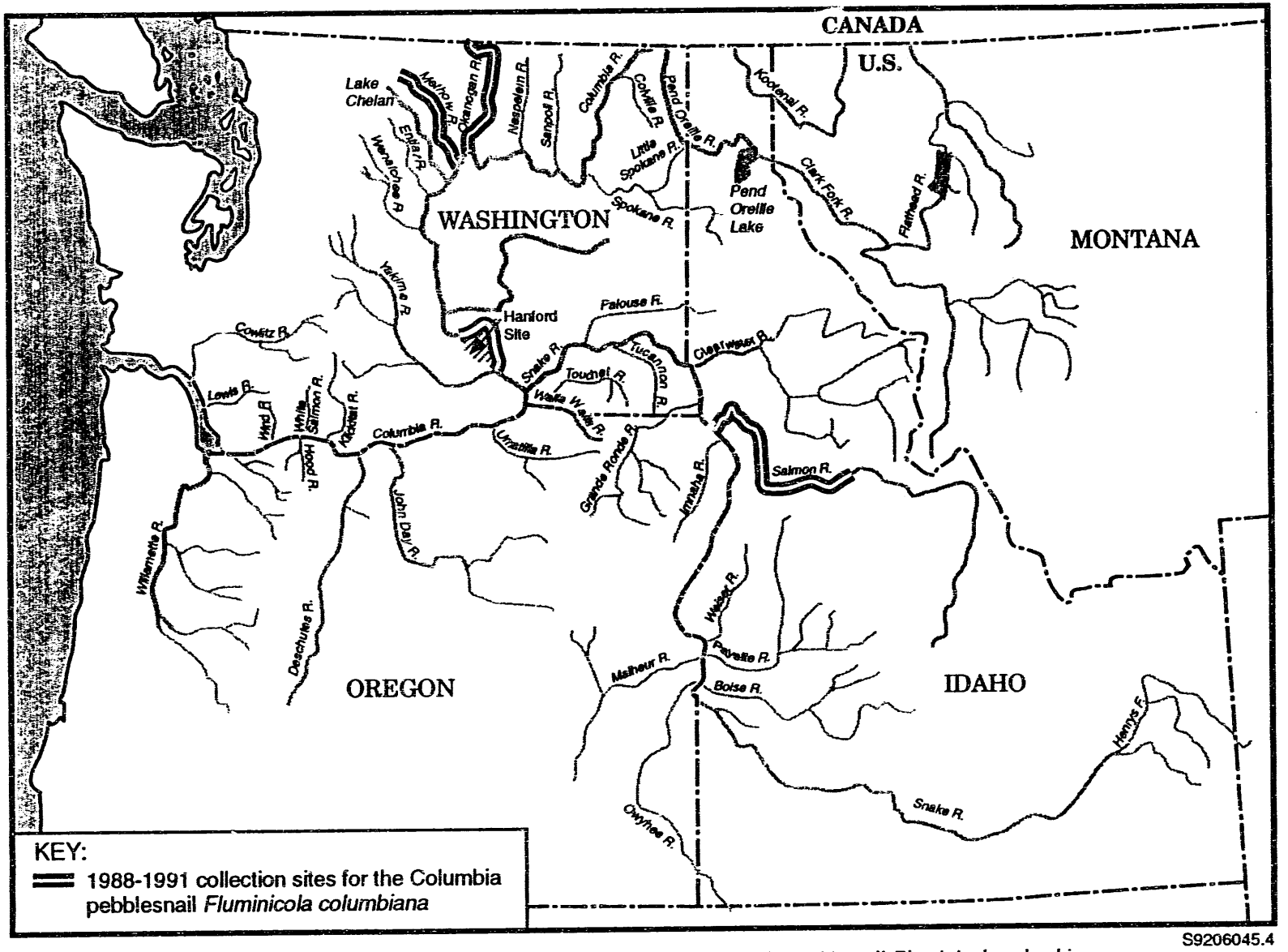

FIGURE 3. 1988-1991 Collection Sites (shaded areas) for the Columbia Pebblesnail *Fluminicola columbiana*

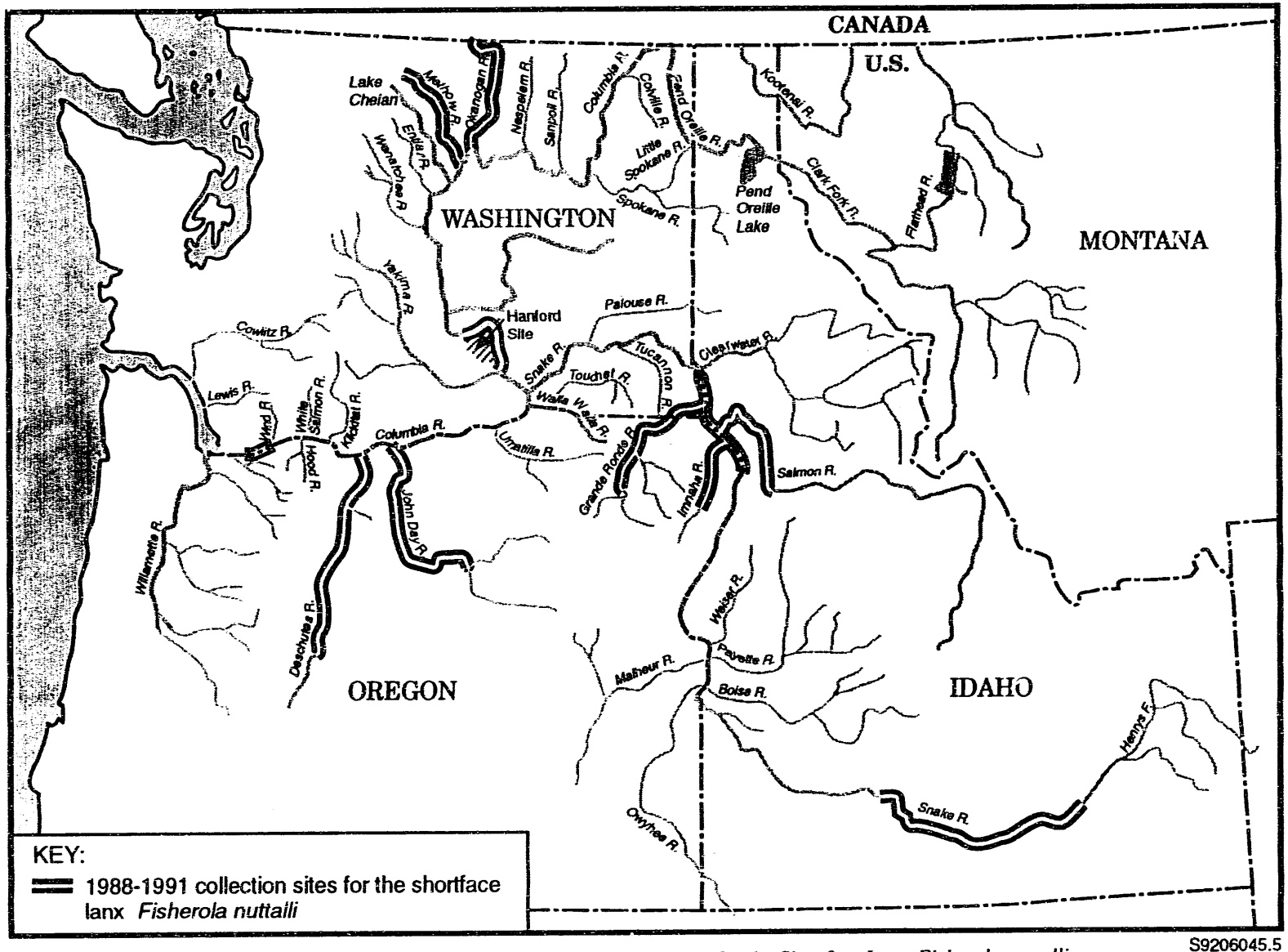

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FIGURE 4. 1988-1991 Collection Sites (shaded areas) for the Shortface Lanx *Fisherola nuttalli*

MUSEUM SURVEYS

During 1991 we made visits to most of the major U.S. museums reputed to have large holdings of western North American freshwater mollusks. These institutions are listed below and abbreviated as noted elsewhere in this paper:

ANSP	Academy of Natural Sciences of Philadelphia, Philadelphia, Pennsylvania, Dept. of Malacology
CAS	California Academy of Sciences, San Francisco, California, Dept. of Invertebrate Zoology
DMNH	Delaware Museum of Natural History, Wilmington, Delaware, Dept. of Malacology
NMNH	U. S. National Museum, Washington D.C. Dept. of Invertebrate Zoology, Div. of Malacology
UCMZ	University of Colorado Museum, Boulder, Colorado, Dept. of Zoology
UMMZ	University of Michigan Museum of Zoology, Ann Arbor, Division of Mollusks

Considering that both species have been collected for more than a century, the total number of specimens in major museum collections is surprisingly small. Most museum collections of "Columbia pebblesnail" were made in the period prior to 1900. Very few specimens of the Columbia pebblesnail and shortface lanx appear to have been collected after the 1950s. Evaluation of museum collections was complicated by frequent misidentifications. This was particularly true for Columbia pebblesnail. At least half of the museum lots studied proved to be entirely vagrant pebblesnails (Tables 3 and 4).

TABLE 3. Museum Collection Records for Shortface Lanx *Fisherola nuttalli*

Source	Catalog Number	Number of Specimens	Locality	Comments
ANSP	124247	8	Snake R., WA	?Paratypes of *lancides*
	124246	4	Snake R., WA	Original ID as *lancides*
	158750	14	Columbia R., The Dalles, OR	
	124320	1	Spokane R., WA	Holotype of *A. crassus=nuttalli*
	350079	1	Spokane R., WA	Paratype of *A.crassus=nuttalli*. Formerly 124320
CAS	60826	2	Snake R., WA	?Paratypes of *lancides*
	38302	2	Snake R., WA	Original ID as *lancides*
	38293	5	"creek in Spokane, WA"	Error for Little Spokane R. Original ID as *kootenaiensis=nuttalli*.
NMNH	169958	3	Wahlamet [Williamette] R., OR	Collected by Nuttalli; could be paratypes
	595245	many	Columbia R., Hanford, WA	
	653142	many	McNary Dam, Columbia R., WA	
	795565	5	McNary Dam, Columbia R., WA	
	526359	many	Spokane Falls, Spokane R., WA	
	795561	many	McNary Dam, Columbia R., WA	
	526965	13	Spokane Falls, Spokane R., WA	
	30567	1	"Snake R., OR"	Original ID as *lancides*; very early collection, hence could be OR, WA or ID
	47643	7	"Snake R., WA Territory"	Original ID as *lancides*
	526588	1	Snake R., WA	
	608478	15	Snake R., WA	Original ID as *lancides*
	795570	many	Snake R., WA	
	783933	5	Snake R., WA	
	801305	many	Hanford Reach, Columbia R., WA	
UCMZ	17752	many	Maupin, Deschutes R., OR	
	3925	1	Rupert, ID, Snake R.	
	21666	3	Kentucky Ferry, Snake R., WA	Said to be paratypes of *lancides*
UMMZ	102566	4	Spokane Falls, Spokane R., WA	
	102041	2	Snake R., WA, near Wallula Gap	From Hemphill note
	102569	3	Kennewick, Columbia R., WA	
	143960	3	Snake R., WA	Original ID as *lancides*
	102040	3	Columbia R., The Dalles, OR	
	102570	1	CA?	No original locality; specimens are *Lanx patelloides*

ANSP	Academy of Natural Sciences of Philadelphia, Philadelphia, Pennsylvania, Dept. of Malacology
CAS	California Academy of Sciences, San Francisco, California, Dept. of Invertebrate Zoology
NMNH	U. S. National Museum, Washington D.C., Dept. of Invertebrate Zoology, Div. of Malacology
UCMZ	University of Colorado Museum, Boulder, Colorado, Dept. of Zoology
UMMZ	University of Michigan Museum of Zoology, Ann Arbor, Michigan, Div of Mollusks

TABLE 4. Museum Collection Records for Columbia Pebblesnail *Fluminicola columbiana*

Source	Catalog Number	Number of Specimens	Locality	Comments
ANSP	62926	6	Columbia R. [Wallula]	near mouth of Snake R.
	122136	12	"Snake R., WA Territory"	6 *columbiana*, rest are *virens*
	122133	15	"Snake R., WA Territory"	14 are *columbiana*, 1 *virens*?
CAS	no number	2	The Dalles, OR	
	no number	1	Salmon R., near Lucile, ID	
	no number	26	Columbia R., Wallula, WA	
	no number	many	Snake R., WA	
	25165	4	"WA"	
	48556	many	Snake R., Flat Creek south of Jackson,WY	all are *hindsi*
	32520	5	Box Elder Co., Malad R., UT	all *hindsi*
	32516	19	Blaine Co, ID	all are *hindsi*
DMNH	79862	9	Snake R., WA	8 are *columbiana*; 1 is *virens*
	14058	4	Buhl, ID, Snake R.	all are *hindsi*
	79863	4	Portland, OR	all are *nuttalliana*
NMNH	no number	2	Williamette R., OR	"With paratypes of *nuttalliana* JPEM. *Ex* 120467."
	27901	5	Columbia R.	
	30588	6	Near mouth of Snake R., WA	
	130627	3	Mouth of Wenatchee R., WA	
	380804	7	Little Spokane R., WA	
	128665	12	Spokane R., Spokane, WA	2 *columbiana*; rest are *hindsi*
	511051	many	Spokane R., Spokane, WA	10-15 *columbiana*; rest are *hindsi*
	511023	9	Spokane Falls, Spokane R., WA	4 *columbiana*; rest are *hindsi*
	47875	26	no locality	
	653138	6	Richland, Columbia R., WA	All are *virens*
	653139	1	Richland, Columbia R., WA	*virens*
	595249	1	Richland, Columbia R., WA	*virens*
	595251a	1	Hanford, Columbia R., WA	*virens*
UCMZ	24632	many	Dartford, WA	all are *hindsi*
UMMZ	118359	3	Wenatchee R, Wenatchee, WA	a. mouth
	118003	3	"Nevada"	Wrong locality; outside possible range
	117994	7	Wallula, Columbia R., WA	
UWBM	17131	1	Columbia R. at Wenatchee mouth	

ANSP Academy of Natural Sciences of Philadelphia, Philadelphia, Pennsylvania, Dept of Malacology
CAS California Academy of Sciences, San Francisco, California, Dept of Invertebrate Zoology
DMNH Delaware Museum of Natural History, Wilmington, Delaware, Department of Malacology
NMNH U. S. National Museum, Washington D.C., Dept of Invertebrate Zoology, Div of Malacology
UCMZ University of Colorado Museum, Boulder, Colorado, Dept of Zoology
UMMZ University of Michigan Museum of Zoology, Ann Arbor, Michigan, Div of Mollusks
UWBM University of Washington, Seattle, Washington, Burke Museum

ECOLOGY

The Columbia pebblesnail and the shortface lanx are freshwater mollusks. Both are obligate perilithon grazers. Their diet consists largely of diatoms and smaller epilthic adn epihytic algae. They are semelpargus; longevity seldom exceeds 1 year. The pebblesnail has a turbinate shell and is about 0.4 in. high. Four to five whorls are typical of the species. Fossil records, taken from the Deixis Consultants collection in Seattle, Washington, indicate that pebblesnails were widely distributed throughout the Columbia River Basin since the Pliocene, about 3.5 million years before present.

The Columbia pebblesnail has been described as characteristic of large rivers and rapids habitats (Taylor 1982b, 1985). Our findings necessitate modification of this characterization. Certainly, the Columbia pebblesnail does not occupy the wide range of habitats utilized by the closely related vagrant pebblesnail *F. hindsi*, which is equally at home in springs and streams of all sizes with permanent flow and sufficient oxygenation; i.e., cool water, swift flow, and gravel-boulder stable substrate. While absent from springs, the Columbia pebblesnail can thrive in small streams such as the Methow River. Within its present range it commonly occurs with the shortface lanx. As with the shortface lanx, it is common at rapids edges or immediately downstream from whitewater areas, and becomes much less common or absent in major rapids.

The shortface lanx has an acentric, conical shell as large as about 0.5 in. long, 0.4 in. wide, and 0.2 in. high. Its anterior apex distinguishes it from other North American freshwater lancids. Shortface lanx are distributed throughout the Columbia River and its tributaries. The fossil record for the shortface lanx is similar to that of the Columbia pebblesnail.

The shortface lanx inhabits rapids and rapids edges, and is generally restricted to relatively large streams (Clarke 1976; Taylor 1982a 1985). Our sampling tends to confirm the limitations in stream size. Reports of shortface lanx from even very large spring complexes, for example, Box Canyon, Idaho (Taylor 1985), are erroneous. The Box Canyon lanx is an undescribed species of *Lanx*. The smallest stream currently known to be inhabited by the shortface lanx is the Methow River, Washington. If literature reports are correct and museum specimens are correctly cited, the species once lived also in the Little Spokane River, but how far upstream from its mouth is unclear.

The species is most abundant in highly oxygenated environments on gravel to boulder stable substrates. It has not been found live on silt or mud substrates or in areas with slow flow, warm water, or massive seasonal discharges that destabilize the substrate. The species avoids the most violent white water areas, and in fact is rare or absent from most rapids. It is frequently, however, in rapids' edges or immediately downstream from sizable rapids in areas with suitable substrate. The species also tends to avoid areas with bare rock walls, such as the central river channel in the lower Salmon River or the middle Snake River or stretches with denuded subaqueous basalt shelves in the same streams.

These environmental requirements contrast with those of *Lanx* spp.,[(a)] which we have observed occupying central channel and rock wall-rock shelf habitats in California. Similarly, at least one species of *Lanx*, the kneecap lanx *L. patelloides* has been collected from large springs in California. The recently identified *Lanx* species from Idaho appears to be restricted to large spring discharges. In California, two species of *Lanx* have been collected by Deixis Consultants biologists from large creeks (highcap lanx *L. alta* and kneecap lanx), even

(a) *Lanx* and *Fisherolla* are genus names in the family Lymnaeidae. The common name lanx is used in both genera.

though the preferred habitat is larger rivers and their major tributaries (Taylor 1983). One *Lanx*, scale lanx *L. klamathensis*, can tolerate and is restricted to lakes and slow, spring-fed, larger tributary streams (Taylor 1983). Thus, available evidence indicates that the shortface lanx is sensitive and restricted in its occurrence. The family Lancidae as a whole has an unusually small range for a freshwater group, being restricted to portions of the Columbia River drainage and parts of extreme northern California and southern Oregon.

Both the Columbia pebblesnail and shortface lanx occupy areas with sufficient flow, oxygenation, and stable substrate even in the absence of rapids or whitewater areas. In most streams, the original condition prior to human modification was likely as a single continuous population occupying suitable habitat bands parallel to shore on both sides of the stream. Both taxa avoid lakes, areas of slow flow, areas with mud or silt substrate, areas with bare bedrock substrate, stream reaches with unstable substrate such as rivers with high gradients (e.g., the Selway and Lochsa rivers, Idaho, and the Klickitat River, Washington), streams with glacial flour (e.g., the Hood River, Oregon), and the central deep areas in strongly channelized streams. Most currently living populations have been segmented and segregated by human modification of streams, including dams, impoundments, and increased siltation from grazing and agriculture (Figure 5).

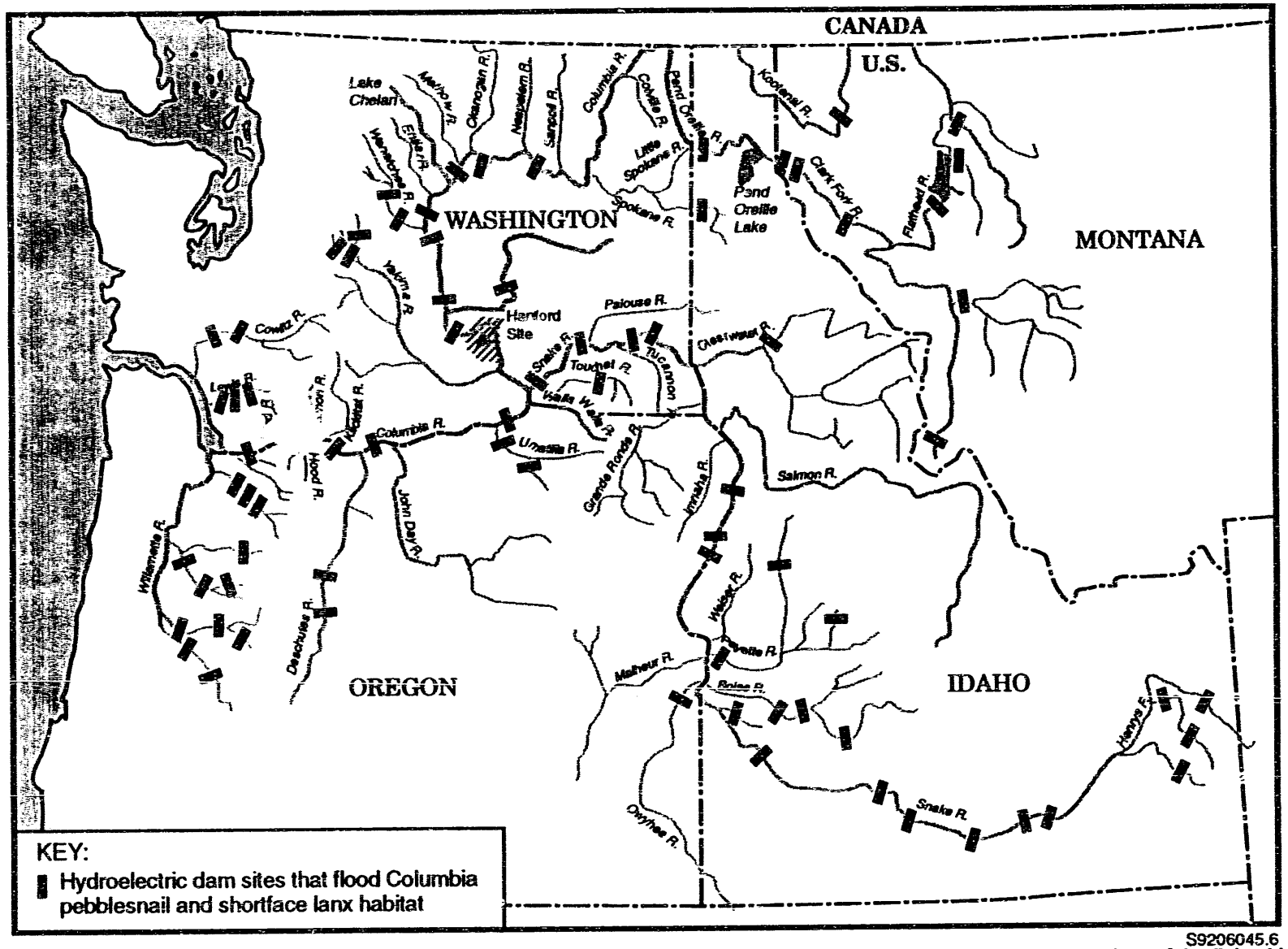

FIGURE 5. Columbia River Basin in the United States Showing Potential Streams or Drainages That May Have Extant Populations of the Columbia Pebblesnail *Fluminicola columbiana* and the Shortface Lanx *Fisherola nuttalli*. (-) indicate hydroelectric dams sites that have floodedmollusk habitat.

TAXONOMY

The taxonomy and nomenclature for both the Columbia pebblesnail and shortface lanx are not straight forward. Both in the literature and museum collections these taxa are frequently confused with closely related species. Some taxonomists have recognized subspecies within *Fisherola* (e.g., Burch 1889). Additionally, there are more than one common name for many freshwater invertebrates. Recently, the American Fisheries Society and American Malacological Union published a list of common and scientific names of mollusks (American Fisheries Society 1988).(a)

The Columbia pebblesnail has been frequently confused with other large *Fluminicola* spp. This is in part because the genus is badly in need of revision. Another factor is the close relationship of the Columbia pebblesnail to the vagrant pebblesnail *F. hindsi*. The Columbia pebblesnail/vagrant pebblesnail relationship is complicated by their co-occurrence in some eastern Columbia River Basin streams. The vagrant pebblesnail is notoriously variable, but the flat-sided whorls of the Columbia pebblesnail and its consistent reddish tint help define its distinctiveness. Occasional specimens of the vagrant pebblesnail, particularly if they have sustained mantle damage early in ontogeny, can be difficult to distinguish from the Columbia pebblesnail. The ashy pebblesnail *F. fuscus* was described as a distinct species; however, we regard *F. fuscus* as a synonym of *F. columbiana* (Taylor 1982b).

Burch (1989) recognizes three subspecies of the shortface lanx: 1) *F. nuttalli nuttalli* (Haldeman 1841), cited from the Snake River drainage, Idaho, the Columbia River drainage, and the Deschutes River, Oregon; 2) *F. nuttalli kootaniensis* (Baird 1863), cited from the Spokane River, Washington, and Kootenai River, British Columbia; and 3) *F. nuttalli lancides* (Hannibel 1912), cited from the Snake River basin: [type locality cited as the Spokane River by Henderson (1936)]. All species of *Fisherola* collected during our study can be confirmed from shell morphology to be a single species, and preliminary dissections also indicate that the presumed subspecies may be invalid. As noted by Taylor (1982b), shell morphology in *Fisherola* is somewhat variable, as we also found it to be in the related kneecap lanx. Examination of the types of *F. nuttalli lancides* indicates that the subspecies was founded upon small (young) specimens of *F. nuttalli*. Larger specimens from the same drainages are identical in morphology with *F. nuttalli* elsewhere, and juveniles from all sites are more consistent in morphology than adults. The types of *F. nuttalli lancides*, collected by H. Hemphill, are from the Snake River, Washington. Spokane River specimens have the same morphology as those from elsewhere in the species range, regardless of size or age. *F. nuttalli kootaniensis* was discriminated on the basis of apex position, but large populations from many sites have specimens with equally strongly displaced apices, and this feature appears somewhat variable within all populations we collected. We did not see the types of *F. nuttalli kootaniensis*, nor any specimens that are arguably topotypes, nor did we collect additional live specimens from the Kootanai River, as the population in this stream appears to be extinct. However, as noted above, Spokane River specimens do not appear to differ in morphology from these found elsewhere in the species' range; hence we believe the subspecies *kootenaiensis* is also invalid. The population including the type locality of *F. nuttalli=F. crassus* is unfortunately also extinct, and there are relatively few topotypes or other Williamette River, Oregon, specimens available for study. Nevertheless, the existing *A. crassus* types and other Willamette specimens are sufficient to well characterize the species.

Examination of other taxa in the Lancidae at six museums as well as the collections of Deixis Consultants serve to reinforce the distinctness of the two genera now recognized inthe family. *Lanx*, a taxonomically close

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(a) Previous work reported for this project (Neitzel and Frest 1989) refers to *Fluminicola columbiana* as the giant Columbia River spire snail and *Fisherola nuttallii* as the great Columbia River limpet.

relative of *Fisherola*, has been characterized as having a central or subcentral apex, and the mantle attachment scar is complete. *Fisherola* has a strongly anteriorly displaced apex and an incomplete attachment scar (Morrison 1955; Taylor 1982a). In most species of *Lanx*, the apex is clearly subcentral or displaced slightly posteriorly. The kneecap lanx *L. patelloides* differs in that most specimens displace the apex slightly: but all do so posteriorly, not anteriorly like *Fisherola*. More precisely, the apex of the juvenile shell in the kneecap lanx can be definitely displaced, but the juvenile shell itself is placed subcentrally. Moreover, all of the several thousand *Lanx* specimens examined do have the complete scar, while all of the 10,000 plus *Fisherola* specimens have a incomplete scar.

LISTING POSSIBILITY

At present, there are only two remaining sizable populations of Columbia pebblesnail; those in the Methow and Okanogan rivers, Washington. Smaller populations survive in the Hanford Reach of the Columbia River, Washington and the lower Salmon River, Idaho. Good habitat and possible populations may be found in the Hells Canyon of the Snake River, Washington, Idaho, and Oregon and Grande Ronde River, Washington and Oregon; and the middle Snake River, Idaho. We did not find Columbia pebblesnails in these streams during our surveys. As neither large population is at present protected, and there has been a substantial documented reduction in the species historic range, this species will probably be listed federally as Endangered.

Currently, large populations of shortface lanx persist in four streams: the Deschutes River, Oregon; Okanogan River, Washington; the Hanford Reach of the Columbia River, Washington; and the Snake River, Oregon and Idaho. Smaller populations of the shortface lanx were found in the Methow River, Washington; Salmon River, Idaho; and Grande Ronde River, Washington and Oregon; John Day, and Imnaha rivers, Oregon. A smaller population persists in the lower Columbia River near Bonneville Dam. While substantial range reduction has occurred in this species, and the large populations are not well protected, the problem is not as severe as in the case of the Columbia pebblesnail. On present evidence, the shortface lanx will probably be listed federally as Threatened.

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APPENDIX A

LOCATION OF THE COLUMBIA PEBBLESNAIL *Fluminicola columbiana* AND SHORTFACE LANX *Fisherola nuttalli* SURVEY SITES

APPENDIX A

LOCATION OF THE COLUMBIA PEBBLESNAIL *Fluminicola columbiana* AND SHORTFACE LANX *Fisherola nuttalli* SURVEY SITES

More than 700 locations in more than 300 streams were considered as collection sites during our 1989 through 1991 surveys. Appendix A lists the river name, site number, quadrangle, county, state, legal description, section number, township, range, and northwest map corner. The site numbers correspond with and can be used when referring to the collection information in Appendix B. Appendix B is a list of the sites from Appendix A with the collection information for each site. The collection information includes the collection method, a "yes/no" indication as to the occurrence of Columbia pebblesnails and shortface lanx, a list of the other mollusks collected at the site, and our comments about the condition of the environment at the site.

TABLE A.1. Location of the Columbia Pebblesnail *Fluminicola columbiana* and Shortface Lanx *Fisherola nuttalli*, 1988 Through 1991 Suvey Sites

River	Site	Quadrangle	County	State	Legal Description	Section	"Township, Range	N. W Map Corner
Wenatchee	01	Leavenworth	Chelan	WA	"SW,SE,NW,SW"	10	"T24N,R17E"	"47°37'30""N,120°45'00""E"
Wenatchee	02	Leavenworth	Chelan	WA	"SE,NW,SE,NW"	12	"T24N,R17E"	"47°37'30""N,120°45'00""E"
Wenatchee	03	Peshastin	Chelan	WA	"NE,SW,SE,SW"	08	"T24N,R18E"	"47°37'30""N,120°37'30""E"
Wenatchee	04	Peshastin	Chelan	WA	"SE,SE,SW,SE"	16	"T24N,R18E"	"47°37'30""N,120°37'30""E"
Wenatchee	05	Peshastin	Chelan	WA	"NW,SW,SW,NE"	27	"T24N,R18E"	"47°37'30""N,120°37'30""E"
Wenatchee	06	Peshastin	Chelan	WA	"SE,NE,SW,NE"	36	"T24N,R18E"	"47°37'30""N,120°37'30""E"
Wenatchee	07	Cashmere	Chelan	WA	"NE,NW,SE,SW"	32	"T24N,R19E"	"47°37'30""N,120°30'00""E"
Wenatchee	08	Cashmere	Chelan	WA	"NW,NW,NE,SW"	11	"T24N,R19E"	"47°37'30""N,120°30'00""E"
Wenatchee	09	Monitor	Chelan	WA	"NW,SE,NE,SE"	14	"T23N,R19E"	"47°30'00""N,120°30'00""E"
Wenatchee	10	Wenatchee	Chelan	WA	"SE,SW,SE,NE"	19	"T23N,R20E"	"47°30'00""N,120°22'30""E"
Wenatchee	11	Wenatchee	Chelan	WA	"NE,NE,NE,SW"	28	"T23N,R20E"	"47°30'00""N,120°22'30""E"
Entiat	01	Ardenvoir	Chelan	WA	"SE,NW,NE,SW"	03	"T25N,R20E"	"47°45'00""N,120°22'30""E"
Entiat	02	Ardenvoir	Chelan	WA	"SE,SW,NW,NW"	13	"T25N,R20E"	"47°45'00""N,120°22'30""E"
Entiat	03	Entiat	Chelan	WA	"NE,NE,NE,SE"	18	"T25N,R21E"	"47°45'00""N,120°15'00""E"
Okanogan	01	Keystone	Okanogan	WA	"NE,NE,NE,SW"	06	"T35N,R27E"	"48°37'30""N,119°30'00""E"
Okanogan	02	Keystone	Okanogan	WA	"SW,SW,SW,SE"	07	"T35N,R27E"	"48°37'30""N,119°30'00""E"
Okanogan	03	Keystone	Okanogan	WA	"SE,NE,NW,NW"	17	"T35N,R27E"	"48°37'30""N,119°30'00""E"
Okanogan	04	Riverside	Okanogan	WA	"SE,SE,SE,NW"	25	"T35N,R26E"	"48°37'30""N,119°37'30""E"
Okanogan	05	The Pothole	Okanogan	WA	"NW,SE,NW,SE"	31	"T35N,R27E"	"48°30'00""N,119°30'00""E"
Okanogan	06	The Pothole	Okanogan	WA	"SW,SE,SW,NW"	08	"T34N,R27E"	"48°30'00""N,119°30'00""E"
Okanogan	07	The Pothole	Okanogan	WA	"NE,NE,SW,NW"	17	"T34N,R27E"	"48°30'00""N,119°30'00""E"
Okanogan	08	The Pothole	Okanogan	WA	"SE,NE,SW,NE"	31	"T34N,R27E"	"48°30'00""N,119°30'00""E"
Okanogan	09	Omak	Okanogan	WA	"SW,SE,NW,NE"	03	"T33N,R26E"	"48°30'00""N,119°37'30""E"
Okanogan	10	Okanogan	Okanogan	WA	"SE,SW,SE,SE"	30	"T33N,R26E"	"48°22'30""N,119°37'30""E"
Okanogan	11	Malot	Okanogan	WA	"SE,SE,NE,SE"	03	"T32N,R25E"	"48°22'30""N,119°45'00""E"
Okanogan	12	Malot	Okanogan	WA	"SE,NW,NW,NW"	16	"T32N,R25E"	"48°22'30""N,119°45'00""E"
Okanogan	13	Malot	Okanogan	WA	"NW,NE,NW,NW"	17	"T32N,R25E"	"48°22'30""N,119°45'00""E"
Okanogan	14	Malot	Okanogan	WA	"SW,NW,NE,SE"	19	"T32N,R25E"	"48°22'30""N,119°45'00""E"
Okanogan	15	Monse	Okanogan	WA	"SW,NE,SW,SE"	05	"T31N,R25E"	"48°15'00""N,119°45'00""E"
Okanogan	16	Monse	Okanogan	WA	"NE,SE,NE,NW"	22	"T31N,R25E"	"48°15'00""N,119°45'00""E"
Okanogan	17	Monse	Okanogan	WA	"SE,SE,NW,SE"	34	"T31N,R25E"	"48°15'00""N,119°45'00""E"
Okanogan	18	Bridgeport	Okanogan	WA	"NW,NE,SW,NW"	09	"T30N,R25E"	"48°07'30""N,119°45'00""E"
Methow	01	Twisp East	Okanogan	WA	"SW,NW,SE,NW"	20	"T33N,R22E"	"48°22'30""N,120°07'30""E"
Methow	02	Twisp East	Okanogan	WA	"NE,SW,SW,NW"	22	"T33N,R22E"	"48°22'30""N,120°07'30""E"
Methow	03	Twisp East	Okanogan	WA	"NE,NW,SW,SE"	34	"T33N,R22E"	"48°22'30""N,120°07'30""E"
Methow	04	Twisp East	Okanogan	WA	"SW,SW,NW,NE"	16	"T32N,R22E"	"48°22'30""N,120°07'30""E"
Methow	05	Twisp East	Okanogan	WA	"NW,NW,NE,NW"	20	"T32N,R22E"	"48°22'30""N,120°07'30""E"

TABLE A.1. (contd)

Methow	06	Methow	Okanogan	WA	"NE,SW,SE,NW"	08	"T31N,R22E"	"48°15'00""N,120°07'30""E"
Methow	07	Methow	Okanogan	WA	"NW,SW,SW,SW"	22	"T31N,R22E"	"48°15'00""N,120°07'30""E"
Methow	08	Methow	Okanogan	WA	"SE,SW,SW,SW"	26	"T31N,R22E"	"48°15'00""N,120°07'30""E"
Methow	09	Methow	Okanogan	WA	"SE,NW,SE,SE"	36	"T31N,R22E"	"48°15'00""N,120°07'30""E"
Methow	10	Cooper Mtn.	Okanogan	WA	"NW,SW,SE,NE"	13	"T30N,R22E"	"48°07'30""N,120°07'30""E"
Methow	11	Cooper Mtn.	Okanogan	WA	"NW,NW,NW,SW"	24	"T30N,R23E"	"48°07'30""N,120°07'30""E"
Methow	12	Brewster	Okanogan	WA	"NE,NW,NW"	28	"T30N,R24E"	"48°15'00""N,120°00'00""E"
Methow	13	Brewster	Okanogan	WA	"SE,NE,SE"	28	"T30N,R24E"	"48°15'00""N,120°00'00""E"
Methow	14	Brewster	Okanogan	WA	"NW,NE,SW"	34	"T30N,R24E"	"48°15'00""N,120°00'00""E"
Nespelem	01	Bald Knob	Okanogan	WA	"SE,NW,SE"	17	"T32N,R31E"	"48°30'00""N,119°00'00""E"
Nespelem	02	Nespelem	Okanogan	WA	"SW,NW,SE"	25	"T32N,R30E"	"48°15'00""N,119°00'00""E"
Nespelem	03	Nespelem	Okanogan	WA	"NW,NE,NW"	18	"T31N,R31E"	"48°15'00""N,119°00'00""E"
Nespelem	04	Alameda Flat	Okanogan	WA	"SE,NE,NW"	02	"T30N,R30E"	"48°15'00""N,119°15'00""E"
Nespelem	05	Alameda Flat	Okanogan	WA	"NW,NW,SE"	03	"T30N,R30E"	"48°15'00""N,119°15'00""E"
Sanpoil	01	17 Mile Mtn.	Ferry	WA	"SW,NW,SW"	01	"T34N,R32E"	"48°30'00""N,118°45'00""E"
Sanpoil	02	17 Mile Mtn.	Ferry	WA	"NE,SE,SE"	26	"T34N,R32E"	"48°30'00""N,118°45'00""E"
Sanpoil	03	17 Mile Mtn.	Ferry	WA	"NE,SW,SE"	26	"T33N,R32E"	"48°30'00""N,118°45'00""E"
Sanpoil	04	17 Mile Mtn.	Ferry	WA	"SE,SW,SE"	18	"T32N,R33E"	"48°30'00""N,118°45'00""E"
Sanpoil	05	Keller	Ferry	WA	"SW,NE,SE"	31	"T32N,R33E"	"48°15'00""N,118°45'00""E"
Sanpoil	06	Keller	Ferry	WA	"SW,NW,NW"	32	"T31N,R33E"	"48°15'00""N,118°45'00""E"
Sanpoil	07	Keller	Ferry	WA	"NE,NW,NE"	18	"T30N,R33E"	"48°15'00""N,118°45'00""E"
Sanpoil	08	Keller	Ferry	WA	"NW,SE,NW"	28	"T30N,R33E"	"48°15'00""N,118°45'00""E"
Colville	01	Colville	Stevens	WA	"SW,SE,NW,SW"	08	"T35N,R39E"	"48°37'30""N,118°00'00""E"
Colville	02	Colville	Stevens	WA	"SE,NW,NE,SW"	26	"T36N,R38E"	"48°37'30""N,118°00'00""E"
Colville	03	Kettle Falls	Stevens	WA	"NW,SE,NW,NW"	29	"T36N,R38E"	"48°37'30""N,118°07'30""E"
Cowlitz	01	Winlock	Lewis	WA	"SW,SW,NE,NE"	26	"T11N,R2W"	"46°30'00""N,123°00'00""E"
Cowlitz	02	Winlock	Lewis	WA	"NW,SW,NE,SE"	28	"T11N,R2W"	"46°30'00""N,123°00'00""E"
Cowlitz	03	Winlock	Cowlitz	WA	"SE,NW,SE,NE"	04	"T10N,R2W"	"46°30'00""N,123°00'00""E"
Cowlitz	04	Castle Rock	Cowlitz	WA	"SW,NE,SW,NE"	09	"T10N,R2W"	"46°22'30""N,123°00'00""E"
Cowlitz	05	Castle Rock	Cowlitz	WA	"SW,NW,NW,SW"	22	"T10N,R2W"	"46°22'30""N,123°00'00""E"
Lewis	01	Ariel	Cowlitz (Clark)	WA	"NE,NE,SE,SE"	33	"T6N,R2E"	"46°00'00""N,122°37'30""E"
Lewis	02	Ariel	Cowlitz (Clark)	WA	"NE,NW,SW,NW"	12	"T5N,R1E"	"46°00'00""N,122°37'30""E"
Lewis	03	Ariel	Cowlitz (Clark)	WA	"NE,NW,SW,NW"	05	"T5N,R2E"	"46°00'00""N,122°37'30""E"
Lewis	04	Woodland	Cowlitz (Clark)	WA	"SW,SE,SE,SE"	04	"T5N,R1E"	"46°00'00""N,122°45'00""E"

TABLE A.1. (contd)

Lewis	05	Woodland	Cowlitz (Clark)	WA	"SE,SW,NW,SE"	09	"T5N,R1E"	"46°00'00""N,122°45'00""E"
Lewis	06	Woodland	Cowlitz (Clark)	WA	"NE,NW,NE,SE"	18	"T5N,R1E"	"46°00'00""N,122°45'00""E"
Lewis	07	Ridgefield	Cowlitz (Clark)	WA	"SE,SE,NW,SE"	32	"T5N,R1E"	"45°52'30""N,122°45'00""E"
Lewis	08	Ridgefield	Cowlitz (Clark)	WA	"NW,NE,NW,SE"	11	"T4N,R1E"	"45°52'30""N,122°45'00""E"
Lewis	09	St. Helens	Cowlitz (Clark)	WA	"SW,NE,SE,NE"	02	"T4N,R1E"	"45°52'30""N,122°52'30""E"
Wind	01	Stabler	Skamania	WA	River Mile 17.9	NA	"T4N,R7E"	"45°52'30""N,122°00'00""E"
Wind	02	Stabler	Skamania	WA	"SW,SW,SW,SW"	10	"T4N,R7E"	"45°52'30""N,122°00'00""E"
Wind	03	Stabler	Skamania	WA	"NW,NE,NW,NE"	26	"T4N,R7E"	"45°52'30""N,122°00'00""E"
Wind	04	BigHckleberry	Skamania	WA	"NE,SE,NE,SE"	18	"T3N,R8E"	"45°52'30""N,121°52'30""E"
Wind	05	Carson	Skamania	WA	"SW,SW,NW,NE"	21	"T3N,R8E"	"45°45'00""N,121°52'30""E"
Wind	06	Carson	Skamania	WA	"SE,NE,SE,SE"	21	"T3N,R8E"	"45°45'00""N,121°52'30""E"
White Salmon	01	NW Lake	Skamania	WA	"NE,SE,SW,SE"	35	"T5N,R10E"	"45°52'30""N,121°37'30""E"
White Salmon	02	Husum	Skamania	WA	"SE,SE,NW,SW"	19	"T4N,R11E"	"45°52'30""N,121°30'00""E"
White Salmon	03	NW Lake	Skamania	WA	"NE,SE,NE,NW"	10	"T3N,R10E"	"45°52'30""N,121°37'30""E"
White Salmon	04	Hood River	Skamania	WA	"NE,SW,SE,NW"	14	"T3N,R10E"	"45°45'00""N,121°37'30""E"
Klickitat	01	Dead Canyon	Klickitat	WA	"NW,NE,NE,SE"	23	"T6N,R13E"	"46°00'00""N,121°15'00""E"
Klickitat	02	Grayback Mtn.	Klickitat	WA	"NW,SE,SE,NE"	12	"T5N,R14E"	"46°00'00""N,121°07'30""E"
Klickitat	03	Grayback Mtn.	Klickitat	WA	"SW,NW,SW,NW"	08	"T5N,R14E"	"46°00'00""N,121°07'30""E"
Klickitat	04	Grayback Mtn.	Klickitat	WA	"SE,SE,SE,NE"	25	"T5N,R13E"	"46°00'00""N,121°07'30""E"
Klickitat	05	Dead Canyon	Klickitat	WA	"NE,NE,NW,SW"	12	"T5N,R13E"	"46°00'00""N,121°15'00""E"
Klickitat	06	Wahkiacus	Klickitat	WA	"NE,SW,NW,SE"	05	"T4N,R14E"	"45°52'30""N,121°07'30""E"
Klickitat	07	Wahkiacus	Klickitat	WA	"SW,SE,SW,NE"	04	"T4N,R14E"	"45°52'30""N,121°07'30""E"
Klickitat	08	Wahkiacus	Klickitat	WA	"NE,SW,NE,NW"	19	"T4N,R14E"	"45°52'30""N,121°07'30""E"
Klickitat	09	Klickitat	Klickitat	WA	"NW,SW,SE,NW"	23	"T4N,R13E"	"45°52'30""N,121°15'00""E"
Klickitat	10	Klickitat	Klickitat	WA	"NE,SW,NW,NW"	27	"T4N,R13E"	"45°52'30""N,121°15'00""E"
Klickitat	11	Klickitat	Klickitat	WA	"SE,NE,NE,NW"	05	"T3N,R13E"	"45°52'30""N,121°15'00""E"
Klickitat	12	Klickitat	Klickitat	WA	"NE,SW,NE,SW"	10	"T3N,R13E"	"45°52'30""N,121°15'00""E"
Klickitat	13	The Dalles N.	Klickitat	WA	"NE,SE,SE,SW"	18	"T3N,R13E"	"45°45'00""N,121°15'00""E"
Klickitat	14	Lyle	Klickitat	WA	"SE,NE,NE,SE"	28	"T3N,R12E"	"45°45'00""N,121°22'30""E"
Klickitat	15	Lyle	Klickitat	WA	"NW,SW,SW,NW"	35	"T3N,R12E"	"45°45'00""N,121°22'30""E"
Palouse	01	Honn Lakes	Whitman	WA	"SE,NE,SE,SE"	21	"T17N,R39E"	"47°00'00""N,118°00'00""E"
Palouse	02	Honn Lakes	Whitman	WA	"NE,NE,SW,NE"	32	"T17N,R39E"	"47°00'00""N,118°00'00""E"
Palouse	03	Honn Lakes	Whitman	WA	"SE,SW,NE,NE"	05	"T16N,R39E"	"47°00'00""N,118°00'00""E"

TABLE A.1. (contd)

Palouse	04	LaCrosse	West Whitman	WA	"NE,NW,NW,SE"	22	"T16N,R39E" "46°52'30""N,118°00'00""E"
Palouse	05	LaCrosse	West Whitman	WA	"NW,SW,SW,SW"	28	"T16N,R39E" "46°52'30""N,118°00'00""E"
Palouse	06	LaCrosse	West Adams (Whit.)	WA	"SW,NE,NW,NW"	36	"T16N,R38E" "46°52'30""N,118°00'00""E"
Palouse	07	LaCrosse	West Whitman	WA	"SW,SW,NE,SW"	36	"T16N,R38E" "46°52'30""N,118°00'00""E"
Palouse	08	Rattlesnake Canyon	Adams (Whit.)	WA	"NE,NW,SW,NW"	11	"T15N,R38E" "46°52'30""N,118°07'30""E"
Palouse	09	Rattlesnake Canyon	Adams (Whit.)	WA	"NE,SE,SE,NE"	21	"T15N,R38E" "46°52'30""N,118°07'30""E"
Palouse	10	Rattlesnake Canyon	Adams (Whit.)	WA	"NW,SE,NE,NW"	19	"T15N,R38E" "46°52'30""N,118°07'30""E"
Palouse	11	Hooper	Adams (Whit.)	WA	"SW,NW,NW,SW"	26	"T15N,R37E" "46°52'30""N,118°15'00""E"
Palouse	12	Palouse Falls	Adams (Whit.)	WA	"NW,SW,SE,NW"	34	"T15N,R37E" "46°45'00""N,118°15'00""E"
Palouse	13	Palouse Falls	Whitmn (Frkln)	WA	"NW,NE,NE,NE"	02	"T14N,R37E" "46°45'00""N,118°15'00""E"
Palouse	14	Palouse Falls	Whitmn (Frkln)	WA	"SE,SW,SE,SW"	30	"T14N,R37E" "46°45'00""N,118°15'00""E"
Palouse	15	Palouse Falls	Whitmn (Frkln)	WA	"SW,NW,NE,NW"	06	"T13N,R37E" "46°45'00""N,118°15'00""E"
Palouse	16	Coyote Butte	Adams	WA	"SW,NE,NE,SE"	08	"T16N,R37E" "47°00'00""N,118°15'00""E"
Palouse	17	Palouse Falls	Adams (Whit.)	WA	"SE,SE,NE,SW"	32	"T15N,R37E" "46°45'00""N,118°15'00""E"
Grande Ronde	01	Limekiln Rpds	Asotin	WA	"SE,NE,SE,SW"	13	"T7N,R46E" "46°07'30""N,117°00'00""E"
Grande Ronde	02	Limekiln Rpds	Asotin	WA	"NE,SW,SW,SW"	24	"T7N,R46E" "46°07'30""N,117°00'00""E"
Grande Ronde	03	Black Butte	Asotin	WA	"NW,NW,NW,SE"	26	"T7N,R46E" "46°07'30""N,117°07'30""E"
Grande Ronde	04	Black Butte	Asotin	WA	"NE,SE,NW,NW"	34	"T7N,R46E" "46°07'30""N,117°07'30""E"
Grande Ronde	05	Black Butte	Asotin	WA	"NW,SE,SE,SE"	30	"T7N,R46E" "46°07'30""N,117°07'30""E"
Grande Ronde	06	Black Butte	Asotin	WA	"NE,NW,SW,SE"	36	"T7N,R45E" "46°07'30""N,117°07'30""E"
Grande Ronde	07	Fields Spring	Asotin	WA	"SW,NE,SW,SW"	35	"T7N,R45E" "46°07'30""N,117°15'00""E"
Grande Ronde	08	Fields Spring	Asotin	WA	"NE,NW,SW,NE"	03	"T6N,R45E" "46°07'30""N,117°15'00""E"
Grande Ronde	09	Fields Spring	Asotin	WA	"SE,NW,SE,NE"	36	"T7N,R44E" "46°07'30""N,117°15'00""E"
Grande Ronde	10	Mtn. View	Asotin	WA	"NW,NW,SW,NW"	36	"T7N,R44E" "46°07'30""N,117°22'30""E"
Grande Ronde	11	Mtn. View	Asotin	WA	"NW,SW,NW,SW"	35	"T7N,R44E" "46°07'30""N,117°22'30""E"
Grande Ronde	12	Mtn. View	Asotin	WA	"SE,SW,NW,SW"	34	"T7N,R44E" "46°07'30""N,117°22'30""E"
Grande Ronde	13	Mtn. View	Asotin	WA	"SW,NW,NW,NW"	04	"T6N,R44E" "46°07'30""N,117°22'30""E"
Grande Ronde	14	Mtn. View	Asotin	WA	"NW,NE,SW,SW"	06	"T6N,R44E" "46°07'30""N,117°22'30""E"

TABLE A.1. (contd)

Grande Ronde	15	Mtn. View	Asotin	WA	"SE,SE,NW,SW"	07	"T6N,R44E"	"46°07'30""N,117°22'30""E"
Grande Ronde	16	Troy	Wallowa	OR	"NE,NW,NW,SW"	24	"T6N,R43E"	"46°00'00""N,117°30'00""E"
Grande Ronde	17	Troy	Wallowa	OR	"NE,NW,NW,NW"	35	"T6N,R43E"	"46°00'00""N,117°30'00""E"
Grande Ronde	18	Troy	Wallowa	OR	"NW,NE,NW,SE"	34	"T6N,R43E"	"46°00'00""N,117°30'00""E"
Grande Ronde	19	Troy	Wallowa	OR	"SE,NW,SW,NW"	09	"T5N,R43E"	"46°00'00""N,117°30'00""E"
Grande Ronde	20	Troy	Wallowa	OR	"NE,SE,NW,NW"	16	"T5N,R43E"	"46°00'00""N,117°30'00""E"
Grande Ronde	21	Troy	Wallowa	OR	"NE,NW,SW,SW"	17	"T5N,R43E"	"46°00'00""N,117°30'00""E"
Walla Walla	01	Rulo	Walla Walla	WA	"NW,NE,NE,NE"	32	"T9N,R34E"	"46°15'00""N,118°37'30""E"
Walla Walla	02	Welland	Walla Walla	WA	"NW,NW,SW,SW"	01	"T8N,R33E"	"46°15'00""N,118°45'00""E"
Walla Walla	03	Welland	Walla Walla	WA	"SE,SE,SE,SE"	11	"T8N,R33E"	"46°15'00""N,118°45'00""E"
Walla Walla	04	Welland	Walla Walla	WA	"NW,NW,NW,SE"	23	"T8N,R33E"	"46°15'00""N,118°45'00""E"
Walla Walla	05	Welland	Walla Walla	WA	"SE,NE,NE,SE"	34	"T8N,R33E"	"46°15'00""N,118°45'00""E"
Walla Walla	06	Touchet	Walla Walla	WA	"NE,NE,NE,NE"	10	"T7N,R33E"	"46°07'30""N,118°45'00""E"
Walla Walla	07	Touchet	Walla Walla	WA	"NW,NW,NW,SE"	27	"T7N,R33E"	"46°07'30""N,118°45'00""E"
Walla Walla	08	Touchet	Walla Walla	WA	"SW,SE,SE,NW"	03	"T6N,R33E"	"46°07'30""N,118°45'00""E"
Walla Walla	09	Touchet	Walla Walla	WA	"NW,NW,NW,SE"	06	"T6N,R33E"	"46°07'30""N,118°45'00""E"
Walla Walla	10	ZangarJnction	Walla Walla	WA	"NE,SW,SE,SE"	35	"T7N,R32E"	"46°07'30""N,118°52'30""E"
Walla Walla	11	ZangarJnction	Walla Walla	WA	"NE,NE,NE,SE"	22	"T7N,R32E"	"46°07'30""N,118°52'30""E"
Walla Walla	12	ZangarJnction	Walla Walla	WA	"SW,SW,NE,SW"	21	"T7N,R32E"	"46°07'30""N,118°52'30""E"
Walla Walla	13	ZangarJnction	Walla Walla	WA	"SE,SW,SE,NW"	20	"T7N,R32E"	"46°07'30""N,118°52'30""E"
Tucannon	01	Starbuck East	Columbia	WA	"SE,NE,SW,SW"	23	"T12N,R38E"	"46°37'30""N,118°07'30""E"
Tucannon	02	Starbuck East	Columbia	WA	"NE,NW,SW,NE"	19	"T12N,R38E"	"46°37'30""N,118°07'30""E"
Tucannon	03	Starbuck East	Columbia	WA	"SW,NE,SE,SW"	13	"T12N,R37E"	"46°37'30""N,118°15'00""E"
Tucannon	04	Starbuck East	Columbia	WA	"SE,NW,NE,NE"	10	"T12N,R37E"	"46°37'30""N,118°15'00""E"
Hood	01	Dee	Hood River	OR	"NW,SW,NE,NE"	01	"T1N,R9E"	"45°37'30""N,121°45'00""E"
Hood	02	Hood River	Hood River	OR	"SW,NE,SE,NW"	20	"T2N,R10E"	"45°45'00""N,121°37'30""E"
Hood	03	Hood River	Hood River	OR	"NE,SW,NE,SE"	15	"T2N,R10E"	"45°45'00""N,121°37'30""E"
Hood	04	Hood River	Hood River	OR	"SW,SE,NW,SE"	01	"T2N,R10E"	"45°45'00""N,121°37'30""E"
Deschutes	01	Bend	Deschutes	OR	"NE,NE,SW,SW"	13	"T18S,R11E"	"44°07'30""N,121°22'30""E"
Deschutes	02	Bend	Deschutes	0R	"NE,SW,NE,NW"	18	"T17S,R12E"	"44°07'30""N,121°22'30""E"
Deschutes	03	Bend	Deschutes	OR	"NE,SW,NE,NW"	20	"T17S,R12E"	"44°07'30""N,121°22'30""E"
Deschutes	04	Tumalo	Deschutes	OR	"SW,NW,SE,SE"	31	"T16S,R12E"	"44°15'00""N,121°22'30""E"
Deschutes	05	FrkdHrnButte	Deschutes	OR	"SE,SW,SW,NE"	31	"T15S,R12E"	"44°15'00""N,121°15'00""E"
Deschutes	06	Redmond	Deschutes	OR	"NW,NW,NW,SE"	36	"T14S,R12E"	"44°22'30""N,121°15'00""E"
Deschutes	07	Cline Falls	Deschutes	OR	"NW,NE,SE,NE"	16	"T14S,R12E"	"44°22'30""N,121°22'30""E"
Deschutes	08	Cline Falls	Deschutes	OR	"NE,NE,NE,SW"	26	"T14S,R12E"	"44°22'30""N,121°22'30""E"
Deschutes	09	SteelhdFalls	Jefferson	OR	"NW,SE,NW,NE"	33	"T12S,R12E"	"44°30'00""N,121°22'30""E"
Deschutes	10	RndButteDm	Jefferson	OR	"NE,SE,SE,NE"	16	"T12S,R12E"	"44°37'30""N,121°22'30""E"

TABLE A.1. (contd)

Deschutes	11	RndButteDm	Jefferson		OR	"SW,SE,NW,NE"	22	"T11S,R12E"	"44°37'30""N,121°22'30""E"
Deschutes	12	Madras West	Jefferson		OR	"SW,NE,SW,SW"	18	"T10S,R13E"	"44°45'00""N,121°15'00""E"
Deschutes	13	Madras West	Jefferson		OR	"NW,NE,SE,SW"	01	"T10S,R12E"	"44°45'00""N,121°15'00""E"
Deschutes	14	Eagle Butte	Jefferson		OR	"SW,SW,NW,SW"	16	"T9S,R13E"	"44°52'30""N,121°15'00""E"
Deschutes	15	Gateway	Wasco		OR	"NW,NE,NW,NE"	32	"T8S,R14E"	"44°52'30""N,121°07'30""E"
Deschutes	16	Gateway	Jefferson		OR	"NE,SW,NE,SE"	06	"T9S,R14E"	"44°52'30""N,121°07'30""E"
Deschutes	17	Gateway	Wasco		OR	"NE,NE,NE,SE"	16	"T8S,R14E"	"44°52'30""N,121°07'30""E"
Deschutes	18	Kaskela	Wasco		OR	"SE,NE,NE,SW"	09	"T8S,R14E"	"45°00'00""N,121°07'30""E"
Deschutes	19	Kaskela	Wasco		OR	"SW,SE,NE,SW"	32	"T7S,R14E"	"45°00'00""N,121°07'30""E"
Deschutes	20	Kaskela	Wasco		OR	"NE,SE,NE,SW"	29	"T7S,R14E"	"45°00'00""N,121°07'30""E"
Deschutes	21	Kaskela	Wasco		OR	"NE,NE,NW,SE"	20	"T7S,R14E"	"45°00'00""N,121°07'30""E"
Deschutes	22	Kaskela	Wasco		OR	"NE,NW,NW,SE"	17	"T7S,R14E"	"45°00'00""N,121°07'30""E"
Deschutes	23	Kaskela	Wasco		OR	"SE,SE,NE,SW"	17	"T7S,R14E"	"45°00'00""N,121°07'30""E"
Deschutes	24	Kaskela	Wasco		OR	"SE,NW,NE,SW"	09	"T7S,R14E"	"45°00'00""N,121°07'30""E"
Deschutes	25	Dant	Wasco	OR	"45°00'22""N,121°02'53""E"		NA	"T6S,R14E"	"45°07'30""N,121°07'30""E"
Deschutes	26	Dant	Wasco	OR	"45°02'04""N,121°04'21""E"		NA	"T6S,R14E"	"45°07'30""N,121°07'30""E"
Deschutes	27	Dant	Wasco	OR	"45°02'07""N,121°04'23""E"		NA	"T6S,R14E"	"45°07'30""N,121°07'30""E"
Deschutes	28	Dant	Wasco	OR	"45°02'45""N,121°06'60""E"		NA	"T6S,R13E"	"45°07'30""N,121°07'30""E"
Deschutes	29	Dant	Wasco	OR	"45°04'59""N,121°07'24""E"		NA	"T6S,R13E"	"45°07'30""N,121°07'30""E"
Deschutes	30	Maupin SW	Wasco		OR	"NW,SE,SW,NW"	25	"T5S,R13E"	"45°07'30""N,121°15'00""E"
Deschutes	31	Maupin	Wasco		OR	"SE,SW,NW,NE"	13	"T5S,R14E"	"45°15'00""N,121°07'30""E"
Deschutes	32	Maupin	Wasco		OR	"SW,SE,SW,NW"	05	"T5S,R14E"	"45°15'00""N,121°07'30""E"
Deschutes	33	Maupin	Wasco		OR	"NE,SW,NW,SE"	29	"T4S,R14E"	"45°15'00""N,121°07'30""E"
Deschutes	34	Maupin	Wasco		OR	"SE,NE,NW,SE"	17	"T4S,R14E"	"45°15'00""N,121°07'30""E"
Deschutes	35	Maupin	Wasco		OR	"SW,NW,SW,SE"	09	"T4S,R14E"	"45°15'00""N,121°07'30""E"
Deschutes	36	Sherars Brdge	Wasco		OR	"SE,NW,SE,SE"	34	"T3S,R14E"	"45°22'30""N,121°07'30""E"
Deschutes	37	Sherars Brdge	Wasco		OR	"NW,SE,SW,NE"	35	"T3S,R14E"	"45°22'30""N,121°07'30""E"
Deschutes	38	Sherars Brdge	Wasco		OR	"NW,NE,NW,SE"	26	"T3S,R14E"	"45°22'30""N,121°07'30""E"
Deschutes	39	Sherars Brdge	Wasco		OR	"NE,NE,NW,NE"	23	"T3S,R14E"	"45°22'30""N,121°07'30""E"
Deschutes	40	Sinamox	Wasco		OR	"NW,NE,NW,SW"	18	"T3S,R15E"	"45°22'30""N,121°00'00""E"
Deschutes	41	Sinamox	Wasco		OR	"SE,MW,ME,SW"	18	"T3S,R15E"	"45°22'30""N,121°00'00""E"
Deschutes	42	Sinamox	Wasco	OR	"45°19'52""N,120°55'58""E"		NA	"T3S,R15E"	"45°22'30""N,121°00'00""E"
Deschutes	43	Sinamox	Wasco	OR	"45°21'04""N, 120°54'56""E"		NA	"T2S,R15E"	"45°22'30""N,121°00'00""E"
Deschutes	44	Summit Ridge	Wasco		OR	"SE,SW,SE,NE"	23	"T2S,R15E"	"45°30'00""N,121°00'00""E"
Deschutes	45	Erskine	Wasco		OR	"NE,NE,NE,SW"	30	"T1S,R16E"	"45°30'00""N,120°52'30""E"
Deschutes	46	Erskine	Wasco		OR	"SE,NW,SE,SW"	20	"T1S,R16E"	"45°30'00""N,120°52'30""E"
Deschutes	47	Erskine	Wasco		OR	"NE,NW,SE,SE"	8?	"T1S,R16E"	"45°30'00""N,120°52'30""E"
Deschutes	48	Locust Grove	Wasco		OR	"SW,SE,NE,SE"	05	"T1S,R16E"	"45°37'30""N,120°52'30""E"

TABLE A.1. (contd)

Deschutes	49	Locust Grove	Wasco	OR	"NW,NW,NE,SE"	31	"T1N,R16E"	"45°37'30""N,120°52'30""E"
Deschutes	50	Emerson	Wasco	OR	"NW,SW,SW,NW"	25	"T1N,R15E"	"45°37'30""N,121°00'00""E"
Deschutes	51	Emerson	Wasco	OR	"NE,NE,SE,NW"	23	"T1N,R15E"	"45°37'30""N,121°00'00""E"
Deschutes	52	Emerson	Wasco	OR	"NW,NE,NW,NE"	14	"T1N,R15E"	"45°37'30""N,121°00'00""E"
Deschutes	53	Emerson	Wasco	OR	"NW,SW,SE,SW"	35	"T2N,R15E"	"45°37'30""N,121°00'00""E"
Willamette	01	Riverside	Linn	OR	"NW,NW,SW,SW"	18	"T12S,R4W"	"44°37'30""N,123°15'00""E"
Willamette	02	Corvallis	Linn (Benton)	OR	River Mile 131.5	NA	"T11S,R5W"	"44°37'30""N,123°22'30""E"
Willamette	03	Riverside	Linn (Benton)	OR	"NW,SW,NW,SE"	49	"T11S,R5W"	"44°37'30""N,123°15'00""E"
Willamette	04	Riverside	Linn (Benton)	OR	"44°36'52""N,123°10'43""E"	NA	"T11S,R4W"	"44°37'30""N,123°15'00""E"
Willamette	05	Lewisburg	Linn (Benton)	OR	"SW,NW,SW,SE"	03	"T11S,R4W"	"44°45'00""N,123°15'00""E"
Willamette	06	Albany 15'	Linn (Benton)	OR	"SE,SE,NE"	25	"T10S,R3W"	"44°45'00""N,123°15'00""E"
Willamette	07	Lewisburg	Linn (Benton)	OR	"SW,SW,NE,NW"	11	"T10S,R4W"	"44°45'00""N,123°15'00""E"
Willamette	08	Monmouth	Polk (Marion)	OR	River Mile 105.0	NA	"T9S,R4W"	"44°52'30""N,123°15'00""E"
Willamette	09	Monmouth	Polk (Marion)	OR	River Mile 94.1	NA	"T8S,R4W"	"44°52'30""N,123°15'00""E"
Willamette	10	Rickreall	Polk (Marion)	OR	"NE,SE,NE,SE"	11	"T8S,R4W"	"45°00'00""N,123°15'00""E"
Willamette	11	Salem West	Polk (Marion)	OR	"SE,SE,NE,SE"	29	"T7S,R3W"	"45°00'00""N,123°07'30""E"
Willamette	12	Mission Btm	Polk (Marion)	OR	River Mile 77.2	NA	"T6S,R3W"	"45°07'30""N,123°07'30""E"
Willamette	13	Mission Btm	Polk (Marion)	OR	"SE,SW,SW,SW"	34	"T5S,R3W"	"45°07'30""N,123°07'30""E"
Willamette	14	Mission Btm	Yamhill (Marion)	OR	"SE,SW,SW,NW"	25	"T5S,R3W"	"45°07'30""N,123°07'30""E"
Willamette	15	Dayton	Yamhill (Marion)	OR	"SE,NW,NW,NW"	14	"T5S,R3W"	"45°15'00""N,123°07'30""E"
Willamette	16	Dayton	Yamhill (Marion)	OR	"NE,SW,NW,NW"	22	"T4S,R3W"	"45°15'00""N,123°07'30""E"
Willamette	17	Newberg	Yamhill (Marion)	OR	"SW,NE,NW,NE"	31	"T3S,R2W"	"45°22'30""N,123°00'00""E"
Willamette	18	Newberg	Yamhill (Marion)	OR	"SE,SW,SE,NE"	66	"T3S,R2W"	"45°22'30""N,123°00'00""E"
Willamette	19	Newberg	Yamhill (Marion)	OR	"NE,NW,SW,NW"	43	"T4S,R2W"	"45°22'30""N,123°00'00""E"
Willamette	20	Sherwood	Clackamas	OR	River Mile 103.8	NA	"T3S,R1W"	"45°22'30""N,122°52'30""E"
Willamette	21	Sherwood	Clackamas	OR	River Mile 102.2	NA	"T3S,R1W"	"45°22'30""N,122°52'30""E"
Willamette	22	Canby	Clackamas	OR	"SW,SE,SE,NE"	20	"T3S,R1E"	"45°22'30""N,122°45'00""E"
Willamette	23	Canby	Clackamas	OR	"SE,SE,SW,SW"	22	"T3S,R1E"	"45°22'30""N,122°45'00""E"
Willamette	24	Canby	Clackamas	OR	Mile 27.6	NA	"T3S,R1E"	"45°22'30""N,122°45'00""E"
Willamette	25	Sauvie Island	Multnomah	OR	"NW,S E,NE,NE"	20	"T2N,R1W"	"45°45'00""N,122°52'30""E"
Willamette	26	Sauvie Island	Multnomah	OR	"SE,SE,NE,NE"	58	"T2N,R1W"	"45°45'00""N,122°52'30""E"
Willamette	27	Sauvie Island	Multnomah	OR	Mile 15.1	NA	"T2N,R1W"	"45°45'00""N,122°52'30""E"
Willamette	28	Sauvie Island	Multnomah	OR	"SE,NE,NE,SE"	25	"T3N,R2W"	"45°45'00""N,122°52'30""E"
John Day	01	Harmony	Sherman	OR	"SW,SE,SE,NW"	24	"T2S,R18E"	"45°30'00""N,120°37'30""E"
John Day	02	Esau Canyon	Sherman	OR	Mile 43.5	31	"T1S,R19E"	"45°30'00""N,120°30'00""E"
John Day	03	Esau Canyon	Sherman	OR	"NE,SE,SW,SW"	17	"T1S,R19E"	"45°30'00""N,120°30'00""E"
John Day	04	Esau Canyon	Sherman	OR	"SE,SW,SW,NW"	23	"T1S,R19E"	"45°30'00""N,120°30'00""E"
John Day	05	Esau Canyon	Sherman	OR	"NE,NW,NE,SW"	12	"T1S,R19E"	"45°30'00""N,120°30'00""E"

TABLE A.1. (contd)

John Day	06	Turner Butte	Sherman	OR	"SE,NE,NW,NE"	31	"T1N,R20E"	"45°37'30""N,120°22'30""E"
John Day	07	McDonald	Sherman	OR	"NE,NE,NE,NW"	25	"T1N,R19E"	"45°37'30""N,120°30'00""E"
John Day	08	McDonald	Sherman	OR	"SE,SW,SW,NE"	14	"T1N,R19E"	"45°37'30""N,120°30'00""E"
John Day	09	McDonald	Sherman	OR	"SE,SW,SE,SW"	02	"T1N,R19E"	"45°37'30""N,120°30'00""E"
John Day	10	Sundale	Sherman	OR	"NE,SE,NW,SE"	19	"T2N,R19E"	"45°45'00""N,120°30'00""E"
Umatilla	01	Stanfield	Umatilla	OR	"NW,SE,SW,SE"	05	"T3N,R29E"	"45°52'30""N,119°15'00""E"
Umatilla	02	Hermiston	Umatilla	OR	"SW,SW,SW,SE"	28	"T4N,R28E"	"45°52'30""N,119°22'30""E"
Umatilla	03	Hermiston	Umatilla	OR	"SW,NW,NW,SE"	20	"T4N,R28E"	"45°52'30""N,119°22'30""E"
Umatilla	04	Hermiston	Umatilla	OR	"SE,SE,SE,SE"	08	"T4N,R28E"	"45°52'30""N,119°22'30""E"
Umatilla	05	Hermiston	Umatilla	OR	"NE,SE,SE,SW"	33	"T5N,R28E"	"45°52'30""N,119°22'30""E"
Umatilla	06	Umatilla	Umatilla	OR	"NE,SW,SW,NW"	21	"T5N,R28E"	"46°00'00""N,119°22'30""E"
Columbia(HR)	01	Priest Rapids	Grant (Yakima)	WA	"SE,NE,SE,NE"	11	"T13N,R23E"	"46°45'00""N,120°00'00""E"
Columbia	02	Pst Rpds NE	Grant (Benton)	WA	"NE,NE,SW,NE"	02	"T13N,R24E"	"46°45'00""N,119°52'30""E"
Columbia	03	Pst Rpds NE	Grant (Benton)	WA	"SW,NE,NW,SW"	08	"T13N,R24E"	"46°45'00""N,119°52'30""E"
Columbia	04	Vernita Brdge	Grant (Benton)	WA	"NE,SW,NW,NW"	03	"T13N,R25E"	"46°45'00""N,119°45'00""E"
Columbia	05	Vernita Brdge	Grant (Benton)	WA	"NE,SE,NW,SE"	06	"T13N,R25E"	"46°45'00""N,119°45'00""E"
Columbia	06	Coyote Rapids	Grant (Benton)	WA	"NW,NE,NE,NE"	14	"T14N,R26E"	"46°45'00""N,119°37'30""E"
Columbia	07	Coyote Rapids	Grant (Benton)	WA	"NE,SW,NE,NW"	06	"T13N,R26E"	"46°45'00""N,119°37'30""E"
Columbia	08	Coyote Rapids	Grant (Benton)	WA	"NW,NE,SE,SW"	21	"T14N,R26E"	"46°45'00""N,119°37'30""E"
Columbia	09	Locke Island	Grant (Benton)	WA	"NE,SW,NW,SW"	07	"T14N,R27E"	"46°45'00""N,119°30'00""E"
Columbia	10	Locke Island	Benton (Franklin)	WA	"SW,NE,SW,NE"	29	"T14N,R27E"	"46°45'00""N,119°30'00""E"
Columbia	11	Locke Island	Benton (Franklin)	WA	"SW,NE,NW,NE"	10	"T13N,R27E"	"46°45'00""N,119°30'00""E"
Columbia	12	Hanford	Benton (Franklin)	WA	"NE,SE,SE,NW"	25	"T13N,R27E"	"46°37'30""N,119°30'00""E"
Columbia	13	Savage Island	Benton (Franklin)	WA	"SE,NE,NW,SE"	32	"T13N,R28E"	"46°37'30""N,119°22'30""E"

TABLE A.1. (contd)

Columbia	14	Savage Island	Benton (Franklin)	WA	"NE,SE,NW,SE"	23	"T12N,R28E"	"46°37'30""N,119°22'30""E"
Columbia	15	Wooded Island	Benton (Franklin)	WA	"SE,SW,NW,NW"	36	"T12N,R28E"	"46°30'00""N,119°22'30""E"
Columbia	16	Wooded Island	Benton (Franklin)	WA	"SW,SW,SW,SW"	13	"T11N,R28E"	"46°30'00""N,119°22'30""E"
Columbia	17	Wooded Island	Benton (Franklin)	WA	"NE,NW,NE,SE"	01	"T10N,R28E"	"46°30'00""N,119°22'30""E"
Columbia	18	Richland	Benton (Franklin)	WA	"SW,NW,NE,SW"	13	"T10N,R28E"	"46°22'30""N,119°22'30""E"
Columbia	19	Columbia Pt	Benton (Franklin)	WA	"SE,NW,NW,SE"	25	"T10N,R29E"	"46°22'30""N,119°15'00""E"
Columbia	20	Richland	Benton (Franklin)	WA	"NE,SE,NE,SE"	12	"T9N,R28E"	"46°22'30""N,119°22'30""E"
Columbia	21	Columbia Pt	Benton (Franklin)	WA	"NW,SE,NW,SW"	18	"T9N,R29E"	"46°22'30""N,119°15'00""E"
Lower Colum.	01	Rainier	Columbia	OR	"NW,NE,SW,NW"	23	"T7N,R2W"	"46°07'30""N,123°00'00""E"
Lower Colum.	02	Rainier	Columbia	OR	"NW,SW,NW,NE"	07	"T7N,R2W"	"46°07'30""N,123°00'00""E"
Lower Colum.	03	Kalama	Columbia	OR	"SE,NE,NW,SE"	12	"T6N,R2W"	"46°07'30""N,122°52'30""E"
Lower Colum.	04	Deer Island	Cowlitz	WA	"SE,SE,NW,NW"	53	"T5N,R1W"	"46°00'00""N,122°52'30""E"
Lower Colum.	05	Deer Island	Columbia	OR	"NE,SW,NW,SE"	29	"T6N,R1W"	"46°00'00""N,122°52'30""E"
Lower Colum.	06	St. Helens	Columbia	OR	"NE,NE,SW,SE"	02	"T3N,R1W"	"45°52'30""N,122°52'30""E"
Lower Colum.	07	St. Helens	Columbia	OR	"SE,SW,NE,SW"	22	"T4N,R1W"	"45°52'30""N,122°52'30""E"
Lower Colum.	08	Coal Creek	Columbia	OR	"NE,SE,NE,SW"	34	"T8N,R3W"	"46°15'00""N,123°07'30""E"
Lower Colum.	09	Coal Creek	Columbia	OR	"SE,SE,NE,NW"	19	"T8N,R3W"	"46°15'00""N,123°07'30""E"
Lower Colum.	10	Coal Creek	Cowlitz	WA	"NW,SW,SE,SW"	16	"T8N,R3W"	"46°15'00""N,123°07'30""E"
Lower Colum.	11	Oak Point	Cowlitz	WA	"NW,SE,SE,NE"	39	"T8N,R4W"	"46°15'00""N,123°15'00""E"
Lower Colum.	12	Oak Point	Wahkiakum	WA	"SW,NW,NW,NW"	24	"T8N,R4W"	"46°15'00""N,123°15'00""E"
Lower Colum.	13	Nassa Point	Columbia	OR	"NE,NW,NW,SW"	35	"T8N,R5W"	"46°15'00""N,123°22'30""E"
Lower Colum.	14	Nassa Point	Columbia	OR	"NW,SW,NE,NW"	32	"T8N,R5W"	"46°15'00""N,123°22'30""E"
Lower Colum.	15	Nassa Point	Wahkiakum	WA	"NW,NE,NW,NW"	20	"T8N,R5W"	"46°15'00""N,123°22'30""E"
Lower Colum.	16	Cathlamet	Wahkiakum	WA	"SW,SW,SE,NE"	16	"T8N,R6W"	"46°15'00""N,123°30'00""E"
Lower Colum.	17	Cathlamet	Wahkiakum	WA	"NW,NW,NW,SE"	11	"T8N,R6W"	"46°15'00""N,123°30'00""E"
Lower Colum.	18	Cathlamet	Clatsop	OR	"NW,NE,NE,NE"	06	"T8N,R6W"	"46°15'00""N,123°30'00""E"
Lower Colum.	19	Skamokawa	Wahkiakum	WA	"NE,SE,NE,NE"	18	"T9N,R6W"	"46°22'30""N,123°30'00""E"
Lower Colum.	20	Grays River	Wahkiakum	WA	"SW,SE,SE,NW"	16	"T9N,R7W"	"46°22'30""N,123°37'30""E"
Lower Colum.	21	Grays River	Wahkiakum	WA	"NE,NE,SE,SW"	13	"T9N,R8W"	"46°22'30""N,123°37'30""E"
Lower Colum.	22	Knappa	Clatsop	OR	"SE,SW,SE,NW"	26	"T9N,R7W"	"46°15'00""N,123°37'30""E"

TABLE A.1. (contd)

Colum. Dams	01	Grand Coulee	Grant (Lincoln)	WA	"SE,SW,SE,--"	36	"T29N,R30E" "48°00'00""N,119°00'00""E"
Colum. Dams	02	Bridgeport15'	Okanogan (Douglas)	WA	"SE,NE,NW,--"	23	"T29N,R25E" "48°15'00""N,119°45'00""E"
Colum. Dams	03	Wells Dam	Chelan (Douglas)	WA	"NE,SW,NE,NE"	20	"T28N,R24E" "48°00'00""N,119°52'30""E"
Colum. Dams	04	Rocky Reach	Chelan (Douglas)	WA	"SW,SE,SW,NW"	02	"T23N,R20E" "47°37'30""N,120°22'30""E"
Colum. Dams	05	Beverly	Kittitas (Grant)	WA	"SW,NW,NE,NE"	20	"T16N,R23E" "46°52'30""N,120°00'00""E"
Colum. Dams	06	Priest Rapids	Grant (Yakima)	WA	"SW,SE,SW,SE"	02	"T13N,R23E" "46°45'00""N,120°00'00""E"
Colum. Dams	07	Umatilla	Umatilla	OR	"SW,NE,SW,NW"	09	"T5N,R28E" "46°00'00""N,119°22'30""E"
Colum. Dams	08	The Dalles S.	Benton WA Klickitat	WA	"SE,NW,SW,SE"	35	"T2N,R13E" "45°37'30""N,121°15'00""E"
Colum. Dams	09	Bonneville	Wasco OR Skamania	WA	"SW,NW,NE,SW"	21	"T2N,R7E" "45°45'00""N,122°00'00""E"
Spokane	01	Little Falls	Multnomah OR Stevens (Lincoln)	WA	"NW,SE,NE,SW"	24	"T27N,R38E" "47°52'30""N,118°00'00""E"
Spokane	02	Little Falls	Stevens (Lincoln)	WA	"NW,NW,SW,NE"	20	"T27N,R39E" "47°52'30""N,118°00'00""E"
Spokane	03	Long Lake	Stevens (Lincoln)	WA	"SE,NW,NW,SE"	14	"T27N,R39E" "47°52'30""N,117°52'30""E"
Spokane	04	Greenacres	Spokane	WA	"NW,SW,NE,SW"	03	"T25N,R44E" "47°45'00""N,117°15'00""E"
Spokane	05	Greenacres	Spokane	WA	"SW,SE,SW,SW"	12	"T25N,R44E" "47°45'00""N,117°15'00""E"
Spokane	06	Liberty Lake	Spokane	WA	"SW,SW,NE,SE"	02	"T25N,R45E" "47°45'00""N,117°07'30""E"
Spokane	07	Liberty Lake	Spokane	WA	"SW,NE,NW,NW"	06	"T25N,R46E" "47°45'00""N,117°07'30""E"
Spokane	08	Liberty Lake	Kootenai	ID	"SW,NE,NE,SE"	07	"T50N,R6W" "47°45'00""N,117°07'30""E"
Spokane	09	Greenacres	Spokane	WA	"SW,SW,NE,SE"	12	"T25N,R44E" "47°45'00""N,117°15'00""E"
Spokane	10	Greenacres	Spokane	WA	"NW,NW,NW,SW"	08	"T25N,R45E" "47°45'00""N,117°15'00""E"
Spokane (Coeur D' Alene)	11	Kellogg West	Shoshone	ID	"SE,NE,SW,NW"	08	"T49N,R2E" "47°37'30""N,116°15'00""E"
Spokane (Coeur D' Alene)	12	Steamboat Cr	Shoshone	ID	"SW,SE,SW,NW"	26	"T50N,R2E" "47°45'00""N,116°15'00""E"
Spokane (Coeur D' Alene)	13	Steamboat Cr	Shoshone	ID	"NW,SW,SW,SE"	24	"T50N,R2E" "47°45'00""N,116°15'00""E"

TABLE A.1. (contd)

Spokane (Coeur D' Alene)	14	Lane	Kootenai	ID	"SW,NW,SE,NW"	07	"T48N,R1W"	"47°37'30""N,116°37'30""E"
Spokane (Coeur D' Alene)	15	Rose Lake	Kootenai	ID	"SE,SW,SW,NE"	05	"T48N,R1W"	"47°37'30""N,116°30'00""E"
Spokane (Coeur D' Alene)	16	Rose Lake	Kootenai	ID	"SW,NE,NE,NW"	02	"T48N,R1W"	"47°37'30""N,116°30'00""E"
Spokane (Coeur D' Alene)	17	Cataldo	Kootenai	ID	"NE,NW,NE,SE"	33	"T49N,R1E"	"47°37'30""N,116°22'30""E"
Spokane (Coeur D' Alene)	18	Cataldo	Shoshone	ID	"SE,NE,SW,NW"	31	"T49N,R2E"	"47°37'30""N,116°22'30""E"
Spokane (Coeur D' Alene)	19	Kellogg West	Shoshone	ID	"NE,SE,NW,SW"	35	"T49N,R2E"	"47°37'30""N,116°15'00""E"
Spokane (St Maries)	20	Fernwood 15'	Benewah	ID	"NW,SE,NW,--"	08	"T44N,R1W"	"47°15'00""N,116°30'00""E"
Spokane (St Maries)	21	Fernwood 15'	Benewah	ID	"NE,NE,NW,--"	26	"T44N,R1W"	"47°15'00""N,116°30'00""E"
Spokane (St Maries)	22	LindstromPk	Benewah	ID	"SE,NW,SW,NE"	35	"T45N,R2W"	"47°15'00""N,116°37'30""E"
Spokane (St Maries)	23	LindstromPk	Benewah	ID	"NW,NE,SE,SW"	20	"T45N,R2W"	"47°15'00""N,116°37'30""E"
Spokane (St Maries)	24	St. Maries	Benewah	ID	"SE,SW,SE,NW"	09	"T45N,R2W"	"47°22'30""N,116°37'30""E"
Spokane (St Maries)	25	St. Maries	Benewah	ID	"SW,NW,SW,NW"	25	"T46N,R2W"	"47°22'30""N,116°37'30""E"
Spokane (St Joe)	26	St. Joe	Shoshone	ID	"NE,SW,SW,NW"	24	"T46N,R1E"	"47°22'30""N,116°22'30""E"
Spokane (St Joe)	27	St. Joe	Shoshone	ID	"NW,NW,NE,NW"	06	"T45N,R2E"	"47°22'30""N,116°22'30""E"
Spokane (St Joe)	28	St. Joe	Benewah	ID	"SW,SE,NW,SW"	21	"T46N,R1E"	"47°22'30""N,116°22'30""E"
Spokane (St Joe)	29	St. Joe Baldy	Benewah	ID	"SE,SE,NE,NE"	24	"T46N,R1W"	"47°22'30""N,116°30'00""E"
Spokane (St Joe)	30	St. Joe Baldy	Benewah	ID	"NE,NE,NE,NW"	16	"T46N,R1W"	"47°22'30""N,116°30'00""E"
Spokane (St Joe)	31	St. Maries	Benewah	ID	"SE,SE,SE,SE"	12	"T46N,R2W"	"47°22'30""N,116°37'30""E"
Spokane (St Joe)	32	St. Maries	Benewah	ID	"SE,SE,NW,SE"	16	"T46N,R2W"	"47°22'30""N,116°37'30""E"

TABLE A.1. (contd)

Spokane (St Joe)	33	Benewah Lake	Benewah	ID	"NE,NW,NW,SW"	12	"T46N,R3W"	"47°22'30""N,116°45'00""E"
Spokane (Coeur D' Alene)	34	Kellogg West	Shoshone	ID	"NE,NW,NW,SW"	03	"T49N,R2E"	"47°37'30""N,116°15'00""E"
Malheur	01	Winnemuc.Cr	Malheur	OR	"SW,SW,NE,SW"	19	"T23S,R37E"	"43°37'30""N,118°15'00""E"
Malheur	02	Winnemuc.Cr	Malheur	OR	"NW,NW,SW,SE"	23	"T23S,R37E"	"43°37'30""N,118°15'00""E"
Malheur	03	Juntura	Malheur	OR	"SW,SE,SE,NE"	29	"T21S,R38E"	"43°45'00""N,118°07'30""E"
Malheur	04	Juntura	Malheur	OR	"NE,SW,SE,NE"	20	"T21S,R38E"	"43°45'00""N,118°07'30""E"
Malheur	05	Beulah 15'	Malheur	OR	"NW,SW,NE,--"	10	"T21S,R38E"	"44°00'00""N,118°15'00""E"
Malheur	06	Wstfall Bt15'	Malheur	OR	"NE,SE,SW,--"	29	"T20S,R39E"	"44°00'00""N,118°00'00""E"
Malheur	07	Wstfall Bt15'	Malheur	OR	"SE,SE,SW,--"	25	"T20S,R39E"	"44°00'00""N,118°00'00""E"
Malheur	08	Wstfall Bt15'	Malheur	OR	"NE,NE,NE,--"	10	"T21S,R40E"	"44°00'00""N,118°00'00""E"
Malheur	09	Harper 15'	Malheur	OR	"SE,SW,NE,--"	23	"T20S,R41E"	"44°00'00""N,117°45'00""N"
Malheur	10	Harper 15'	Malheur	OR	"NW,SW,SW,--"	26	"T19S,R42E"	"44°00'00""N,117°45'00""N"
Malheur	11	Vines Hill	Malheur	OR	"NE,NW,SE,SE"	01	"T19S,R43E"	"44°00'00""N,117°30'00""E"
Malheur	12	Vale West	Malheur	OR	"NE,NE,NE,NE"	07	"T19S,R44E"	"44°00'00""N,117°22'30""E"
Malheur	13	Vale East	Malheur	OR	"SE,SW,NE,SW"	22	"T18S,R45E"	"44°00'00""N,117°15'00""E"
Lower Owyhee	01	Owyhee Dam	Malheur	OR	"SW,NE,SE,SW"	17	"T22S,R45E"	"43°45'00""N,117°15'00""E"
Lower Owyhee	02	Owyhee Dam	Malheur	OR	"NW,NE,NW,NW"	10	"T22S,R45E"	"43°45'00""N,117°15'00""E"
Lower Owyhee	03	Owyhee Dam	Malheur	OR	"SW,SE,SE,SE"	14	"T21S,R45E"	"43°45'00""N,117°15'00""E"
Lower Owyhee	04	Mitchell But.	Malheur	OR	"NE,SW,NW,SW"	07	"T21S,R46E"	"43°52'30""N,117°15'00""E"
Lower Owyhee	05	Owyhee	Malheur	OR	"NE,NW,SE,NE"	03	"T21S,R47E"	"43°52'30""N,117°07'30""E"
Lower Owyhee	06	Owyhee	Malheur	OR	"NE,NE,SE,SE"	35	"T20S,R47E"	"43°52'30""N,117°07'30""E"
Clark Fork	01	Tarkio	Tarkio	MT	"NW,NW,NE,NE"	32	"T15N,R24W"	"47°07'30""N,114°45'00""E"
Clark Fork	02	Tarkio	Tarkio	MT	"SE,NE,SW,NE"	34	"T15N,R25W"	"47°07'30""N,114°45'00""E"
Clark Fork	03	Lozeau	Mineral	MT	"SW,SW,SW,SE"	16	"T15N,R25W"	"47°07'30""N,114°52'30""E"
Clark Fork	04	Lozeau	Mineral	MT	"NW,NW,NE,SE"	29	"T16N,R25W"	"47°07'30""N,114°52'30""E"
Clark Fork	05	Lozeau	Mineral	MT	"SE,NW,SW,SE"	28	"T15N,R25W"	"47°07'30""N,114°52'30""E"
Clark Fork	06	Idaho Gulch	Missoula	MT	"SE,SW,SE,NW"	20	"T16N,R25W"	"47°15'00""N,114°52'30""E"
Clark Fork	07	Idaho Gulch	Mineral	MT	"SE,NW,SE,SE"	03	"T16N,R26W"	"47°15'00""N,114°52'30""E"
Clark Fork	08	Superior	Mineral	MT	"SE,NW,NE,SW"	29	"T17N,R26W"	"47°15'00""N,115°00'00""E"
Clark Fork	09	Superior	Mineral	MT	"NW,SE,SW,SW"	18	"T17N,R26W"	"47°15'00""N,115°00'00""E"
Clark Fork	10	IL Peak 15'	Mineral	MT	"NW,NW,NW,--"	16	"T17N,R27W"	"47°15'00""N,115°15'00""E"
Clark Fork	11	St. Regis 15'	Mineral	MT	"SE,NE,SW,--"	19	"T18N,R27W"	"47°30'00""N,115°15'00""E"
Clark Fork	12	St. Regis 15'	Mineral	MT	"SW,SE,ME,--"	10	"T18N,R27W"	"47°30'00""N,115°15'00""E"
Clark Fork	13	Plains 15'	Sanders	MT	"NW,NW,NE,--"	07	"T18N,R26W"	"47°30'00""N,115°00'00""E"
Clark Fork	14	Plains 15'	Sanders	MT	"SW,NE,SE,--"	14	"T18N,R26W"	"47°30'00""N,115°00'00""E"

TABLE A.1. (contd)

Clark Fork (Flathead)	15	Perma	Sanders	MT	"SE,SE,NW,SE"	04	"T18N,R23W"	"47°22'30""N,114°37'30""E"
Clark Fork (Flathead)	16	Perma	Sanders	MT	"NE,SE,NE,NW"	31	"T19N,R23W"	"47°22'30""N,114°37'30""E"
Clark Fork (Flathead)	18	Knowles	Sanders	MT	"SE,SE,SW,NE"	09	"T18N,R24W"	"47°22'30""N,114°45'00""E"
Clark Fork (Flathead)	19	Knowles	Sanders	MT	"NE,NW,SW,SW"	06	"T18N,R24W"	"47°22'30""N,114°45'00""E"
Clark Fork	20	Plains 15'	Sanders	MT	"NE,NE,NE,--"	29	"T19N,R25W"	"47°30'00""N,115°00'00""E"
Clark Fork	21	Plains 15'	Sanders	MT	"NW,NE,NE,--"	04	"T18N,R25W"	"47°30'00""N,115°00'00""E"
Clark Fork	22	Plains 15'	Sanders	MT	"NW,NE,NW,--"	34	"T20N,R26W"	"47°30'00""N,115°00'00""E"
Clark Fork	23	Weeksville	Sanders	MT	"NE,NE,NW,SE"	08	"T20N,R26W"	"47°34'30""N,115°00'00""E"
Clark Fork	24	Big Hole Peak	Sanders	MT	"SW,SE,SE,NW"	04	"T20N,R27W"	"47°37'30""N,115°07'30""E"
Clark Fork	25	Big Hole Peak	Sanders	MT	"SW,SW,SE,SE"	30	"T21N,R27W"	"47°37'30""N,115°07'30""E"
Clark Fork	26	Eddy Mtn	Sanders	MT	"NE,SE,SE,NE"	22	"T21N,R28W"	"47°37'30""N,115°15'00""E"
Clark Fork	27	Eddy Mtn	Sanders	MT	"NW,NW,SE,NW"	16	"T21N,R28W"	"47°37'30""N,115°15'00""E"
Kootenai	01	Alexander Mtn	Lincoln	MT	"SE,NE,SW,SW"	33	"T31N,R29W"	"48°30'00""N,115°22'30""E"
Kootenai	02	Tony Peak	Lincoln	MT	"NE,SE,SW,NW"	17	"T30N,R29W"	"48°22'30""N,115°22'30""E"
Kootenai	03	Swede Mtn.	Lincoln	MT	"SE,NE,SE,SE"	09	"T30N,R30W"	"48°22'30""N,115°30'00""E"
Kootenai	04	Vermicul Mtn	Lincoln	MT	"SE,SE,NW,SE"	30	"T31N,R30W"	"48°30'00""N,115°30'00""E"
Kootenai	05	Libby	Lincoln	MT	"NW,SE,SE,SW"	19	"T31N,R31W"	"48°30'00""N,115°37'30""E"
Kootenai	06	Scenery Mtn.	Lincoln	MT	"SW,NE,SE,SW"	14	"T31N,R33W"	"48°30'00""N,115°45'00""E"
Kootenai	07	Kootenai Falls	Lincoln	MT	"SE,SW,NE,SE"	15	"T31N,R33W"	"48°30'00""N,115°52'30""E"
Kootenai	08	Kootenai Falls	Lincoln	MT	"SE,NW,NW,SE"	18	"T31N,R33W"	"48°30'00""N,115°52'30""E"
Kootenai	09	Troy	Lincoln	MT	"NW,SW,SE,NW"	35	"T32N,R34W"	"48°30'00""N,116°00'00""E"
Kootenai	10	Kilbren. Lake	Lincoln	MT	"SE,NE,SW,SE"	16	"T32N,R34W"	"48°37'30""N,116°00'00""E"
Kootenai	11	Kilbren. Lake	Lincoln	MT	"NW,NE,NW,SE"	05	"T32N,R34W"	"48°37'30""N,116°00'00""E"
Kootenai	12	Leonia	Lincoln	MT	"SW,NW,NW,NW"	20	"T33N,R34W"	"48°37'30""N,116°07'30""E"
Kootenai	13	Moyie Sprngs	Boundary	ID	"NW,NE,SW,SE"	20	"T62N,R2E"	"48°45'00""N,116°15'00""E"
Kootenai	14	BonnersFerry	Boundary	ID	"NW,SE,SW,SW"	20	"T62N,R1E"	"48°45'00""N,116°22'30""E"
Kootenai	15	Moravia	Boundary	ID	"SW,NW,NE,SW"	18	"T62N,R1E"	"48°45'00""N,116°30'00""E"
Kootenai	16	Farnham Peak	Boundary	ID	"NE,NE,NW,SE"	07	"T63N,R1E"	"48°52'30""N,116°30'00""E"
Kootenai	17	Farnham Peak	Boundary	ID	"NW,NW,NE,NE"	36	"T64N,R1W"	"48°52'30""N,116°30'00""E"
Kootenai	18	Copeland	Boundary	ID	"SE,SE,SW,SE"	12	"T64N,R1W"	"49°00'00""N,116°30'00""E"
Kootenai	19	Copeland	Boundary	ID	"SW,NE,NE,SW"	04	"T64N,R1W"	"49°00'00""N,116°30'00""E"
Kootenai	20	Copeland	Boundary	ID	"SW,SE,SW,SE"	20	"T65N,R1W"	"49°00'00""N,116°30'00""E"
Kootenai	21	Smith Falls	Boundary	ID	"SW,SE,NE,SW"	07	"T65N,R1W"	"49°00'00""N,116°37'30""E"
Clearwater	01	Selway Falls	Idaho	ID	"46°01'47""N,115°17'12""E"	NA	NA	"46°07'30""N,115°22'30""E"

TABLE A.1. (contd)

Clearwater	02	Selway Falls	Idaho	ID	River Mile 117.5	NA	NA	"46°07'30""N,115°22'30""E"
Clearwater	03	Selway Falls	Idaho	ID	River Mile 113.0	NA	NA	"46°07'30""N,115°22'30""E"
Clearwater	04	Stillman Point	Idaho	ID	River Mile 110.5	NA	NA	"46°07'30""N,115°30'00""E"
Clearwater	05	Stillman Point	Idaho	ID	River Mile 106.3	NA	NA	"46°07'30""N,115°30'00""E"
Clearwater	06	Goddard Point	Idaho	ID	"NE,SE,SW,NE"	25	"T32N,R7E"	"46°07'30""N,115°37'30""E"
Clearwater	07	Goddard Point	Idaho	ID	"SE,SE,SE,NE"	16	"T32N,R7E"	"46°07'30""N,115°37'30""E"
Clearwater	08	McLendonButte	Idaho	ID	River Mile 19.0	NA	NA	"46°22'30""N,115°30'00""E"
Clearwater	09	Coolwater Mtn.	Idaho	ID	River Mile 15.3	NA	NA	"46°15'00""N,115°30'00""E"
Clearwater	10	Coolwater Mtn.	Idaho	ID	River Mile 15.4	NA	NA	"46°15'00""N,115°30'00""E"
Clearwater	11	Coolwater Mtn.	Idaho	ID	River Mile 11.1	NA	NA	"46°15'00""N,115°30'00""E"
Clearwater	12	Lowell	Idaho	ID	"NW,NW,NW,SW"	12	"T33N,R7E"	"46°15'00""N,115°37'30""E"
Clearwater	13	Lowell	Idaho	ID	"NW,NW,SE,SW"	22	"T33N,R7E"	"46°15'00""N,115°37'30""E"
Clearwater	14	Lowell	Idaho	ID	"SW,SE,NE,NW"	33	"T33N,R7E"	"46°15'00""N,115°37'30""E"
Clearwater	15	Lowell	Idaho	ID	"SE,SW,SE,SW"	04	"T32N,R7E"	"46°15'00""N,115°37'30""E"
Clearwater	16	Lowell	Idaho	ID	"NE,NW,NE,NE"	07	"T32N,R7E"	"46°15'00""N,115°37'30""E"
Clearwater	17	Syringa	Idaho	ID	"NE,SE,SE,SE"	03	"T32N,R6E"	"46°15'00""N,115°45'00""E"
Clearwater	18	Syringa	Idaho	ID	"SW,NE,NW,SW"	03	"T32N,R6E"	"46°15'00""N,115°45'00""E"
Clearwater	19	Glenwood	Idaho	ID	"NW,NE,NW,NE"	11	"T32N,R5E"	"46°15'00""N,115°52'30""E"
Clearwater	20	Glenwood	Idaho	ID	"SW,NE,NE,SW"	05	"T32N,R5E"	"46°15'00""N,115°52'30""E"
Clearwater	21	Kooskia	Idaho	ID	"NW,NE,NW,NE"	35	"T32N,R4E"	"46°15'00""N,116°00'00""E"
Clearwater	22	Kooskia	Idaho	ID	"NW,SE,NE,SW"	04	"T32N,R4E"	"46°15'00""N,116°00'00""E"
Clearwater	23	Kamiah	Idaho	ID	"NW,NE,SW,SE"	13	"T33N,R3E"	"46°15'00""N,116°07'30""E"
Clearwater	24	Kamiah	Lewis	ID	"NE,SW,SW,SW"	36	"T34N,R3E"	"46°15'00""N,116°07'30""E"
Clearwater	25	Woodland	Lewis	ID	"SW,SE,SE,SE"	27	"T34N,R3E"	"46°22'30""N,116°07'30""E"
Clearwater	26	Woodland	Lewis	ID	"SW,SW,SW,NW"	17	"T34N,R3E"	"46°22'30""N,116°07'30""E"
Clearwater	27	Sixmile Cr	Lewis	ID	"SE,NE,NE,NE"	01	"T34N,R2E"	"46°22'30""N,116°15'00""E"
Clearwater	28	Sixmile Cr	Lewis	ID	"SE,SE,SW,NE"	23	"T35N,R2E"	"46°22'30""N,116°15'00""E"
Clearwater	29	Orofino East	Lewis (Clearwater)	ID	"SE,NW,NE,SE"	33	"T36N,R2E"	"46°30'00""N,116°15'00""E"
Clearwater	30	Orofino East	Clearwater	ID	"SW,SE,NW,SE"	17	"T36N,R2E"	"46°30'00""N,116°15'00""E"
Lower Snake	01	Captain John Rapids	Asotin Nez Perce	WA ID	"SE,SE,SW,SE"	--	"T9N,R47E"	"46°15'00""N,117°00'00""E"
Lower Snake	02	Captain John Rapids	Asotin Nez Perce	WA ID	"SE,SW,NW,SE"	08	"T8N,R47E"	"46°15'00""N,117°00'00""E"
Lower Snake	03	Captain John Rapids	Asotin Nez Perce	WA ID	"NW,SE,NW,SW"	02	"T32N,R5W"	"46°15'00""N,117°00'00""E"
Lower Snake	04	Captain John Rapids	Asotin Nez Perce	WA ID	"SW,SW,SE,NW"	32	"T8N,R47E"	"46°15'00""N,117°00'00""E"

TABLE A.1. (contd)

Lower Snake	05	Limekiln Rpds	Asotin Nez Perce	WA ID	"SW,SE,NW,SE"	21	"T32N,R5W"	"46°07'30""N,117°00'00""E"
Lower Snake	06	Limekiln Rpds	Asotin Nez Perce	WA ID	"SE,SW,NE,NE"	33	"T32N,R5W"	"46°07'30""N,117°00'00""E"
Lower Snake	07	Limekiln Rpds	Asotin Nez Perce	WA ID	"SW,NW,NE,SW"	34	"T32N,R5W"	"46°07'30""N,117°00'00""E"
Lower Snake	08	Limekiln Rpds	Asotin Nez Perce	WA ID	"SW,SW,NE,SW"	04	"T6N,R47E"	"46°07'30""N,117°00'00""E"
Lower Snake	09	Limekiln Rpds	Asotin Nez Perce	WA ID	"NW,SE,SE,NE"	26	"T31N,R5W"	"46°07'30""N,117°00'00""E"
Lower Snake	10	Jim Cr Butte	Nez Perce Wallowa	ID OR	"SE,SW,NE,NW"	36	"T31N,R5W"	"46°00'00""N,117°00'00""E"
Lower Snake	11	Jim Cr Butte	Nez Perce	ID	"NW,SW,NE,SE"	36	"T31N,R5W"	"46°00'00""N,117°00'00""E"
Lower Snake	12	Wapshilla Cr	Nez Perce Wallowa	ID OR	"SE,NW,SW,SW"	29	"T30N,R4W"	"46°00'00""N,,116°52'30""E"
Lower Snake	13	Wapshilla Cr	Nez Perce Wallowa	ID OR	"NW,NW,SE,SW"	33	"T30N,R4W"	"46°00'00""N,,116°52'30""E"
Lower Snake	14	DeadhorseRdge	Nez Perce Wallowa	OR OR	"SW,SW,SE,SW"	11	"T29N,R4W"	"45°52'30""N,116°52'30""E"
Lower Snake	15	DeadhorseRdge	Idaho Wallowa	ID OR	"NE,NE,SW,SE"	25	"T29N,R4W"	"45°52'30""N,116°52'30""E"
Lower Snake	16	DeadhorseRdge	Idaho Wallowa	ID OR	"NE,NE,SW,SE"	25	"T29N,R4W"	"45°52'30""N,116°52'30""E"
Lower Snake	17	Cactus Mtn.	Idaho Wallowa	ID OR	"NE,SE,NE,SE"	28	"T29N,R3W"	"45°52'30""N,116°45'00""E"
Lower Snake	18	Cactus Mtn.	Idaho Wallowa	ID OR	"SE,SW,NE,NW"	34	"T29N,R3W"	"45°52'30""N,116°45'00""E"
Lower Snake	19	Cactus Mtn.	Idaho Wallowa	ID OR	"SW,SE,SW,NW"	12	"T28N,R3W"	"45°52'30""N,116°45'00""E"
Lower Snake	20	Wolf Creek	Idaho Wallowa	ID OR	"SE,SE,NE,NE"	07	"T28N,R2W"	"45°52'30""N,116°37'30""E"
Lower Snake	21	Wolf Creek	Idaho Wallowa	ID OR	"NE,NW,SE,NE"	04	"T3N,R50E"	"45°52'30""N,116°37'30""E"
Lower Snake	22	Wolf Creek	Idaho Wallowa	ID OR	"NE,SE,SW,NW"	15	"T28N,R2W"	"45°52'30""N,116°37'30""E"
Lower Snake	23	Wolf Creek	Idaho Wallowa	ID OR	"SE,SE,NW,NW"	23	"T28N,R2W"	"45°52'30""N,116°37'30""E"

TABLE A.1. (contd)

Lower Snake	24	Grave Point	Idaho Wallowa	ID OR	"NW,NW,NW,NE"	20	"T2N,R51E"	"45°45'00""N,116°30'00""E"
Lower Snake	25	Grave Point	Idaho Wallowa	ID OR	"NE,SW,SW,NE"	25	"T27N,R1W"	"45°45'00""N,116°30'00""E"
Lower Snake	26	Cuprum 15'	Adams Wallowa	ID OR	"SE,NW,NE,--"	28	"T22N,R3W"	"45°15'00""N,116°45'00""E"
Lower Snake	27	Cuprum 15'	Adams Wallowa	ID OR	"NW,SW,SE,--"	33	"T22N,R3W"	"45°15'00""N,116°45'00""E"
Lower Snake	28	Cuprum 15'	Adams Wallowa	ID OR	"SE,NW,SE,--"	08	"T21N,R3W"	"45°15'00""N,116°45'00""E"
Lower Snake	29	Cuprum 15'	Adams Wallowa	ID OR	"SW,SW,SW,--"	20	"T21N,R3W"	"45°15'00""N,116°45'00""E"
Lower Snake	30	Kirkwood Crk	Idaho Wallowa	ID OR	"NW,NE,NE,SW"	04	"T26N,R1W"	"45°37'30""N,116°30'00""E"
Lower Snake	31	Kirkwood Crk	Idaho Wallowa	ID OR	"NW,NW,NW,NE"	20	"T26N,R1W"	"45°37'30""N,116°30'00""E"
Middle Snake	01	King Hill	Elmore	ID	"SE,NE,NW,SE"	12	"T5S,R10E"	"43°07'30""N,115°15'00""E"
Middle Snake	02	PasadenaVally	Elmore	ID	"NE,NW,SW,NE"	17	"T5S,R11E"	"43°00'00""N,115°15'00""E"
Middle Snake	03	PasadenaVally	Elmore	ID	"NW,SE,NW,NW"	29	"T5S,R11E"	"43°00'00""N,115°15'00""E"
Middle Snake	04	PasadenaVally	Elmore	ID	"SW,SW,SW,NE"	04	"T6S,R11E"	"43°00'00""N,115°15'00""E"
Middle Snake	05	PasadenaVally	Elmore	ID	"SE,SE,SW,NW"	09	"T6S,R11E"	"43°00'00""N,115°15'00""E"
Middle Snake	06	Ticeska	Elmore	ID	"NE,NW,NE,NW"	14	"T6S,R11E"	"43°00'00""N,115°07'30""E"
Middle Snake	07	Ticeska	Elmore	ID	"SW,NE,NW,SE"	07	"T6S,R12E"	"43°00'00""N,115°07'30""E"
Middle Snake	08	Ticeska	Gooding (TF)	ID	"SW,SW,SW,NW"	11	"T6S,R12E"	"43°00'00""N,115°07'30""E"
Middle Snake	09	Bliss	Gooding (TF)	ID	"NW,NE,NE,SE"	12	"T6S,R12E"	"43°00'00""N,115°00'00""E"
Middle Snake	10	Bliss	Gooding (TF)	ID	"SE,SW,NW,SE"	07	"T6S,R13E"	"43°00'00""N,115°00'00""E"
Middle Snake	11	Bliss	Gooding (TF)	ID	"SE,SW,SW,NE"	20	"T6S,R13E"	"43°00'00""N,115°00'00""E"
Middle Snake	12	Tuttle	Gooding (TF)	ID	"SE,NW,SE,--"	01	"T8S,R13E"	"42°52'30""N,114°52'30""E"
Middle Snake	13	Tuttle	Gooding (TF)	ID	"SW,SE,SW,SE"	06	"T8S,R13E"	"42°52'30""N,114°52'30""E"
Middle Snake	14	Hagerman	Gooding (TF)	ID	"SW,SE,SW,SW"	27	"T6S,R13E"	"42°52'30""N,115°00'00""E"
Middle Snake	15	Hagerman	Gooding (TF)	ID	"SW,NW,NE,SW"	02	"T7S,R13E"	"42°52'30""N,115°00'00""E"
Middle Snake	16	Hagerman	Gooding (TF)	ID	"NE,SW,SE,NE"	16	"T7S,R13E"	"42°52'30""N,115°00'00""E"
Middle Snake	17	Hagerman	Gooding (TF)	ID	"SW,NW,SW,NE"	28	"T7S,R13E"	"42°52'30""N,115°00'00""E"
Middle Snake	18	Hagerman	Gooding (TF)	ID	"NE,NE,SE,SW"	34	"T7S,R13E"	"42°52'30""N,115°00'00""E"
Middle Snake	19	Hagerman	Gooding (TF)	ID	"SW,NW,NW,NE"	02	"T8S,R13E"	"42°52'30""N,115°00'00""E"
Middle Snake	20	Hagerman	Gooding (TF)	ID	"NE,NE,SE,NE"	02	"T8S,R13E"	"42°52'30""N,115°00'00""E"
Middle Snake	21	Thousand Spgs	Gooding (TF)	ID	"NW,NE,NE,NW"	17	"T8S,R14E"	"42°45'00""N,114°52'30""E"
Middle Snake	22	Thousand Spgs	Gooding (TF)	ID	"SE,NE,SE,SW"	17	"T8S,R14E"	"42°45'00""N,114°52'30""E"

TABLE A.1. (contd)

Middle Snake	23	Thousand Spgs	Gooding (TF)	ID	"SW,SW,SW,SW"	28	"T8S,R14E"	"42°45'00""N,114°52'30""E"
Middle Snake	24	Thousand Spgs	Gooding (TF)	ID	"NE,NE,SW,NE"	28	"T8S,R14E"	"42°45'00""N,114°52'30""E"
Middle Snake	25	Thousand Spgs	Gooding (TF)	ID	"NW,NE,SE,NW"	33	"T8S,R14E"	"42°45'00""N,114°52'30""E"
Middle Snake	26	Thousand Spgs	Gooding (TF)	ID	"SW,NW,NW,NE"	10	"T9S,R14E"	"42°45'00""N,114°52'30""E"
Middle Snake	27	Thousand Spgs	Gooding (TF)	ID	"NW,SE,SW,SE"	02	"T9S,R14E"	"42°45'00""N,114°52'30""E"
Middle Snake	28	Thousand Spgs	Gooding (TF)	ID	"SW,NE,NW,SE"	01	"T9S,R14E"	"42°45'00""N,114°52'30""E"
Middle Snake	29	Niagra Springs	Gooding (TF)	ID	"NE,NW,NW,SE"	06	"T9S,R15E"	"42°45'00""N,114°45'00""E"
Middle Snake	30	Niagra Springs	Gooding (TF)	ID	"NW,SW,SE,SW"	04	"T9S,R15E"	"42°45'00""N,114°45'00""E"
Middle Snake	31	Niagra Springs	Gooding (TF)	ID	"NW,SW,SE,SW"	04	"T9S,R15E"	"42°45'00""N,114°45'00""E"
Middle Snake	32	Niagra Springs	Gooding (TF)	ID	"SE,NW,SW,NE"	11	"T9S,R15E"	"42°45'00""N,114°45'00""E"
Middle Snake	33	Niagra Springs	Gooding (TF)	ID	"NW,SE,SW,SW"	07	"T9S,R16E"	"42°45'00""N,114°45'00""E"
Middle Snake	34	Jerome	Gooding (TF)	ID	"SW,SE,NE,NE"	18	"T9S,R16E"	"42°45'00""N,114°37'30""E"
Middle Snake	35	Jerome	Jerome (TF)	ID	"SE,NE,NE,NW"	23	"T9S,R16E"	"42°45'00""N,114°37'30""E"
Middle Snake	36	Jerome	Jerome (TF)	ID	"SE,NW,SE,NW"	24	"T9S,R16E"	"42°45'00""N,114°37'30""E"
Middle Snake	37	Jerome	Jerome (TF)	ID	"NW,SE,SW,NE"	24	"T9S,R16E"	"42°45'00""N,114°37'30""E"
Middle Snake	38	Jerome	Jerome (TF)	ID	"SW,SW,NE,SW"	19	"T9S,R17E"	"42°45'00""N,114°37'30""E"
Middle Snake	39	Filer	Jerome (TF)	ID	"SE,NE,NW,NW"	30	"T9S,R17E"	"42°37'30""N,114°37'30""E"
Middle Snake	40	Twin Falls	Jerome (TF)	ID	"NW,SE,SE,NW"	34	"T9S,R17E"	"42°37'30""N,114°30'00""E"
Middle Snake	41	Kimberly	Jerome (TF)	ID	"SW,NE,NE,NW"	04	"T10S,R18E"	"42°37'30""N,114°22'30""E"
Middle Snake	42	Kimberly	Jerome (TF)	ID	"NW,NE,SW,NE"	10	"T10S,R18E"	"42°37'30""N,114°22'30""E"
Middle Snake	43	Kimberly	Jerome (TF)	ID	"NW,NE,SW,NE"	10	"T10S,R18E"	"42°37'30""N,114°22'30""E"
Middle Snake	44	Kimberly	Jerome (TF)	ID	"NW,SW,NE,SW"	12	"T10S,R18E"	"42°37'30""N,114°22'30""E"
Middle Snake	45	Kimberly	Jerome (TF)	ID	"SW,NE,NE,NW"	17	"T10S,R19E"	"42°37'30""N,114°22'30""E"
Middle Snake	46	Eden	Jerome (TF)	ID	"NE,SW,NW,NW"	23	"T10S,R19E"	"42°37'30""N,114°15'00""E"
Middle Snake	47	Eden	Jerome (TF)	ID	"NW,SW,SE,NE"	25	"T10S,R19E"	"42°37'30""N,114°15'00""E"
Middle Snake	48	Eden	Jerome (TF)	ID	"NE,NE,SE,SW"	31	"T19S,R20E"	"42°37'30""N,114°15'00""E"
Middle Snake	49	Murtaugh	Jerome (TF)	ID	"NE,SW,SE,NW"	05	"T11S,R20E"	"42°30'00""N,114°15'00""E"
Middle Snake	50	Milner	Jerome (TF)	ID	"NE,NW,NE,NE"	35	"T10S,R20E"	"42°37'30""N,114°07'30""E"
Middle Snake	51	Milner	Jerome (TF)	ID	"NE,NW,NE,NE"	35	"T10S,R20E"	"42°37'30""N,114°07'30""E"
Henry's Fork	01	Menan Buttes	Madison	ID	"SE,SE,NW,NE"	11	"T5N,R38E"	"43°52'30""N,112°00'00""E"
Henry's Fork	02	Menan Buttes	Madison	ID	"SE,SE,SW,SE"	19	"T6N,R39E"	"43°52'30""N,112°00'00""E"
Henry's Fork	03	Parker	Madison	ID	"SW,SE,NE,SW"	34	"T7N,R39E"	"44°00'00""N,111°52'30""E"
Henry's Fork	04	Parker	Fremont	ID	"NE,NW,SE,SE"	24	"T7N,R39E"	"44°00'00""N,111°52'30""E"
Henry's Fork	05	Parker	Fremont	ID	"SE,SE,SE,SE"	18	"T7N,R40E"	"44°00'00""N,111°52'30""E"
Henry's Fork	06	St. Anthony	Fremont	ID	"NE,SE,SE,NE"	10	"T7N,R40E"	"44°00'00""N,111°45'00""E"
Henry's Fork	07	Newdale	Fremont	ID	"SW,NE,NW,NE"	33	"T8N,R41E"	"44°00'00""N,111°37'30""E"
Henry's Fork	08	Lemon Lake	Fremont	ID	"SW,SE,NW,SE"	14	"T8N,R41E"	"44°07'30""N,111°37'30""E"
Henry's Fork	09	Lemon Lake	Fremont	ID	"NE,SW,NW,NW"	05	"T8N,R42E"	"44°07'30""N,111°37'30""E"

TABLE A.1. (contd)

Henry's Fork	10	Lemon Lake	Fremont	ID	"SW,NW,NW,SE"	12	"T8N,R41E"	"44°07'30""N,111°37'30""E"
Henry's Fork	11	Lemon Lake	Fremont	ID	"NW,NE,NE,NW"	33	"T9N,R42E"	"44°07'30""N,111°37'30""E"
Henry's Fork	12	Ashton	Fremont	ID	"SW,NE,NE,SW"	13	"T9N,R42E"	"44°07'30""N,111°30'00""E"
Henry's Fork	13	Ashton	Fremont	ID	"SW,SW,NE,NW"	28	"T9N,R42E"	"44°07'30""N,111°30'00""E"
Henry's Fork	14	Ashton	Fremont	ID	"NE,SE,NW,NE"	19	"T9N,R43E"	"44°07'30""N,111°30'00""E"
Henry's Fork	15	Warm River	Fremont	ID	"NE,NE,SE,NE"	14	"T9N,R43E"	"44°07'30""N,111°22'30""E"
Henry's Fork	16	Warm River	Fremont	ID	"SW,NE,NE,NW"	22	"T9N,R43E"	"44°07'30""N,111°22'30""E"
Henry's Fork	17	Snake R Butte	Fremont	ID	"44°09'08"N,111°17'45"	NA	"T10N,R44E"	"44°15'00""N,111°22'30""E"
Henry's Fork	18	Snake R Butte	Fremont	ID	"NW,SW,NW,SE"	24	"T10N,R43E"	"44°15'00""N,111°22'30""E"
Henry's Fork	19	Snake R Butte	Fremont	ID	"SE,NE,NW,SW"	13	"T10N,R43E"	"44°15'00""N,111°22'30""E"
Henry's Fork	20	Lookout Butte	Fremont	ID	"44°12'59""N,111°25'37""E"	NA	"T10N,R43E"	"44°15'00""N,111°30'00""E"
Henry's Fork	21	Last Chance	Fremont	ID	"NE,NE,NW,NW"	25	"T12N,R42E"	"44°22'30""N,111°30'00""E"
Henry's Fork	22	Last Chance	Fremont	ID	"SW,SW,NE,SW"	36	"T12N,R42E"	"44°22'30""N,111°30'00""E"
Henry's Fork	23	Last Chance	Fremont	ID	"NW,NE,SW,SE"	01	"T11N,R42E"	"44°22'30""N,111°30'00""E"
Henry's Fork	24	Last Chance	Fremont	ID	"NE,NW,NW,SE"	17	"T12N,R43E"	"44°22'30""N,111°30'00""E"
Henry's Fork	25	Last Chance	Fremont	ID	"SW,NE,NW,NW"	20	"T12N,R43E"	"44°22'30""N,111°30'00""E"
Henry's Fork	26	Last Chance	Fremont	ID	"SE,SE,SE,SE"	11	"T11N,R42E"	"44°22'30""N,111°30'00""E"
Henry's Fork	27	Last Chance	Fremont	ID	"SW,SE,NW,SW"	24	"T11N,R42E"	"44°22'30""N,111°30'00""E"
Weiser	01	Fruitvale	Adams	ID	"NW,NE,NW,NW"	15	"T17N,R1W"	"44°52'30""N,116°30'00""E"
Weiser	02	Fruitvale	Adams	ID	"SE,SE,SW,NE"	04	"T16N,R1W"	"44°52'30""N,116°30'00""E"
Weiser	03	Goodrich	Adams	ID	"NW,NE,NE,SE"	10	"T15N,R2W"	"44°45'00""N,116°37'30""E"
Weiser	04	Council	Adams	ID	"NW,SE,NW,SE"	21	"T16N,R1W"	"44°45'00""N,116°30'00""E"
Weiser	05	Council	Adams	ID	"NE,SW,SE,NW"	05	"T15N,R1W"	"44°45'00""N,116°30'00""E"
Weiser	06	Council	Adams	ID	"SW,SW,SW,SW"	03	"T15N,R1W"	"44°45'00""N,116°30'00""E"
Weiser	07	Cambridge	Washington	ID	"SE,SE,SW,NE"	01	"T14N,R3W"	"44°37'30""N,116°45'00""E"
Weiser	08	Cambridge	Washington	ID	"SE,SE,SE,SW"	27	"T14N,R3W"	"44°37'30""N,116°45'00""E"
Weiser	09	Midvale	Washington	ID	"SE,SE,NW,NW"	08	"T13N,R3W"	"44°30'00""N,116°45'00""E"
Weiser	10	Weiser Cove	Washington	ID	"SW,SW,NE,NE"	06	"T10N,R4W"	"44°15'00""N,116°52'30""E"
Weiser	11	Weiser South	Washington	ID	"SE,NE,SE,SW"	33	"T11N,R5W"	"44°15'00""N,117°00'00""N"
Upper Snake	01	Springfield	Bingham	ID	"NE,NE,NE,NE"	06	"T5S,R33E"	"43°07'30""N,112°45'00""E"
Upper Snake	02	Pingree	Bingham	ID	"NW,--,--,SE"	28	"T4S,R33E"	"43°07'30""N,112°37'30""E"
Upper Snake	03	Pingree	Bingham	ID	"SW,NW,NE,SE"	01	"T4S,R33E"	"43°07'30""N,112°37'30""E"
Upper Snake	04	Pingree	Bingham	ID	"NW,SE,NW,SE"	31	"T3S,R33E"	"43°07'30""N,112°37'30""E"
Upper Snake	05	Rockford	Bingham	ID	"NE,NW,NW,NE"	29	"T3S,R34E"	"43°15'00""N,112°37'30""E"
Upper Snake	06	Rockford	Bingham	ID	"NE,SW,NW,SW"	29	"T3S,R34E"	"43°15'00""N,112°37'30""E"
Upper Snake	07	Moreland	Bingham	ID	"NW,SE,NW,SW"	15	"T3S,R34E"	"43°15'00""N,112°30'00""E"
Upper Snake	08	Moreland	Bingham	ID	"SE,SW,SE,NE"	12	"T3S,R34E"	"43°15'00""N,112°30'00""E"
Upper Snake	09	Moreland	Bingham	ID	"NW,SE,SE,SE"	06	"T3S,R34E"	"43°15'00""N,112°30'00""E"

TABLE A.1. (contd)

Upper Snake	10	Blackfoot	Bingham	ID	"NE,SE,NE,SW"	23	"T2S,R35E"	"43°15'00""N,112°22'30""E"
Upper Snake	11	Blackfoot	Bingham	ID	"SW,SE,NE,SE"	14	"T2S,R35E"	"43°15'00""N,112°22'30""E"
Upper Snake	12	Rose	Bingham	ID	"NW,NE,SE,NE"	12	"T2S,R35E"	"43°22'30""N,112°22'30""E"
Upper Snake	13	Firth	Bingham	ID	"NW,NE,NE,NE"	34	"T1S,R36E"	"43°22'30""N,112°15'00""E"
Upper Snake	14	Firth	Bingham	ID	"NW,SE,SE,NE"	04	"T2S,R36E"	"43°22'30""N,112°15'00""E"
Upper Snake	15	Firth	Bingham	ID	"SE,SE,SW,SE"	20	"T1S,R36E"	"43°22'30""N,112°15'00""E"
Upper Snake	16	Firth	Bingham	ID	"SW,NW,SE,SE"	36	"T1N,R36E"	"43°22'30""N,112°15'00""E"
Upper Snake	17	Firth	Bingham	ID	"NE,NW,NE,NE"	18	"T1S,R36E"	"43°22'30""N,112°15'00""E"
Upper Snake	18	Woodville	Bingham	ID	"SE,NW,SW,SE"	18	"T1N,R37E"	"43°30'00""N,112°15'00""E"
Upper Snake	19	Woodville	Bingham	ID	"SE,NE,SW,SE"	36	"T1N,R36E"	"43°30'00""N,112°15'00""E"
Upper Snake	20	Idaho Falls S.	Bonneville	ID	"NE,NW,NW,SE"	03	"T1N,R37E"	"43°30'00""N,112°07'30""E"
Upper Snake	21	Idaho Falls S.	Bonneville	ID	"NW,NW,NE,NW"	10	"T1N,R37E"	"43°30'00""N,112°07'30""E"
Upper Snake	22	Idaho Falls S.	Bonneville	ID	"SE,SW,NW,NW"	15	"T1N,R37E"	"43°30'00""N,112°07'30""E"
Upper Snake	23	Idaho Falls S.	Bingham	ID	"NW,SW,SW,SW"	16	"T1N,R37E"	"43°30'00""N,112°07'30""E"
Upper Snake	24	Idaho Falls S.	Bonneville	ID	"NE,NE,SW,NE"	35	"T2N,R37E"	"43°30'00""N,112°07'30""E"
Upper Snake	25	Idaho Falls N.	Bonneville	ID	"SE,NE,SW,SW"	36	"T3N,R37E"	"43°37'30""N,112°07'30""E"
Upper Snake	26	Idaho Falls N.	Bonneville	ID	"NW,SW,SE,SW"	13	"T3N,R37E"	"43°37'30""N,112°07'30""E"
Upper Snake	27	Idaho Falls N.	Bonneville	ID	"NW,SW,SE,NW"	13	"T3N,R37E"	"43°37'30""N,112°07'30""E"
Upper Snake	28	Lewisville	Jefferson	ID	"SE,NW,NE,SW"	14	"T4N,R37E"	"43°45'00""N,112°07'30""E"
Upper Snake	29	Lewisville	Jefferson	ID	"SE,SW,SE,SW"	23	"T4N,R37E"	"43°45'00""N,112°07'30""E"
Upper Snake	30	Lewisville	Jefferson	ID	"NE,SW,SE,NE"	34	"T5N,R37E"	"43°45'00""N,112°07'30""E"
Upper Snake	31	Lewisville	Jefferson	ID	"NE,NE,NE,NW"	28	"T5N,R37E"	"43°45'00""N,112°07'30""E"
Upper Snake	32	Deer Parks	Jefferson	ID	"NE,SE,NE,NW"	13	"T5N,R37E"	"43°52'30""N,112°07'30""E"
Upper Snake	33	Deer Parks	Jefferson	ID	"NE,SW,SW,SW"	17	"T5N,R37E"	"43°52'30""N,112°07'30""E"
Upper Snake	34	Menan Buttes	Madison	ID	"NW,NE,SW,NW"	22	"T5N,R38E"	"43°52'30""N,112°00'00""E"
Upper Snake	35	Menan Buttes	Madison	ID	"NW,NW,SE,NE"	13	"T5N,R38E"	"43°52'30""N,112°00'00""E"
Upper Snake	36	Ririe	Madison/Jefferson	ID	"NW,SE,SE,SE"	28	"T5N,R39E"	"43°45'00""N,111°52'30""E"
Upper Snake	37	Heise	Jefferson	ID	"SE,NE,NW,SW"	25	"T4N,R40E"	"43°45'00""N,111°45'00""N"
Upper Snake	38	Heise	Jefferson	ID	"SE,SE,NW,SE"	36	"T4N,R40E"	"43°45'00""N,111°45'00""N"
Salmon	01	Challis 15'	Custer	ID	"NW,SW,NW,--"	35	"T15N,R19E"	"44°45'00""N,114°15'00""E"
Salmon	02	Challis 15'	Custer	ID	"SE,SE,NW,--"	18	"T15N,R20E"	"44°45'00""N,114°15'00""E"
Salmon	03	Challis 15'	Custer	ID	"NE,SW,NE,--"	03	"T16N,R20E"	"44°45'00""N,114°15'00""E"
Salmon	04	Challis 15'	Custer	ID		24	"T16N,R20E"	"44°45'00""N,114°15'00""E"
Salmon	05	Allison Crk	Lemhi	ID	"NE,SW,NE,SE"	32	"T17N,R21E"	"44°52'30""N,114°00'00""E"
Salmon	06	Allison Crk	Lemhi	ID	"SE,SE,SW,SE"	20	"T17N,R21E"	"44°52'30""N,114°00'00""E"
Salmon	07	Hat Creek	Lemhi	ID	"NW,NE,SW,NW"	17	"T17N,R21E"	"44°52'30""N,114°07'30""E"
Salmon	08	Allison Crk	Lemhi	ID	"NW,SE,NW,NW"	09	"T17N,R21E"	"44°52'30""N,114°00'00""E"
Salmon	09	Allison Crk	Lemhi	ID	"SW,NE,NE,NE"	28	"T18N,R21E"	"44°52'30""N,114°00'00""E"

TABLE A.1. (contd)

Salmon	10	Goldburg Rdge	Lemhi	ID	"NW,NE,SW,SW"	15	"T18N,R21E"	"45°00'00""N,114°00'00""E"
Salmon	11	Goldburg Rdge	Lemhi	ID	"SW,SW,SE,NE"	10	"T18N,R21E"	"45°00'00""N,114°00'00""E"
Salmon	12	Goldburg Rdge	Lemhi	ID	"NE,NE,SW,NE"	34	"T19N,R21E"	"45°00'00""N,114°00'00""E"
Salmon	13	Goldburg Rdge	Lemhi	ID	"NE,NE,SW,SW"	23	"T19N,R21E"	"45°00'00""N,114°00'00""E"
Salmon	14	Goldburg Rdge	Lemhi	ID	"SE,SW,NW,NE"	11	"T19N,R21E"	"45°00'00""N,114°00'00""E"
Salmon	15	Salmon 15'	Lemhi	ID	"SW,SW,NE,--"	30	"T19N,R21E"	"45°15'00""N,114°00'00""E"
Salmon	16	Salmon 15'	Lemhi	ID	"NE,NW,NE,--"	07	"T21N,R21E"	"45°15'00""N,114°00'00""E"
Salmon	17	Salmon 15'	Lemhi	ID	"NE,NE,NE,--"	13	"T21N,R21E"	"45°15'00""N,114°00'00""E"
Salmon	18	Salmon 15'	Lemhi	ID	"SE,SE,SE,--"	18	"T22,,R22E"	"45°15'00""N,114°00'00""E"
Salmon	19	Bird Creek	Lemhi	ID	"SW,NE,SE,SW"	06	"T22N,R22E"	"45°22'30""N,114°00'00""E"
Salmon	20	Bird Creek	Lemhi	ID	"NW,NE,SE,SE"	30	"T23N,R22E"	"45°22'30""N,114°00'00""E"
Salmon	21	Bird Creek	Lemhi	ID	"SE,SW,SE,NW"	19	"T23N,R22E"	"45°22'30""N,114°00'00""E"
Salmon	22	Bird Creek	Lemhi	ID	"NE,SW,NE,SW"	12	"T23N,R21E"	"45°22'30""N,114°00'00""E"
Salmon	23	Bird Creek	Lemhi	ID	"NE,SE,NE,SE"	34	"T24N,R21E"	"45°22'30""N,114°00'00""E"
Salmon	24	North Fork	Lemhi	ID	"NW,SE,SE,SW"	22	"T24N,R21E"	"45°30'00""N,114°00'00""E"
Salmon	25	UlyssesMt.15'	Lemhi	ID	"45°23'31""N,114°07'54""E"	NA	NA	"45°30'00""N,114°15'00""E"
Salmon	26	UlyssesMt.15'	Lemhi	ID	"45°23'13""N,114°02'22""E"	NA	NA	"45°30'00""N,114°15'00""E"
Salmon	27	UlyssesMt.15'	Lemhi	ID	"45°24'01""N,114°11'18""E"	NA	NA	"45°30'00""N,114°15'00""E"
Salmon	28	Shoup 15'	Lemhi	ID	"45°21'49""N,114°17'09""E"	NA	NA	"45°30'00""N,114°30'00""E"
Salmon	29	Shoup 15'	Lemhi	ID	"45°19'11""N,114°22'48""E"	NA	NA	"45°30'00""N,114°30'00""E"
Salmon	30	Shoup 15'	Lemhi	ID	"45°19'07""N,114°26'33""E"	NA	NA	"45°30'00""N,114°30'00""E"
Salmon	31	Long Tom Mt.	Lemhi	ID	"45°19'41""N,114°30'52""E"	NA	NA	"45°22'30""N,114°37'30""E"
Salmon	32	Long Tom Mt.	Lemhi	ID	"45°18'28""N,114°30'22""E"	NA	NA	"45°22'30""N,114°37'30""E"
Salmon	33	Long Tom Mt.	Lemhi	ID	"45°18'03""N,114°36'40""E"	NA	NA	"45°22'30""N,114°37'30""E"
Salmon	34	Long Tom Mt.	Lemhi	ID	"45°18'01""N,114°34'39""E"	NA	NA	"45°22'30""N,114°37'30""E"
Salmon	35	Butts Crk. Pt.	Idaho	ID	"45°18'36""N,114°37'15""E"	NA	NA	"45°22'30""N,114°45'00""E"
Salmon	36	Butts Crk. Pt.	Idaho	ID	"45°20'19""N,114°39'31""E"	NA	NA	"45°22'30""N,114°45'00""E"
Salmon	37	Butts Crk. Pt.	Idaho	ID	"45°21'24""N,114°40'25""E"	NA	NA	"45°22'30""N,114°45'00""E"
Salmon	38	Butts Crk. Pt.	Idaho	ID	"NW,SE,SE,NW"	01	"T23N,R14E"	"45°22'30""N,114°45'00""E"
Salmon	39	Square Top	Idaho	ID	"45°23'01""N,114°42'21"""	NA	NA	"45°30'00""N,114°45'00""E"
Salmon	40	Deadhorse Ridge	Idaho	ID	"45°51'19""N,116°47'51""E"	NA	NA	"45°52'30""N,116°52'30""E"
Salmon	41	Rattlesnake R	Idaho	ID	"SE,NE,SE,SW"	29	"T30N,R3W"	"46°00'00""N,116°45'00""E"
Salmon	42	Wapshilla Cr	Idaho	ID	"SE,SW,SE,NW"	18	"T30N,R3W"	"46°00'00""N,116°52'30""E"
Salmon	43	Rattlesnake R	Idaho	ID	"NE,SE,SW,SE"	32	"T30N,R3W"	"46°00'00""N,116°45'00""E"
Salmon	44	Rattlesnake R	Idaho	ID	"SW,NE,SE,SE"	06	"T31N,R3W"	"46°00'00""N,116°45'00""E"
Salmon	45	Rattlesnake R	Idaho	ID	"NE,SE,SE,SE"	26	"T31N,R3W"	"46°00'00""N,116°45'00""E"
Salmon	46	Rattlesnake R	Idaho	ID	"SW,NW,NW,SW"	27	"T31N,R3W"	"46°00'00""N,116°45'00""E"
Salmon	47	Hoover Pt.	Idaho	ID	"SE,NE,SE,SW"	07	"T31N,R2W"	"46°07'30""N,116°45'00""E"

TABLE A.1. (contd)

Salmon	48	Hoover Pt.	Idaho	ID	"NE,SE,SW,NE"	24	"T31N,R3W"	"46°07'30""N,116°45'00""E"
Salmon	49	Westlake	Idaho	ID	"SE,SE,NW,NW"	17	"T31N,R2W"	"46°07'30""N,116°37'30""E"
Salmon	50	Boles	Idaho	ID	"NW,NE,SW,NW"	01	"T30N,R2W"	"46°00'00""N,116°37'30""E"
Salmon	51	Boles	Idaho	ID	"SW,SE,SE,NW"	34	"T31N,R2W"	"46°00'00""N,116°37'30""E"
Salmon	52	Burgdorf 15'	Idaho	ID	"SE,SW,NW,--"	09	"T24N,R4E"	"45°30'00""N,116°00'00""E"
Salmon	53	Kelly Mnt.	Idaho	ID	"SW,NE,NW,NW"	18	"T24N,R4E"	"45°30'00""N,116°07'30""E"
Salmon	54	Kelly Mnt.	Idaho	ID	"NW,NE,SE,SE"	20	"T24N,R3E"	"45°30'00""N,116°07'30""E"
Salmon	55	Kelly Mnt.	Idaho	ID	"SW,NE,SE,SW"	20	"T24N,R3E"	"45°30'00""N,116°07'30""E"
Salmon	56	Riggins Hot Sp	Idaho	ID	"SW,SE,NE,NE"	19	"T24N,R3E"	"45°30'00""N,116°15'00""E"
Salmon	57	Riggins Hot Sp	Idaho	ID	"SE,NE,NE,SE"	14	"T24N,R2E"	"45°30'00""N,116°15'00""E"
Salmon	58	Riggins Hot Sp	Idaho	ID	"SW,NW,SE,SE"	21	"T24N,R3E"	"45°30'00""N,116°15'00""E"
Salmon	59	Riggins Hot Sp.	Idaho	ID	"NE,NE,NW,SW"	18	"T24N,R2E"	"45°30'00""N,116°22'30""E"
Salmon	60	Riggins Hot Sp	Idaho	ID	"NE,NW,NE,NE"	22	"T24N,R1E"	"45°30'00""N,116°22'30""E"
Salmon	61	Riggins Hot Sp.	Idaho	ID	"SE,NE,NW,SE"	10	"T24N,R1E"	"45°30'00""N,116°22'30""E"
Salmon	62	Riggins Hot Sp.	Idaho	ID	"NE,SW,SW,NW"	02	"T24N,R1E"	"45°30'00""N,116°22'30""E"
Salmon	63	Riggins Hot Sp.	Idaho	ID	"SW,NE,NW,SE"	22	"T25N,R1E"	"45°30'00""N,116°22'30""E"
Salmon	64	Lucile	Idaho	ID	"SW,SE,NE,SW"	11	"T25N,R1E"	"45°37'30""N,116°22'30""E"
Salmon	65	Lucile	Idaho	ID	"NW,NW,NW,SW"	02	"T25N,R1E"	"45°37'30""N,116°22'30""E"
Salmon	66	Lucile	Idaho	ID	"SW,SE,NE,SW"	26	"T26N,R1E"	"45°37'30""N,116°22'30""E"
Salmon	67	Lucile	Idaho	ID	"SW,NW,NE,SE"	14	"T26N,R1E"	"45°37'30""N,116°22'30""E"
Salmon	68	Lucile	Idaho	ID	"NE,SW,SW,NE"	12	"T26N,R1E"	"45°37'3O""N,116°22'30""E"
Salmon	69	Slate Creek	Idaho	ID	"SW,NE,NW,SE"	23	"T27N,R1E"	"45°45'00""N,116°22'30""E"
Salmon	70	Slate Creek	Idaho	ID	"SW,SE,SW,SW"	35	"T27N,R1E"	"45°45'00""N,116°22'30""E"
Salmon	71	Slate Creek	Idaho	ID	"SW,NE,NE,NE"	15	"T27N,R1E"	"45°45'00""N,116°22'30""E"
Salmon	72	Slate Creek	Idaho	ID	"SE,SW,SW,SE"	34	"T28N,R1E"	"45°45'00""N,116°22'30""E"
Salmon	73	Slate Creek	Idaho	ID	"SE,NW,SW,SW"	22	"T28N,R1E"	"45°45'00""N,116°22'30""E"
Salmon	74	White Bird	Idaho	ID	"NW,NE,SW,NW"	15	"T28N,R1E"	"45°52'30""N,116°22'30""E"
Salmon	75	White Bird	Idaho	ID	"NW,NW,NW,NE"	03	"T28N,R1E"	"45°52'30""N,116°22'30""E"
Salmon	76	Fenn	Idaho	ID	"NE,SW,SE,SE"	33	"T30N,R1E"	"46°00'00""N,116°22'30""E"
Salmon	77	Fenn	Idaho	ID	"SE,NW,SE,NE"	31	"T30N,R1E"	"46°00'00""N,116°22'30""E"
Payette	01	Garden Val15'	Boise	ID	"NE,NE,SE,--"	32	"T9E,R6E"	"44°15'00""N,116°00'00""E"
Payette	02	Garden Val15'	Boise	ID	"NW,SW,NW,--"	01	"T9E,R5E"	"45°15'00""N,116°00'00""E"
Payette	03	Garden Val15'	Boise	ID	"SW,SE,NW,--"	32	"T11N,R5E"	"44°15'00""N,116°00'00""E"
Payette	04	Garden Val15'	Boise	ID	"NE,SW,NE,--"	23	"T10N,R4E"	"44°15'00""N,116°00'00""E"
Payette	05	Garden Val15'	Boise	ID	"NW,SW,NE,--"	09	"T8N,R53"	"44°15'00""N,116°00'00""E"
Payette	06	Garden Val15'	Boise	ID	"SE,NE,NW,--"	10	"T9N,R4E"	"44°15'00""N,116°00'00""E"
Payette	07	Banks	Boise	ID	"SE,NE,SW,NE"	30	"T9N,R4E"	"44°07'30""N,116°07'30""N"
Payette	08	PackerJohnMt	Valley	ID	"SW,SE,SE,NE"	33	"T11N,R3E"	"44°15'00""N,116°07'30""E"

TABLE A.1. (contd)

Payette	09	PackerJohnMt	Valley	ID	"SE,NE,SE,NW"	09	"T10N,R3E"	"44°15'00""N,116°07'30""E"
Payette	10	PackerJohnMt	Valley	ID	"SE,NE,SW,SW"	16	"T10N,R3E"	"44°15'00""N,116°07'30""E"
Payette	11	PackerJohnMt	Valley	ID	"NE,SW,SE,NE"	29	"T10N,R3E"	"44°15'00""N,116°07'30""E"
Payette	12	Banks	Boise	ID	"SW,SW,NW,SE"	16	"T9N,R3E"	"44°07'30""N,116°07'30""E"
Payette	13	Banks	Boise	ID	"SE,SE,NE,SE"	29	"T9N,R3E"	"44°07'30""N,116°07'30""E"
Payette	14	Dry Back Val	Boise	ID	"SW,NE,NE,SE"	24	"T8N,R3E"	"44°07'30""N,116°15'00""E"
Payette	15	Horseshoe Bnd	Boise	ID	"NE,NE,NE,SW"	35	"T8N,R2E"	"44°00'00""N,116°15'00""E"
Payette	16	Horseshoe Bnd	Boise	ID	"SW,NE,NE,SE"	15	"T7N,R2E"	"44°00'00""N,116°15'00""E"
Payette	17	Horseshoe Bnd	Boise	ID	"SE,SW,NW,NE"	34	"T7N,R2E"	"44°00'00""N,116°15'00""E"
Payette	18	Horseshoe Bnd	Boise	ID	"SE,SE,NW,NW"	32	"T7N,R2E"	"44°00'00""N,116°15'00""E"
Payette	19	Montour 15'	Boise	ID	"NW,NE,SE,--"	25	"T7N,R1E"	"44°00'00""N,116°30'00""E"
Payette	20	Montour 15'	Boise	ID	"SW,SE,NE,--"	21	"T7N,R1E"	"44°00'00""N,116°30'00""E"
Payette	21	NE Emmet	Gem	ID	"SW,SE,SE,NW"	22	"T7N,R1W"	"44°00'00""N,116°30'00""E"
Payette	22	NE Emmet	Gem	ID	"NW,NE,NE,NW"	22	"T7N,R1W"	"44°00'00""N,116°30'00""E"
Payette	23	NE Emmet	Gem	ID	"NE,NE,NE,NE"	33	"T7N,R1W"	"44°00'00""N,116°30'00""E"
Payette	24	NE Emmet	Gem	ID	"NW,NW,SE,NE"	05	"T7N,R1W"	"44°00'00""N,116°30'00""E"
Payette	25	NW Emmet	Gem	ID	"NW,SE,SW,SE"	04	"T6N,R2W"	"44°00'00""N,116°37'30""E"
Payette	26	NW Emmet	Gem	ID	"SW,SW,SW,SE"	31	"T6N,R2W"	"44°00'00""N,116°37'30""E"
Payette	27	Letha	Gem	ID	"SE,NE,SW,SW"	31	"T7N,R2W"	"44°00'00""N,116°45'00""E"
Payette	28	Letha	Gem	ID	"SE,NW,NE,SW"	36	"T7N,R3W"	"44°00'00""N,116°45'00""E"
Payette	29	Letha	Gem	ID	"NE,SW,NW,SW"	16	"T7N,R3W"	"44°00'00""N,116°45'00""E"
Payette	30	Letha	Payette	ID	"NW,SW,SE,SE"	08	"T7N,R3W"	"44°00'00""N,116°45'00""E"
Payette	31	New Plymouth	Payette	ID	"SE,NW,SE,NE"	02	"T7N,R4W"	"44°00'00""N,116°52'30""E"
Payette	32	New Plymouth	Payette	ID	"SW,NW,SE,NE"	34	"T8N,R4W"	"44°00'00""N,116°52'30""E"
Payette	33	Birding Island	Payette	ID	"SW,NW,SW,SE"	20	"T8N,R4W"	"44°07'30""N,116°52'30""E"
Payette	34	Payette	Payette	ID	"SW,SW,SW,SW"	13	"T8N,R5W"	"44°07'30""N,117°00'00""E"
Payette	35	Payette	Payette	ID	"SW,NE,SE,SW"	10	"T8N,R47E"	"44°07'30""N,117°00'00""E"
Payette	36	Payette	Payette	ID	"SW,NW,NE,NE"	04	"T17S,R47E"	"44°07'30""N,117°00'00""E"

APPENDIX B

COLLECTION INFORMATION FOR THE COLUMBIA PEBBLESNAIL *Fluminicola columbiana* AND SHORTFACE LANX *Fisherola nuttalli*

APPENDIX B

COLLECTION INFORMATION FOR THE COLUMBIA PEBBLESNAIL *Fluminicola columbiana* AND SHORTFACE LANX *Fisherola nuttalli*

More than 700 locations in more than 30 streams were considered as collection sites during our 1989 through 1991 surveys. Table B.1 lists the river name, site number, collection method, a "yes/no" indication as to the occurrence of Columbia pebblesnails and shortface lanx, a list of the other mollusks collected at the site, and our comments about the condition of the environment at the site. The other mollusks collected at these sites are listed in Table B.1 as numbers. The taxonomic identification code to these numbers is listed in Table B.2. The site numbers correspond with and can be used when referring to the location information in Appendix A. The location includes the river name, site number, quadrangle, county, state, legal description, section number, township, range, and northwest map corner.

TABLE B.1. Collection Information for the Columbia Pebblesnail *Fluminicola columbiana* and Shortface Lanx *Fisherola nuttalli*, 1988 Through 1991 Survey Sites

Location	Site	Method	F. col	F. nut	Other Molluscs	Comments
Wenatchee	01	Collection	No	No	"30,38"	Mobile bottom habitat
Wenatchee	02	Visual				Human modification
Wenatchee	03	Collection	No	No	"30,38"	Mobile bottom habitat
Wenatchee	04	Collection	No	No	38	Lumber mill pollution
Wenatchee	05	Collection	Yes	No	"30,38"	Lumber mill pollution; juveniles only for Columbia pebblesnail; rare
Wenatchee	06	Collection	Yes	No	"(2),5,6,20,30,38"	Lumber mill pollution; full ontogeny for Columbia pebblesnail; rare
Wenatchee	07	Collection	No	No		Bridge construction; no live molluscs
Wenatchee	08	Collection	No	No		Lumber mill pollution; sewage
Wenatchee	09	Collection	Yes	No	"(2),20,26,38"	Lumber mill pollution; sewage
Wenatchee	10	Collection	No	No	30	Silt bottom
Wenatchee	11	Collection	No	No	"24,30"	Silt bottom
Entiat	01	Skipped				Silt bottom
Entiat	02	Collection	No	No	"30,38"	Good habitat
Entiat	03	Collection	No	No	"5,6,20,30,38"	Mud bottom; Columbia River influence
Okanogan	01	Collection	Yes	No	"10,30,38"	Good habitat
Okanogan	02	Collection	Yes	No	"10,30,38"	Good habitat
Okanogan	03	Skipped				Potential habitat; small spillway; mud bottom
Okanogan	04	Collection	No	No	"5,30,38"	Human modification
Okanogan	05	Visual				Looked good
Okanogan	06	Visual				Looked good
Okanogan	07	Visual				Looked good
Okanogan	08	Visual				Looked good
Okanogan	09	Collection	Yes	Yes	"3, 4, 5, 6, 10, 20, 32, 38"	Good site
Okanogan	10	Skipped				Looked good
Okanogan	11	Skipped				Looked good
Okanogan	12	Skipped				Looked good
Okanogan	13	Collection	Yes	Yes	"(2),3,(4),5,6,10,30,38"	Very good site
Okanogan	14	Collection	Yes	Yes		Very good site
Okanogan	15	Skipped				Columbia River backwater
Okanogan	16	Skipped				Columbia River backwater
Okanogan	17	Skipped				Columbia River backwater
Okanogan	18	Collection	No	No	3	Mud and organic debris; juvenile G. angulata only

TABLE B.1. (contd)

Methow	01	Skipped				Should be Columbia pebblesnail
Methow	03	Skipped				Should be Columbia pebblesnail
Methow	04	Skipped				Should be Columbia pebblesnail
Methow	05	Skipped				Should be Columbia pebblesnail
Methow	06	Collection	Yes	No	"30,38"	Comparitively sparse population
Methow	07	Collection	Yes	No	"30,38"	Comparitively sparse population
Methow	08	Collection	Yes	Yes	"20, 30 38"	shortface lanx rare
Methow	09	Skipped				Should be good for both
Methow	10	Skipped				Should be good for both
Methow	11	Skipped				Should be good for both
Methow	12	Collection	Yes	Yes	"30,38"	Shortface lanx rare; full ontogeny for Columbia pebblesnail; adults only for shortface lanx
Methow	13	Collection	Yes	Yes	30	Shortface lanx rare; juveniles only; full ontogeny for Columbia pebblesnail
Methow	14	Collection	No	No	"5,6,30,34,38"	Sandy; Columbia River influence
Nespelem	01	Collection	No	No	30	Mud; too warm
Nespelem	02	Collection	No	No	38	Mud; too warm
Nespelem	03	Collection	No	No	"30,38"	Mud; too warm
Nespelem	04	Collection	No	No	30	Mud; too warm
Nespelem	05	Collection	No	No	30	Mud; too warm
Sanpoil	01	Visual				Pollution from old lumber mill
Sanpoil	02	Visual				Pollution from old lumber mill
Sanpoil	03	Visual				Pollution from old lumber mill
Sanpoil	04	Collection	No	No	"(4),5,6,30,38"	Pollution from old lumber mill
Sanpoil	05	Collection	No	No	"30,38"	Pollution from old lumber mill
Sanpoil	06	Collection	No	No	30	Pollution from old lumber mill
Sanpoil	07	Skipped	No	No		Back flooding from Columbia River
Sanpoil	08	Skipped	No	No		Back flooding from Columbia River
Colville	01	Skipped				Back flooding from Columbia River
Colville	02	Skipped				Back flooding from Columbia River
Colville	03	Skipped				Back flooding from Columbia River
Cowlitz	01	Skipped				Possible
Cowlitz	02	Collection	No	No	"5,6,10,17,18,30,38"	Good mollusc habitat
Cowlitz	03	Collection	No	No	"10,30,38"	Good mollusc habitat
Cowlitz	04	Collection	No	No	"5,6,10,30"	Good mollusc habitat
Cowlitz	05	Visual				Good mollusc habitat

TABLE B.1. (contd)

Lewis	01	Collection	No	No	38	Scour
Lewis	02	Collection	No	No	"10,18"	Scour
Lewis	03	Skipped				Possible good habitat
Lewis	04	Skipped				Possible good habitat
Lewis	05	Skipped				Possible good habitat
Lewis	06	Skipped				Possible good habitat
Lewis	07	Collection	No	No	"10,30,38"	Columbia River backwater
Lewis	08	Collection	No	No	"10,30,38"	Good Habitat
Lewis	09	Collection	No	No		Columbia River backwater; no live molluscs seen
Wind	01	Visual				Columbia River backwater; no live molluscs seen
Wind	02	Collection	No	No	30	Columbia River backwater; no live molluscs seen
Wind	03	Collection	No	No	"30,38"	Whitewater
Wind	04	Collection	No	No	38	Whitewater
Wind	05	Visual				Whitewater
Wind	06	Visual				Columbia River backwater
White Salmon	01	Skipped				Lumber mill pollution; siltation from deforestation
White Salmon	02	Collection	No	No	"30,38"	Lumber mill pollution; siltation from deforestation
White Salmon	03	Collection	No	No	38	Lumber mill pollution; siltation from deforestation
White Salmon	04	Skipped				Columbia River backwater
Klickitat	01	Visual				Glacial flour
Klickitat	02	Collection	No	No	"30,38"	Glacial flour
Klickitat	03	Visual				Glacial flour
Klickitat	04	Visual				Glacial flour
Klickitat	05	Visual				Glacial flour
Klickitat	06	Visual				Glacial flour
Klickitat	07	Collection	No	No	30	Glacial flour
Klickitat	08	Collection	No	No		No live molluscs seen; Lumber mill pollution
Klickitat	09	Collection	No	No		No live molluscs seen; Lumber mill pollution
Klickitat	10	Collection	No	No		No live molluscs seen; Lumber mill pollution

TABLE B.1. (contd)

Klickitat	11	Skipped				Lumber mill pollution
Klickitat	12	Skipped				Lumber mill pollution
Klickitat	13	Collection	No	No		Lumber mill pollution
Klickitat	14	Collection	No	No		Lumber mill pollution
Klickitat	15	Collection	No	No		Lumber mill pollution; Columbia River backwater
Palouse	01	Collection	No	No	"30,38"	poor mollusc habitat; agricultural runoff
Palouse	02	Skipped				poor mollusc habitat; agricultural runoff
Palouse	03	Skipped				poor mollusc habitat; agricultural runoff
Palouse	04	Skipped				poor mollusc habitat; agricultural runoff
Palouse	05	Collection	No	No	30	poor mollusc habitat; agricultural pollution
Palouse	06	Skipped				poor mollusc habitat; agricultural pollution
Palouse	07	Skipped				poor mollusc habitat; agricultural pollution
Palouse	08	Skipped				poor mollusc habitat; agricultural pollution
Palouse	09	Skipped			"20,30,38"	poor mollusc habitat; agricultural runoff
Palouse	10	Skipped				poor mollusc habitat; agricultural runoff
Palouse	11	Skipped				poor mollusc habitat; agricultural runoff
Palouse	12	Skipped				poor mollusc habitat; agricultural runoff
Palouse	13	Skipped				poor mollusc habitat; agricultural runoff
Palouse	14	Visual				Possible good habitat
Palouse	15	Visual				Possible good habitat
Palouse (Cow Creek)	16	Skipped				Possible good habitat
Palouse (Cow Creek)	17	Skipped				Possible good habitat
Grande Ronde	01	Collection	No	Yes	"12,30"	Possible Columbia pebblesnail; complete ontogeny for F. nuttali
Grande Ronde	02	Skipped				Should be like site 1
Grande Ronde (Joseph Creek)	03	Collection	No	No	"12,30"	Should be like site 1
Grande Ronde	04	Skipped				Should be like site 1
Grande Ronde	05	Collection	No	Yes	"12,30,38"	F. Nuttali rare; possible Columbia pebblesnail
Grande Ronde	06	Skipped				Should be like site 1
Grande Ronde	07	Skipped				Should be like site 1
Grande Ronde	08	Collection	No	Yes	"12,30"	Same as site 5; shortface lanx rare; complete ontogeny
Grande Ronde	09	Skipped				Should be like site 1

TABLE B.1. (contd)

Grande Ronde	10	Skipped				Should be like site 1
Grande Ronde	11	Skipped				Should be like site 1
Grande Ronde	12	Skipped				Should be like site 1
Grande Ronde	13	Skipped				Should be like site 1
Grande Ronde	14	Skipped				Should be like site 1
Grande Ronde	15	Collection	No	No	12	Possible Columbia pebblesnail
Grande Ronde	16	Visual				Good habitat
Grande Ronde	17	Visual				Good habitat
Grande Ronde (Wenaha)	18	Collection	No	No	"5,6,10,30,33"	Good habitat Good habitat
Grande Ronde	19	Visual				Good habitat
Grande Ronde	20	Visual				Good habitat
Grande Ronde	21	Collection	No	No	"12,30,38"	Good mollusc habitat
Walla Walla	01	Collection	No	No	"30,38"	Agricultural impact
Walla Walla	02	Visual				Agricultural impact
Walla Walla	03	Collection	No	No	"30,38"	Agricultural impact
Walla Walla	04	Collection	No	No	"30,38"	Agricultural impact
Walla Walla	05	Visual				Agricultural impact
Walla Walla	06	Visual				Agricultural impact
Walla Walla	07	Collection	No	No	"30,38"	Agricultural impact
Walla Walla	08	Collection	No	No	"30,38"	Agricultural impact
Walla Walla	09	Skipped				Agricultural impact
Walla Walla	10	Skipped				Agricultural impact
Walla Walla	11	Collection	No	No	"30,38"	Agricultural impact
Walla Walla	12	Skipped				Agricultural impact
Walla Walla	13	Collection	No	No	"30,38"	Agricultural impact
Tucannon	01	Collection	No	No	"5,10,30,38"	Agricultural impact; shortface lanxana long dead
Tucannon	02	Collection	No	No	"30,38"	Agricultural impact
Tucannon	03	Visual				Agricultural impact
Tucannon	04	Collection	No	No	30	Agricultural impact
Hood	01	Collection	No	No		Glacial flour; no live molluscs seen
Hood	02	Collection	No	No		Glacial flour; no live molluscs seen
Hood	03	Collection	No	No	30	Glacial flour
Hood	04	Collection	No	No		Irrigation return; no live molluscs seen
Deschutes	01	Collection	No	No		Sewage pollution; no live molluscs seen
Deschutes	02	Visual				Same as site 1
Deschutes	03	Visual				Same as site 1

TABLE B.1. (contd)

Deschutes	04	Collection	No	No	"30,38"	No gravel; bare basalt
Deschutes	05	Visual				Site looked bad
Deschutes	06	Visual				Site looked bad
Deschutes	07	Collection	No	No	"3,5,6,32,33,34,36,38"	Good mollusc habitat
Deschutes	08	Skipped				Looks like site 7
Deschutes	09	Collection	No	No		Dam scour; no live molluscs
(Crooked)						Dam scour; no live molluscs
Deschutes	10	Skipped				Could be good
Deschutes	11	Skipped				Could be good
Deschutes	12	Skipped				Could be good
Deschutes	13	Collection	No	Yes	"3,(4),5,6,10,12 16,19,30,36,38"	Excellent mollusc habitat
Deschutes	14	Collection	No	No	30	Lumber mill pollution
Deschutes	15	Skipped				Potentially good
Deschutes	16	Skipped				Potentially good
Deschutes	17	Skipped				Potentially good
Deschutes	18	Skipped				Potentially good
Deschutes	19	Skipped				Potentially good
Deschutes	20	Skipped				Potentially good
Deschutes	21	Skipped				Potentially good
Deschutes	22	Skipped				Potentially good
Deschutes	23	Skipped				Potentially good
Deschutes	24	Skipped				Potentially good
Deschutes	25	Skipped				Potentially good
Deschutes	26	Skipped				Potentially good
Deschutes	27	Skipped				Potentially good
Deschutes	28	Skipped				Potentially good
Deschutes	29	Skipped				Potentially good
Deschutes	30	Skipped				Potentially good
Deschutes	31	Collection	No	No	"2,5,6,12,20,27,30,33"	Good mollusc habitat
Deschutes	32	Collection	No	Yes	"5,6,10,12,16,30,31"	Good mollusc habitat
Deschutes	33	Collection	No	No	"10,12,30,36,38"	Steelhead fishermen; rafters
Deschutes	34	Collection	No	No	"5,6,10,12,20"	Good mollusc habitat
Deschutes	35	Skipped				"Lumbermill; powerhouse on White River, above site"

TABLE B.1. (contd)

Deschutes	37	Collection	No	Yes	"(2),(3),5,6,10,12,16 17,19,20,24,27,31,32 33,36,38"	Excellent mollusc habitat
Deschutes	38	Collection	No	No	"3,5,6,10,12,30,36,38"	Might have limpets
Deschutes	39	Collection	No	No	"5,6,10,12,24,30,36,38"	Might have limpets
Deschutes	40	Visual No	No			Might have limpets
Deschutes	41	Visual No	No			Might have limpets
Deschutes	42	Visual No	No			Might have limpets
Deschutes	43	Visual No	No			Might have limpets
Deschutes	44	Visual No	No			Might have limpets
Deschutes	45	Collection	No	Yes	"(3),5,6,10,12,17,30,36,38"	Might have limpets
Deschutes	46	Visual No	No			Potential habitat; should have limpets
Deschutes	47	Collection	No	No	"(2),5,6,10,12,16,17,24,30,38"	Potential habitat; should have limpets
Deschutes	48	Visual				Looked good
Deschutes	49	Collection	No	Yes	"(2),(3),(4),5,6,10,20,24 25?,27,30,33,34,36,38"	Excellent mollusc habitat
Deschutes	50	Visual				Looked good
Deschutes	51	Collection	No	Yes	"5,6,10,12,24,30,31,36,38"	Excellent mollusc habitat
Deschutes	52	Visual				Looked good
Deschutes	53	Collection	No	Yes	"10,17,30,36,38"	Looked good
Willamette	01	Skipped				Looked good
Willamette	02	Skipped				Looked good
Willamette	03	Skipped				Looked good
Willamette	04	Skipped				Looked good
Willamette	05	Skipped				Looked good
Willamette	06	Skipped				Looked good
Willamette	07	Skipped				Looked good
Willamette	08	Collection	No	No	"3,5,6,10,11,17,18,32,37,38"	Good mollusc habitat
Willamette	09	Skipped				Good mollusc habitat
Willamette	10	Skipped				Good mollusc habitat
Willamette	11	Skipped				Good mollusc habitat
Willamette	12	Collection	No	No		Industrial pollution; no live molluscs
Willamette	13	Skipped				Industrial pollution; no live molluscs
Willamette	14	Collection	No	No	"5,6,12,30,38"	Sandy
Willamette	15	Skipped				Sandy
Willamette	16	Skipped				Sandy
Willamette	17	Skipped				Sandy
Willamette	18	Skipped				Sandy

TABLE B.1. (contd)

Willamette	19	Collection	No	No	"(3),5,6,10,11,18,30,38"	Good habitat
Willamette	20	Skipped				Good habitat
Willamette	21	Skipped				Good habitat
Willamette	22	Collection	No	No	"1,5,6,11,20,25,30,32,33,38"	Good habitat
Willamette	23	Skipped				Good habitat
Willamette	24	Collection	No	No	38	Sewage
Willamette	25	Collection	No	No	"30,38"	Polluted
Willamette	26	Collection	No	No	30	Long-dead Anodonta; maybe A. wahlametensis
Willamette	27	Collection	No	No	30	Polluted
Willamette	28	Collection	No	No	"(1),30"	Polluted
John Day	01	Skipped				Good habitat; canyon
John Day	02	Skipped				Good habitat; canyon
John Day	03	Collection	No	Yes	"5,6,12,23,30,38"	Mostly warm water
John Day	04	Skipped				Good habitat; canyon
John Day	05	Skipped				Good habitat; canyon
John Day	06	Skipped				Good habitat; canyon
John Day	07	Skipped				Good habitat; canyon
John Day	08	Skipped				Good habitat; canyon
John Day	09	Collection	No	Yes	"1,5,6,12,30,38"	Mostly warm water habitat; snails rare
John Day	10	Skipped				Mostly warm water habitat; snails rare
Umatilla	01	Collection	No	No	30	Irrigation
Umatilla	02	Collection	No	No		Irrigation; no live molluscs
Umatilla	03	Collection	No	No		Irrigation; no live molluscs
Umatilla	04	Collection	No	No	"23,30,38"	Irrigation
Umatilla	05	Collection	No	No		Irrigation; no live molluscs
Umatilla	06	Collection	No	No		Irrigation; no live molluscs
Columbia (Hanford Reach)	01	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	02	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	03	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	04	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	05	Skipped				Good habitat below water flucuation level
						Good habitat below water flucuation level
						Good habitat below water flucuation level
						Good habitat below water flucuation level
						Good habitat below water flucuation level

TABLE B.1. (contd)

Columbia (Hanford Reach)	06	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	07	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	08	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	09	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	10	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	11	Collection	Yes	Yes	"10,30,37,38"	Good habitat below water flucuation level
Columbia (Hanford Reach)	12	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	13	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	14	Skipped				Good habitat below water flucuation level
Columbia (Hanford Reach)	15	Collection	Yes	Yes	"10,30,37"	Supply System Collections
Columbia (Hanford Reach)	16	Collection	Yes	Yes	"10,30,37"	Supply System Collections
Columbia (Hanford Reach)	17	Skipped				Supply System Collections
Columbia (Hanford Reach)	18	Collection	Yes	No		Fluminicola Columbiana Rare
Columbia (Hanford Reach)	19	Collection	Yes	No		Fluminicola Columbiana Rare
Columbia (Hanford Reach)	20	Collection	Yes	No		Fluminicola Columbiana Rare
Columbia (Hanford Reach)	21	Collection	Yes	No		Fluminicola Columbiana Rare
Lower Columbia	01	Skipped				Doesn't look good
Lower Columbia	02	Skipped				Doesn't look good
Lower Columbia	03	Skipped				Doesn't look good
Lower Columbia	04	Skipped				Doesn't look good
Lower Columbia	05	Skipped				Doesn't look good
Lower Columbia	06	Skipped				Doesn't look good
Lower Columbia	07	Skipped				Doesn't look good

TABLE B.1. (contd)

Lower Columbia	08	Skipped				Doesn't look good
Lower Columbia	09	Skipped				Doesn't look good
Lower Columbia	10	Skipped				Doesn't look good
Lower Columbia	11	Collection	No	No	"1,5,6,10,11,17 25,30,37,38"	Good habitat below water flucuation level
Lower Columbia	12	Collection	No	No	"1,5,10,11,17,30,32,38"	Good habitat below water flucuation level
Lower Columbia	13	Skipped				Doesn't look good
Lower Columbia	14	Skipped				Doesn't look good
Lower Columbia	15	Skipped				Doesn't look good
Lower Columbia	16	Skipped				Doesn't look good
Lower Columbia	17	Collection	No	No	"(1),(2),24,30"	Mud and sand bottom; long-dead M. falcata
Lower Columbia	18	Skipped				Doesn't look good
Lower Columbia	19	Skipped				Doesn't look good
Lower Columbia	20	Skipped				Doesn't look good
Lower Columbia	21	Skipped				Doesn't look good
Lower Columbia	22	Skipped				Doesn't look good
Columbia Dams	01	Collection	No	No		No live molluscs
Columbia Dams	02	Collection	No	No		No live molluscs
Columbia Dams	03	Collection	No	No		No live molluscs; scour
Columbia Dams	04	Collection	No	No	"(1),30"	No live molluscs; scour
Columbia Dams	05	Collection	No	No		No live molluscs
Columbia Dams	06	Skipped				Potentially bad
Columbia Dams	07	Collection	No	No	"(1),(12),30"	Potentially bad
Columbia Dams	08	Collection	No	No		Bare rock; no live molluscs
Lake Celilo At Celilo	8A	Collection	No	No	"20,21,23,24,25 30,32,33,34,38"	Impondment habitat
Columbia Dams	09	Collection	No	No	"(1),20,22,23,24	Impoundment habitat
Rooster R.S.P.	9A	Collection	Yes	No	"4,17"	Columbia pebblesnail was long dead; sandy bottom
Spokane	01	Collection	No	No		No snails; substrate correct size; gradient slow
Spokane	02	Collection	No	No		No snails; organic slime on rocks
Spokane	03	Collection	No	No		No snails; organic slime on rocks
Spokane	04	Collection	No	No	30	Slow water; industrial influence
Spokane	05	Skipped				Slow water; industrial influence
Spokane	06	Skipped				Slow water; industrial influence
Spokane	07	Collection	No	No	30	Sponges; reach has been channelized
Spokane	08	Collection	No	No	30	Sponges; reach has been channelized

TABLE B.1. (contd)

Spokane	09	Skipped				Sponges; reach has been channelized
Spokane	10	Skipped				Sponges; reach has been channelized
Spokane	11	Skipped				Sponges; reach has been channelized
(Coeur D' Alene)						Sponges; reach has been channelized
Spokane	12	Skipped				Sponges; reach has been channelized
(Coeur D' Alene)						Sponges; reach has been channelized
Spokane	13	Collection	No	No	"20,24,30"	shallow clear water
(Coeur D' Alene)						shallow clear water
Spokane	14	Visual				Muddy substrate; slow moving
(Coeur D' Alene)						Muddy substrate; slow moving
Spokane	15	Visual				Muddy substrate; slow moving; many snails
(Coeur D' Alene)						Muddy substrate; slow moving; many snails
Spokane	16	Collection	No	No	"24,30"	Muddy substrate; slow moving
(Coeur D' Alene)						Muddy substrate; slow moving
Spokane	17	Visual				Muddy substrate; slow moving
(Coeur D' Alene)						Muddy substrate; slow moving
Spokane	18	Collection	No	No	"30,38"	Muddy substrate; slow moving
(Coeur D' Alene)						Muddy substrate; slow moving
Spokane	19	Skipped				Muddy substrate; slow moving
(Coeur D' Alene)						Muddy substrate; slow moving
Spokane	20	Collection	No	No	"5,30,38"	"Habitat looks good; good bottom, medium gradient"
(St Maries)						"Habitat looks good; good bottom, medium gradient"
Spokane	21	Skipped				"Habitat looks good; good bottom, medium gradient"
(St Maries)						"Habitat looks good; good bottom, medium gradient"
Spokane	22	Skipped				"Habitat looks good; good bottom, medium gradient"
(St Maries)						"Habitat looks good; good bottom, medium gradient"
Spokane	23	Skipped				"Habitat looks good; good bottom, medium gradient"
(St Maries)						"Habitat looks good; good bottom, medium gradient"

TABLE B.1. (contd)

Spokane (St Maries)	24	Skipped				"Habitat looks good; good bottom, medium gradient"
Spokane (St Maries)	25	Collection	No	No	30	"Habitat looks good; good bottom, medium gradient"
Spokane (St Joe)	26	Collection	No	No	30	Sandy bottom
Spokane (St Joe)	27	Skipped				Sandy bottom
Spokane (St Joe)	28	Skipped				Clean water
Spokane (St Joe)	29	Skipped				Clean water
Spokane (St Joe)	30	Skipped				Clean water
Spokane (St Joe)	31	Collection	No	No		Clean water
Spokane (St Joe)	32	Collection	No	No		Clean water
Spokane (St Joe)	33	Collection	No	No		Clean water
Spokane (St Joe)	34	Skipped				Clean water
Spokane (Coeur D' Alene)						Clean water
Malheur	01	Skipped				Clean water
Malheur	02	Collection	No	No	"23,30"	Clean water
Malheur	03	Collection	No	No	"23,24,30"	Clean water
Malheur	04	Skipped				Poor habitat; urban development and logging; no live molluscs
Malheur	05	Skipped				Poor habitat; urban development and logging; no live molluscs
						Mud substrate; HS smell when walk in mud; no live molluscs
						Mud substrate; HS smell when walk in mud; no live molluscs
						Mud substrate; HS smell when walk in mud; no live molluscs
						Mud substrate; HS smell when walk in mud; no live molluscs
						Mud substrate; HS smell when walk in mud; no live molluscs
						Mud substrate; HS smell when walk in mud; no live molluscs
						Mud substrate; HS smell when walk in mud; no live molluscs
						Algae; irrigation
						Algae; irrigation
						Algae; irrigation
						Algae; irrigation

TABLE B.1. (contd)

Malheur	06	Skipped				Algae; irrigation
Malheur	07	Collection	No	No	"24,30"	Algae; irrigation
Malheur	08	Skipped				Algae; irrigation
Malheur	09	Skipped				Algae; irrigation
Malheur	10	Skipped				Algae; irrigation
Malheur	11	Visual				Algae; irrigation
Malheur	12	Visual				Algae; irrigation
Malheur	13	Visual				Algae; irrigation
Lower Owyhee	01	Skipped				Algae; irrigation
Upper Owyhee	1A	Collection	No	No	"3,(4),5,6,7,10,12,20,23 24,30,31,32,33,34 35,36,38"	Excellent mollusc habitat; could have Columbia pebblesnail or shortface lanx
Lower Owyhee	02	Visual			"23,30"	Algae; irrigation
Lower Owyhee	03	Collection	No	No		Algae; irrigation
Lower Owyhee	04	Collection	No	No	30	Algae; irrigation
Lower Owyhee	05	Visual				Algae; irrigation
Lower Owyhee	06	Collection	No	No	30	Algae; irrigation
Clark Fork	01	Collection	No	No	30	Temperature fluctuation; poor mollusc habitat
Clark Fork	02	Visual				Temperature fluctuation; poor mollusc habitat
Clark Fork	03	Visual				Temperature fluctuation; poor mollusc habitat
Clark Fork	04	Visual				Temperature fluctuation; poor mollusc habitat
Clark Fork	05	Visual				Temperature fluctuation; poor mollusc habitat
Clark Fork	06	Collection	No	No	30	Temperature fluctuation; poor mollusc habitat
Clark Fork	07	Visual				Temperature fluctuation; poor mollusc habitat
Clark Fork	08	Visual				Temperature fluctuation; poor mollusc habitat
Clark Fork	09	Visual				Temperature fluctuation; poor mollusc habitat
Clark Fork	10	Visual				Temperature fluctuation; poor mollusc habitat
Clark Fork	11	Collection	No	No	"30,32"	Gravelly bottom; no shale

TABLE B.1. (contd)

Clark Fork	12	Visual				Temperature fluctuation; poor mollusc habitat
Clark Fork	13	Visual				No molluscs
Clark Fork	14	Visual	No	No		High gradient; whitewater
Clark Fork	15	Collection	No	No	"29,30,33,34"	Temperature fluctuation; good mollusc habitat; macrophytes
(Flathead)						Temperature fluctuation; good mollusc habitat; macrophytes
Clark Fork	16	Collection	No	No	"23,29,30,34"	Good snail habitat; lots of snails
(Flathead)						Good snail habitat; lots of snails
Clark Fork	18	Visual				Good snail habitat; lots of snails
(Flathead)						Good snail habitat; lots of snails
Clark Fork	19	Visual				Good snail habitat; lots of snails
(Flathead)						Good snail habitat; lots of snails
Clark Fork	20	Visual				Good snail habitat; lots of snails
Clark Fork	21	Collection	No	No	30	Temperature fluctuation; Scour
Clark Fork	22	Collection	No	No	"29,30,38"	Temperature fluctuation; Scour
Clark Fork	23	Visual				Temperature fluctuation; Scour
Clark Fork	24	Collection	No	No	"29,30,33"	Good snail habitat
Clark Fork	25	Visual				Looks good; poor access
Clark Fork	26	Collection	No	No	"29,30,33,35"	Good snail habitat
Clark Fork	27	Visual				Good snail habitat
Kootenai	01	Collection	No	No		Looks good
Kootenai	02	Collection	No	No	"24,25,30"	Good snail habitat
Kootenai	03	Collection	No	No	"24,25,30"	Good snail habitat
Kootenai	04	Skipped				Good snail habitat
Kootenai	05	Skipped				Good snail habitat
Kootenai	07	Skipped				Good snail habitat
Kootenai	08	Collection	No	No		Looks good but no snails
Kootenai	09	Collection	No	No	24	Looks good but only two snails
Kootenai	10	Skipped				Looks good but only two snails
Kootenai	11	Collection	No	No		Looks good
Kootenai	12	Collection	No	No	"24,30"	Looks good
Kootenai	13	Collection	No	No	30	Looks good
Kootenai	14	Visual				Agricultural land; meander river through soil
Kootenai	15	Skipped				Agricultural land; meander river through soil
Kootenai	16	Skipped				Agricultural land; meander river through soil
Kootenai	17	Skipped				Agricultural land; meander river through soil

TABLE B.1. (contd)

Kootenai	18	Collection	No	No		Agricultural land; meander river through soil
Kootenai	19	Skipped				Agricultural land; meander river through soil
Kootenai	20	Skipped				Agricultural land; meander river through soil
Kootenai	21	Collection	No	No		Slow water; looks like backwater
Clearwater	01	Collection	No	No	30	Steep gradient
(Selway ; Meadow Cr.)						Steep gradient
Clearwater	02	Collection	No	No	30	Steep gradient
(Selway)						Steep gradient
Clearwater	03	Collection	No	No	30	Steep gradient
(Selway)						Steep gradient
Clearwater	04	Collection	No	No	"30,37"	Steep gradient
(Selway)						Steep gradient
Clearwater	05	Collection	No	No	"30,37"	Steep gradient
(Selway)						Steep gradient
Clearwater	06	Collection	No	No	"(3),37"	Steep gradient
(Selway)						Steep gradient
Clearwater	07	Visual				Steep gradient
(Selway)						Steep gradient
Clearwater	08	Collection	No	No	30	Steep gradient
(Lochsa)						Steep gradient
Clearwater	09	Visual				Steep gradient
(Lochsa)						Steep gradient
Clearwater	10	Visual				Steep gradient
(Lochsa)						Steep gradient
Clearwater	11	Collection	No	No	"30,32,38"	Steep gradient
(Lochsa)						Steep gradient
Clearwater	12	Collection	No	No	"5,30,38"	Steep gradient
(Lochsa)						Steep gradient
Clearwater	13	Visual				Steep gradient
(Lochsa)						Steep gradient
Clearwater	14	Collection	No	No	30	Steep gradient
(Lochsa)						Steep gradient
Clearwater	15	Collection	No	No		Sandy bar; no live molluscs
(Selway)						Sandy bar; no live molluscs
Clearwater	16	Collection	No	No	"30,38"	Sandy bar
Clearwater	17	Collection	No	No		Rapids; no live molluscs
Clearwater	18	Visual				Rapids; no live molluscs
Clearwater	20	Visual				Rapids; no live molluscs

TABLE B.1. (contd)

Clearwater	21	Visual				Rapids; no live molluscs
Clearwater	22	Collection	No	No		Lumber mill pollution; no live molluscs
S.F. Clearwater	22A	Collection	No	No	"3,5,6,10,24,30,38"	Good potential habitat
Clearwater	23	Collection	No	No		Lumber mill pollution; no live molluscs
Clearwater	24	Visual				Lumber mill pollution; no live molluscs
Clearwater	25	Visual				Lumber mill pollution; no live molluscs
Clearwater	26	Collection	No	No	30	Good potential habitat
Clearwater	27	Visual				Good potential habitat
Clearwater	28	Visual				Good potential habitat
Clearwater	29	Visual				Good potential habitat
Clearwater	30	Collection	No	No	"(4),5,6,10,20,30,33,38"	Good potential habitat
Imnaha	01	Collection	No	No		Good habitat
Lower Snake	01	Visual				Unlikely
Lower Snake	02	Visual				Unlikely
Lower Snake	03	Visual				Potential
Lower Snake	04	Visual				Potential
Lower Snake	05	Visual				Potential
Lower Snake	06	Collection	No	No	"27,30,38"	Looks good
Lower Snake	07	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	08	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	09	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	10	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	11	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	12	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	13	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	14	Collection	No	Yes	"3,(4),5,6,9,30,38"	shortface lanx rare; good mollusc habitat
Lower Snake	15	Collection	No	No	"(4),(5),(6)"	Dead shortface lanx
Lower Snake	16	Collection	No	Yes	"(3),(4),5,6,9,30,38"	Fair mollusc habitat
Lower Snake	17	Collection	No	Yes	"(3),(5),(6),30,(38)"	Fair mollusc habitat; sandy bar
Lower Snake	18	Visual				Looks good for limpet; might be good for shortface lanx

TABLE B.1. (contd)

Lower Snake	19	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	20	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	21	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	22	Visual				Looks good for limpet; might be good for shortface lanx
Lower Snake	23	Skipped				Looks good for limpet; might be good for shortface lanx
Lower Snake	24	Collection	No	No	"(3),(9),30,38"	Abundant dead shortface lanx
Lower Snake	25	Collection	No	No	"(3),5,6,9,30,38"	Abundant dead shortface lanx
Lower Snake	26	Skipped				Abundant dead shortface lanx
Lower Snake	27	Skipped				Abundant dead shortface lanx
Lower Snake	28	Skipped				Abundant dead shortface lanx
Lower Snake	29	Skipped				Abundant dead shortface lanx
Lower Snake	30	Skipped				Abundant dead shortface lanx
Lower Snake	31	Skipped				Abundant dead shortface lanx
Middle Snake	01	Collection	No	No	"(9),20,24,30,33,38"	Siltation
Middle Snake	02	Collection	No	No		Siltation; no live molluscs
Middle Snake	03	Collection	No	No		Siltation; no live molluscs
Middle Snake	04	Collection	No	Yes	"5,6,9,14,15,30,36,38"	Good mollusc habitat
Middle Snake	05	Visual				Some potential; introduced snails
Middle Snake	06	Collection	No	No	"5,6,9,13,23,27,30"	Common molluscs; tolerant speices only
Middle Snake	07	Collection	No	No	"5,6,20,23,30"	Impacted by impoundment
Middle Snake	08	Visual				Some potential; introduced snails
Middle Snake	09	Collection	No	Yes	"3,5,6,7,9,13,20,27 30,33,36,38"	Good habitat
Middle Snake	10	Collection	No	Yes	"3,5,6,9,13,30,35,38"	Good habitat
Middle Snake	11	Skipped				Good habitat
Middle Snake	12	Collection	No	No	"5,6,9,13,20,24,30,33,38"	Fish feces degradation
Middle Snake	13	Collection	No	No	"5,6,9,13,20,24,27,30,33,38"	Fish feces degradation
Middle Snake	14	Collection	No	No	"5,6,24,27,30,38"	Bad habitat; agriculture
Middle Snake	15	Collection	No	No	"5,6,24,27,30,33,38"	Bad habitat; power plant
Middle Snake	16	Collection	No	No	"2,5,6,(8),9,13,23,27,30"	Good habitat but no pebblesnail or lanx
Middle Snake	17	Collection	No	No	"2,5,6,(8),(9),20,21,23,24 27,30,33,(35),38"	Siltation
Middle Snake	18	Skipped				Siltation

TABLE B.1. (contd)

Middle Snake	19	Skipped				Siltation
Middle Snake	20	Collection	No	No	"5,6,9,20,21,22,23 24,27,30,33,35,38"	Bad habitat; irrigation
Middle Snake	21	Collection	No	No	"5,6,9,13,20,24,30,33,34,38"	Good habitat
Middle Snake	22	Skipped				Good habitat
Middle Snake	23	Collection	No	No	"5,6,(8),9,(14),20 21,27,30,33,38"	Long-dead limpet shells; dead shortface lanx
Middle Snake	24	Collection	No	No	"5,6,7,8,9,13,14,20,21 23,27,30,33,36,38"	Good habitat
Middle Snake	25	Collection	No	No	"(3),5,6,7,(8),9,13,14 20,24,27,30,33,36,38"	Dead limpet shells; good habitat; dead shortface lanx
Middle Snake	26	Skipped				Dead limpet shells; good habitat; dead shortface lanx
Middle Snake	27	Skipped				Dead limpet shells; good habitat; dead shortface lanx
Middle Snake	28	Skipped				Dead limpet shells; good habitat; dead shortface lanx
Middle Snake	29	Skipped				Dead limpet shells; good habitat; dead shortface lanx
Middle Snake	30	Skipped				Dead limpet shells; good habitat; dead shortface lanx
Middle Snake	31	Skipped				Dead limpet shells; good habitat; dead shortface lanx
Middle Snake	32	Skipped				Dead limpet shells; good habitat; dead shortface lanx
Middle Snake	33	Collection	No	No	"5,6,9,27,30,36"	Good habitat
Middle Snake	34	Visual				May be good habitat
Middle Snake	35	Visual				May be good habitat
Middle Snake	36	Visual				May be good habitat
Middle Snake	37	Visual				Irrigation and power; rapids survive
Middle Snake	38	Visual				Irrigation and power; bad habitat
Middle Snake	39	Visual				Irrigation and power; bad habitat
Middle Snake	40	Visual				Irrigation and power; bad habitat
Middle Snake	41	Skipped				Irrigation and power; bad habitat
Middle Snake	42	Skipped				Irrigation and power; bad habitat
Middle Snake	43	Skipped				Irrigation and power; bad habitat

TABLE B.1. (contd)

Middle Snake	44	Skipped				Irrigation and power; bad habitat
Middle Snake	45	Skipped				Irrigation and power; bad habitat
Middle Snake	46	Skipped				Irrigation and power; bad habitat
Middle Snake	47	Skipped				Irrigation and power; bad habitat
Middle Snake	48	Skipped				Irrigation and power; bad habitat
Middle Snake	49	Visual				Irrigation and power; bad habitat
Middle Snake	50	Visual				Irrigation and power; bad habitat
Middle Snake	51	Skipped				Irrigation and power; bad habitat
Henry's Fork	01	Skipped				Irrigation and power; bad habitat
Henry's Fork	02	Collection	No	No	"5,6,9,20,27,30"	Moderately good mollusc habitat
Henry's Fork	03	Skipped				Moderately good mollusc habitat
Henry's Fork	04	Skipped				Moderately good mollusc habitat
Henry's Fork	05	Skipped				Moderately good mollusc habitat
Henry's Fork	06	Skipped				Moderately good mollusc habitat
Henry's Fork	07	Collection	No	No		Eutrophic
Henry's Fork	08	Skipped				Eutrophic
Henry's Fork	09	Skipped				Eutrophic
Henry's Fork	10	Skipped				Eutrophic
Henry's Fork	11	Skipped				Eutrophic
Henry's Fork	12	Collection	No	No	30	Eutrophic
Henry's Fork	13	Skipped				Eutrophic
Henry's Fork	14	Collection	No	No	"24,30,38"	Partly eutrophic
Henry's Fork	15	Skipped				Partly eutrophic
Henry's Fork	16	Skipped				Partly eutrophic
Henry's Fork	17	Skipped				Partly eutrophic
Henry's Fork	18	Skipped				Partly eutrophic
Henry's Fork	19	Skipped				Partly eutrophic
Henry's Fork	20	Skipped				Partly eutrophic
Henry's Fork	21	Collection	No	No	"24,30,35,38"	Slow flow
Henry's Fork	22	Collection	No	No	"30,35"	Poor mollusc habitat
Henry's Fork	23	Skipped				Poor mollusc habitat
Henry's Fork	24	Collection	No	No	"5,20,24,30,33"	Slow flow
Henry's Fork	25	Skipped				Slow flow
Henry's Fork	26	Skipped				Slow flow
Henry's Fork	27	Skipped				Slow flow
Weiser	01	Collection	No	No	30	Agriculture
Weiser	02	Collection	No	No	30	Agriculture
Weiser	03	Collection	No	No	30	Agriculture

TABLE B.1. (contd)

Weiser	04	Collection	No	No	"5,6,23,24,30,38"	Agriculture
Weiser	05	Collection	No	No	30	Agriculture
Weiser	06	Collection	No	No	"3,5,6,20,24,30,33,38"	Agriculture
Weiser	07	Visual				Looks bad
Weiser	08	Visual				Looks bad
Weiser	09	Visual				Looks bad
Weiser	10	Collection	No	Nc	30	Agriculture
Weiser	11	Collection	No	No		No live molluscs
Upper Snake	01	Skipped				No live molluscs
Upper Snake	02	Skipped				No live molluscs
Upper Snake	03	Skipped				No live molluscs
Upper Snake	04	Skipped				No live molluscs
Upper Snake	05	Skipped				No live molluscs
Upper Snake	06	Skipped				No live molluscs
Upper Snake	07	Skipped				No live molluscs
Upper Snake	08	Skipped				No live molluscs
Upper Snake	09	Skipped				No live molluscs
Upper Snake	10	Skipped				No live molluscs
Upper Snake	11	Skipped				No live molluscs
Upper Snake	12	Skipped				No live molluscs
Upper Snake	13	Skipped				No live molluscs
Upper Snake	14	Skipped				No live molluscs
Upper Snake	15	Skipped				No live molluscs
Upper Snake	16	Skipped				No live molluscs
Upper Snake	17	Skipped				No live molluscs
Upper Snake	18	Skipped				No live molluscs
Upper Snake	19	Skipped				No live molluscs
Upper Snake	20	Skipped				No live molluscs
Upper Snake	21	Skipped				No live molluscs
Upper Snake	22	Skipped				No live molluscs
Upper Snake	23	Skipped				No live molluscs
Upper Snake	24	Skipped				No live molluscs
Upper Snake	25	Skipped				No live molluscs
Upper Snake	26	Collection	No	No	"5,(12),20,23,(27),30,33,35"	Moderately good habitat
Upper Snake	27	Skipped				Moderately good habitat
Upper Snake	28	Skipped				Moderately good habitat
Upper Snake	29	Collection	No	No	"5,6,(9),20,24,(27),30"	Moderately good habitat
Upper Snake	30	Skipped				Moderately good habitat

TABLE B.1. (contd)

Upper Snake	31	Collection	No	No	"5,6,20,24,30,38"	Moderately good habitat
Upper Snake	32	Skipped				Moderately good habitat
Upper Snake	33	Skipped				Moderately good habitat
Upper Snake	34	Collection	No	No	"5,6,20,30,38"	Moderately good habitat
Upper Snake	35	Skipped				Moderately good habitat
Upper Snake	36	Collection	No	No	"20,24,30,33"	Moderately good habitat
Upper Snake	37	Collection	No	No	"6,9,20,24,30,32"	Moderately good mollusc habitat
Upper Snake	38	Collection	No	No	"3,5,6,9,20,27,30,32,33,38"	Moderately good mollusc habitat
Salmon	01	Collection	No	No	"(3),5,9,20,27,30,32,34,38"	Molluscs abundant and diverse
Salmon	02	Visual				Should be good
Salmon	03	Collection	No	No	"(3),5,9,20,27,30,32,34,38"	Good mollusc habitat
Salmon	04	Visual				Should be good
Salmon	05	Visual				Should be good
Salmon	06	Visual				Should be good
Salmon	07	Collection	No	No	"5,6,920,30,34,38"	Good mollusc habitat
Salmon	08	Visual				Should be good
Salmon	09	Visual				Should be good
Salmon	10	Visual				Should be good
Salmon	11	Visual				Should be good
Salmon	12	Visual				Should be good
Salmon	13	Visual				Should be good
Salmon	14	Collection	No	No	"3,5,6,9,20,30,33,34"	Good mollusc habitat
Salmon	15	Visual				Should be good
Salmon	16	Visual				Should be good
Salmon	17	Visual				Should be good
Salmon	18	Collection	No	No	"9,24,30"	Good habitat
Salmon	19	Visual				Should be good
Salmon	20	Collection	No	No	"5,20,24,33,34,38"	Relatively poor habitat
Salmon	21	Collection	No	No	"20,24,33,38"	Poor mollusc habitat
Salmon	22	Visual				Should be good
Salmon	23	Visual				Should be good
Salmon	24	Visual				Should be good
Salmon	25	Visual				Should be good
Salmon	26	Visual				Should be good
Salmon	27	Visual				Should be good
Salmon	28	Visual				Should be good
Salmon	29	Visual				Should be good
Salmon	30	Visual				Should be good

TABLE B.1. (contd)

Salmon	31	Visual				Should be good
Salmon	32	Visual				Should be good
Salmon	33	Visual				Should be good
Salmon	34	Visual				Should be good
Salmon	35	Visual				Should be good
Salmon	36	Visual				Should be good
Salmon	37	Visual				Should be good
Salmon	38	Visual				Should be good
Salmon	39	Visual				Should be good
Salmon	40	Collection	No	Yes	"3,(4),9,30,38"	Should be good
Salmon	41	Visual				Should be good
Salmon	43	Skipped				Should be good
Salmon	44	Skipped				Should be good
Salmon	45	Visual				Looks good
Salmon	46	Visual				Looks good
Salmon	47	Visual				Looks good
Salmon	48	Visual				Looks good
Salmon	49	Visual				Looks good
Salmon	50	Visual				Looks good
Salmon	51	Visual				Looks good
Salmon	52	Visual				Looks good
Salmon	53	Collection	No	No	"9,24,30,38"	Good habitat; snails very abundant
Salmon	54	Skipped				Good habitat; snails very abundant
Salmon	55	Collection	No	No	"9,24,30"	Good habitat; snails very abundant
Salmon	56	Skipped				Good habitat; snails very abundant
Salmon	57	Collection	No	Yes	"9,24,30,38"	Good habitat; snails very abundant; shortface lanx rare
Salmon	58	Collection	No	No	"9,24,30"	Good mollusc habitat; common snails
Salmon	59	Collection	No	No	9	Poor habitat; deep pool; silt and sand
Salmon	60	Collection	No	No		Sand: no molluscs
Salmon	61	Collection	Yes	Yes	"4,28,30"	"Good habitat; shortface lanx rare; 1 live Columbia pebblesnail,"
Salmon	62	Visual				rest recently dead
Salmon	63	Visual				rest recently dead
Salmon	64	Visual				rest recently dead
Salmon	66	Visual				rest recently dead
Salmon	67	Visual				rest recently dead

TABLE B.1. (contd)

Salmon	68	Visual				rest recently dead
Salmon	69	Skipped				rest recently dead
Salmon	70	Collection	No	No	"3,28,30"	rest recently dead
Salmon	71	Collection	Yes	Yes	"28,30"	Good habitat; shortface lanx rare; all Columbia pebblesnail recently dead.
Salmon	72	Skipped				Should be good
Salmon	73	Skipped				Should be good
Salmon	74	Skipped				Should be good
Salmon	75	Collection	No	Yes	"(4),5,9,20,28,30,(35)"	Shortface lanx common; full ontogeny
Salmon	76	Skipped				Should be good
Salmon	77	Collection	No	Yes	"5,9,20,28,30"	Shortface lanx common; full ontogeny
Payette	01	Skipped				Shortface lanx common; full ontogeny
Payette	02	Skipped				Shortface lanx common; full ontogeny
Payette	03	Collection	No	No	30	Steep gradient
Payette	04	Collection	No	No	38	Steep gradient
Payette	05	Skipped				Steep gradient
Payette	06	Collection	No	No	30	Steep gradient
Payette	07	Collection	No	No	"30,38"	Steep gradient
Payette	08	Collection	No	No	30	Steep gradient
Payette	09	Collection	No	No	30	Steep gradient
Payette	10	Collection	No	No	30	Steep gradient
Payette	11	Collection	No	No	38	Steep gradient
Payette	12	Skipped				Steep gradient
Payette	13	Collection	No	No	"30,38"	Steep gradient
Payette	14	Skipped				Steep gradient
Payette	15	Collection	No	No	"30,38"	Steep gradient
Payette	16	Skipped				Steep gradient
Payette	17	Skipped				Steep gradient
Payette	18	Collection	No	No	30	Irrigation
Payette	19	Skipped				Irrigation
Payette	20	Collection	No	No	30	Irrigation; long-dead Fluminicola hindsi
Payette	21	Collection	No	No		Irrigation; Dwight Taylor pos. for Columbia pebblesnail in 19[illegible]'s; no live molluscs
Payette	22	Collection	No	No		Irrigation; no live molluscs
Payette	23	Skipped				Irrigation; no live molluscs
Payette	24	Skipped				Irrigation; no live molluscs
Payette	25	Collection	No	No	"24,30,38"	Irrigation

TABLE B.1. (contd)

Payette	26	Collection	No	No		Irrigation
Payette	27	Collection	No	No	"23,24,36,38"	Irrigation
Payette	28	Visual				Irrigation
Payette	29	Visual				Irrigation
Payette	31	Collection	No	No	"23,29,38"	Irrigation
Payette	32	Visual				Irrigation
Payette	33	Skipped				Irrigation
Payette	34	Visual				Irrigation and siltation
Payette	35	Visual				Irrigation and siltation
Payette	36	Skipped				Irrigation and siltation

TABLE B.2. Scientific Names of the Mollusks Collected in the Columbia River Basin During 1989 Through 1991. The cross reference numbers correlate with the numbers in Table B.1.

Cross Reference Number	Scientific Name
1.	*Corbicula* spp. (introduced genus)
2.	*Anodonta californiensis* (Lea)
3.	*Gonidea angulata* (Lea)
4.	*Margaritifera falcata* (Gould)
5.	*Sphaerium* spp.
6.	*Pisidium* spp.
7.	*Valvata humeralis* (Say)
8.	*Valvata utahensis* (Call)
9.	*Fluminicola hindsi* (Baird)
10.	*Fluminicola nuttalliana* (Lea)
11.	*Fluminicola virens* (Lea)
12.	*Fluminicola* spp.
13.	*Potamopyrgus antipodarium* (Gray; introduced species)
14.	Bliss Rapids Snail
15.	*Fontelicella* (Natricola) *idahoensis* (Pilsbry)
16.	*Juga* (Juga) *hemphilli maupinensis* (Henderson)
17.	*Juga* (Juga) *plicifera plicifera* (Lea)
18.	*Juga* (Juga) *silicula* (Gould)
19.	*Juga* (Oreobasis) *bulbosa* (Gould)
20.	*Fossaria* spp.
21.	*Lymnaea stagnalis appressa* (Say)
22.	*Pseudosuccinea columella* (Say; introduced species)
23.	*Radix auricularia* (Linnaeus; introduced species)
24.	*Stagnicola* spp.
25.	*Stagnicola apicina* (Lea)
26.	*Stagnicola elrodiana* (F.C. Baker)
27.	*Stagnicola hinkleyi* (F.C. Baker)
28.	*Stagnicola idahoense* (Henderson)
29.	*Stagnicola elrodi* (F.C. Baker & Henderson)
30.	*Physella* spp.
31.	*Physella* (Physella) *columbiana* (Hemphill)
32.	*Physella* (Physella) *lordi* (Baird)
33.	*Gyraulus* (Torquis) *parvus* (Say)
34.	*Menetus* (Menetus) *opercularis* (Gould)
35.	*Planorbella* (Pierosoma) *subcrenatum* (Carpenter)
36.	*Vorticifex effusa effusa* (Lea)
37.	*Vorticifex effusa costata* (Henderson)
38.	*Ferrissia* spp.

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