

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

Tony Knowles, *Governor*

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Milton A. Wiltse, *Director and State Geologist*

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Report of Investigations 2000-5
FOSSIL LOCALITY MAP OF THE HEALY
A-6 QUADRANGLE, SOUTH-CENTRAL ALASKA

by
R.B. Blodgett and K.H. Clautice





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Sheet 1. Fossil locality map, Healy A-6 Quadrangle, South-Central Alaska



FOSSIL LOCALITY MAP FOR THE HEALY A-6 QUADRANGLE, SOUTH-CENTRAL ALASKA

by
Robert B. Blodgett¹ and Karen H. Clautice²

This report presents in tabular form a complete listing of faunal and minor floral elements, along with their identification as known to date, for all fossils collected by field party members of the Alaska Division of Geological & Geophysical Surveys (DGGs) during their 1997 and 1998 geological mapping effort in the Healy A-6 Quadrangle. In addition, all known U.S. Geological Survey fossil localities that could be located from previously published maps are also shown on the fossil locality map and listed in the fossil register. The purpose of this listing of fossil localities and their contained faunas is to provide biostratigraphic age control for the recent DGGs mapping efforts in the Healy A-6 Quadrangle and surrounding areas (Clautice and others, in press).

The Upper Chulitna district has played an important role in models of the tectonic evolution of Alaska following recognition of several tectonostratigraphic terranes (most notably the Chulitna terrane) within this area (Jones and others, 1980, 1982; Hawley and others, 1987). The first fossils to be described from rocks ascribed to the Chulitna terrane were two Late Triassic age species; one, a gastropod (*Protorcula alaskana* Smith) and the other, the bivalve (*Lima blackburnei* Smith). Both were found in limestone float along Copeland Creek and were described and illustrated by J.P. Smith (1927). Nichols and Silberling (1979) described and illustrated a fauna of 13 species of Early Triassic (Smithian) age ammonites collected from the road near the Golden Zone mine. They suggested that the fauna of the Chulitna terrane indicated it was derived from a more "southerly" paleolatitudinal position, possibly equivalent to Nevada or Idaho. Wardlaw (1982) listed and illustrated Early Triassic conodonts, including two new species, from two separate horizons (one, the same locality as that which yielded the ammonites described by Nichols and Silberling; the other from early Spathian age phosphatic chert strata slightly less than 2.0 km west-southwest of the first locality). Unfortunately both of the new species, belonging to the genus *Neogondolella*, were not formally described and, thus, are *nomina nuda*. Blome in Jones and others (1980, pl. 2) illustrated Upper Jurassic radiolarians from the West Fork terrane. Hoover (1991) noted the occurrence of the long-ranging Upper Triassic cyrtinoid brachiopod *Spondylospira lewesensis* Lees from the Chulitna terrane. This species was originally described

from the Whitehorse area of the Yukon Territory, in rocks now ascribed to the Stikinia terrane.

Lengthy faunal lists for rocks of the upper Chulitna district are found in Hawley and Clark (1974), Silberling and others (1978), Jones and others (1980), and Csejtey and others (1992). Several isolated fossil localities were also noted in early publications on, or mentioning, the district (Capps, 1919; Martin, 1926; Ross, 1933). Mapping done by the DGGs during July 1997 and 1998 has more than doubled the number of known fossil localities. The oldest strata of the Chulitna terrane, as recognized by Jones and others (1980), appear to be represented by Upper Devonian (Famennian) radiolarian-bearing cherts. Radiolaria from these beds are described by Won and others (2000). Probable Late Pennsylvanian-age rocks with brachiopods (notably *Choristites*), bivalves, and crinoid ossicles appear to represent the oldest megafaunal horizon within Jones' Chulitna terrane. Between this unit and a Permian limestone unit (discussed below) is a thick unit composed of gray argillite and graywacke. The upper portion of this unit contains minor development of shelly benthos (mostly brachiopods) and moderately abundant trace fossils of the ichnogenera *Chondrites* and *Scalarituba*. A Permian limestone unit (about 100 m thick) has yielded an extremely diverse fauna of typical "Arctic Permian" type. Brachiopod elements (studied by Blodgett) include *Spiriferella*, *Spiriferellina*, *Horridonia*, *Linoproductus*, and *Krotovia*. This unit is unconformably overlain by a thick sequence of hematite-stained coarse to fine clastic sedimentary and volcanic rocks equivalent in part to the "red beds" of Jones and others (1980). Locally, a thin interval of Lower Triassic strata, including limestones and phosphatic cherts, are also developed and contain the abundant fossil remains noted above. The Upper Triassic is extremely thick in the Chulitna region, and much remains to be sorted out in terms of the succession of its contained lithologic units. Various parts of the Upper Triassic megafauna are currently under study by specialists (corals and spongiomorphs, George Stanley; brachiopods, Michael Sandy and Monica Stefanoff; conodonts, Norman M. Savage; bivalves, Chris McRoberts; and gastropods, Robert B. Blodgett). Two abstracts and one paper (Stanley, 1999; Stefanoff and others, 1999; and Yarnell and others, 1999) were published in 1999, which

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delve respectively with aspects of the coral, brachiopod, and bivalve fauna from the Upper Triassic of the Chulitna terrane. In addition, Upper Triassic brachiopod fauna are the subject of an unpublished undergraduate thesis (Stefanoff, 1998). Fryda and Blodgett (in press) establish a new protorculid gastropod genus *Chulitnacula*, whose type species is *Protorcula alaskana* Smith, 1927, one of the first fossils described from the Chulitna district. *Chulitnacula alaskana* (Smith) is a widespread taxon found in shallow-water, near-shore marine environments of late Norian age, found not only in the Chulitna terrane, but also in the Farewell and Alexander terranes of southern Alaska. Further assessment of the Chulitna faunas will undoubtedly indicate how truly far-traveled this terrane is. Biogeographic data assembled to date from the Chulitna terrane suggest that it was probably in moderate to high latitudes during the Permian, and moved appreciably farther southward during the Triassic so that by Late Triassic time its fauna was distinctly tropical.

Lower Cretaceous fossils from the Kahiltla flysch unit of the district remain poorly studied, although one single collection (USGS Mesozoic locality 15414) from near the West Fork of the Chulitna River, dominated by probable *Buchia crassicolis* (Keyserling), received special mention several times in the literature (Capps, 1933, p. 261; Capps, 1940, p. 111; Imlay and Reeside, 1954, p. 236). This species is typical of Valanginian age rocks elsewhere in high-latitude regions of the Northern Hemisphere. This locality consists of irregular lenses of dark-colored limestone several feet thick full of the shell remains (Capps, 1933, p. 261). This horizon appears to form a quite distinctive limestone-rich marker unit within the Kahiltla flysch terrane, and was collected several times during the course of mapping by DGGS. At these localities, the limestones are typically crowded with the remains of belemnite guards, *Inoceramus* prisms, or disarticulated valves of the bivalve *Buchia*. This interval has not yet been distinguished as a separable mappable unit, but detailed mapping of the flysch terrane may ultimately be able to confirm its mappability as a single, or repetitive succession of shallow-water limestones within a dominantly flysch basin. Other terranes recognized in the Upper Chulitna district also contain fossil faunas, though not in the same relative abundance as in the Chulitna terrane. Rocks assigned to the Broad Pass terrane of Jones and others (1980), lying eastward of the Chulitna terrane, include the oldest strata (Middle Devonian, based on conodonts, rugose and tabulate corals, and a single brachiopod) presently recognized in the district. Mapping by DGGS (Clautice and others, in press) indicates that rocks of the Broad Pass terrane may be equivalent to Chulitna terrane, with the older rocks of Broad Pass forming the basal exposed strata of a single, unified, larger terrane entity.

The Chulitna terrane figured prominently in an article by Jones and others (1982) on the accretionary history of

western North America, which appeared in *Scientific American*. This article even included a beautiful color photograph illustrating several stratigraphic units of the Chulitna terrane exposed along the ridge northeast of Shotgun Creek. An account of geological research by the USGS on the Chulitna terrane plays a large part in the somewhat salacious account of Le Grand and Glen (1993) on the use and application of radiolarian studies during the 1970s and 1980s for the tectonic analysis of western North America.

ACKNOWLEDGMENTS

Members of the DGGS mapping crew that contributed fossils for this study included: Rainer Newberry, Ellen Harris, Rocky Reifensuhl, Shirley Liss, Tom Bundtzen, and Jim Clough. We are greatly indebted to C.C. Hawley for the hospitality extended to DGGS during their stay at the Golden Zone Mine during the summers of 1997 and 1998. We also greatly benefited from his vast knowledge of the areal geology of the Upper Chulitna district. Norm Silberling was extremely helpful during discussions on the Triassic stratigraphy of the region. We also gratefully appreciate the efforts of the following paleontologists in their efforts to identify various elements of the collected fauna: George Stanley, Triassic corals and spongiomorphs; Michael Sandy and Monica Stefanoff, Triassic bivalves; Norman Savage, Paleozoic and Triassic conodonts; and Chris McRoberts, Triassic bivalves.

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REFERENCES

- Blodgett, R.B., and Clautice, K.H., 1998a, Paleontology of the Chulitna terrane and surrounding area, Healy A-6 quadrangle, south-central Alaska [abst.]: Alaska Geological Society, Newsletter of the Alaska Geological Society, Inc., v. 27, no. 5, p. 6.
- , 1998b, New insights into the stratigraphy and paleontology of the Chulitna terrane and surrounding area, Healy A-6 quadrangle, south-central Alaska [abst.], 2 p., in Karl, S.M., ed., The Alaska Geological Society 1998 Science and Technology Conference, 'Cutting Edge in Alaska.'
- Bundtzen, T.K., 1997, unpublished field maps from the Chulitna project on file with the Alaska Division of Geological & Geophysical Surveys, 794 University Avenue, Suite 200, Fairbanks, AK 99709-3645.
- Capps, S.R., 1919, Mineral resources of the upper Chulitna region: U.S. Geological Survey Bulletin 692-D, p. 207-232, 1 sheet.
- , 1933, The eastern portion of Mount McKinley National Park: U.S. Geological Survey Bulletin 836-D, p. 219-300.

- 1940, Geology of the Alaska Railroad region: U.S. Geological Survey Bulletin 907, 201 p.
- Clark, A.L., Clark, S.H.B., and Hawley, C.C., 1972, Significance of upper Paleozoic oceanic crust in the upper Chulitna district, west-central Alaska Range: U.S. Geological Survey Professional Paper 800-C, p. C95-C101.
- Clautice, K.H., Newberry, R.J., Blodgett, R.B., Bundtzen, T.K., Gage, B.G., Harris, E.E., Liss, S.A., Miller, M.L., Reifensuhl, R.R., Clough, J.G., and Pinney, D.S., 2000 (in press), Bedrock geologic map of the Healy A-6 Quadrangle and surrounding areas, south-central Alaska. Alaska Division of Geological & Geophysical Surveys Report of Investigations.
- Csejtey, Bela, Jr., Mullen, M.W., Cox, D.P., and Stricker, G.D., 1992, Geology and geochronology of the Healy quadrangle, south-central Alaska: U.S. Geological Survey Miscellaneous Investigation Series Map I-1961, 63 p., 2 sheets, scale 1:250,000.
- Fryda, Jiri, and Blodgett, R.B., 2001 (in press), Chulitnacula, a new paleobiogeographically distinctive gastropod genus from Upper Triassic strata in accreted terranes of southern Alaska: *Journal of the Czech Geological Society*, v. 46.
- Hawley, C.C., and Clark, A.L., 1974, Geology and mineral deposits of the Upper Chulitna district, Alaska: U.S. Geological Survey Professional Paper 758-B, 47 p.
- Hawley, C.C., Jones, D.L., and Smith, T.E., 1987, Chulitna region, south-central Alaska, in Hill, M.L., (ed.), Centennial Field Guide Volume 1: Boulder, Colorado, Cordilleran Section of the Geological Society of America, p. 439-444.
- Hoover, P.R., 1991, Late Triassic cyrtinoidspiriferinacean brachiopods from western North America and their biostratigraphic and biogeographic implications: *Bulletins of American Paleontology*, v. 100, no. 337, p. 63-109.
- Imray, R.W., and Reeside, J.B., Jr., 1954, Correlation of the Cretaceous formations of Greenland and Alaska: *Geological Society of America Bulletin*, v. 65, no. 3, p. 223-246.
- Jones, D.L., Cox, Allan, Coney, Peter, and Beck, Myrl, 1982, The growth of western North America: *Scientific American*, v. 247, no. 5, p. 70-84.
- Jones, D.L., Silberling, N.J., Csejtey, Bela, Jr., Nelson, W.H., and Blome, C.D., 1980, Age and structural significance of ophiolite and adjoining rocks in the upper Chulitna district, south-central Alaska: U.S. Geological Survey Professional Paper 1121-A, 21 p.
- Le Grand, H., and Glen, W., 1993, Choke-holds, radiolarian cherts, and Davy Jones's Locker: Perspectives on Science, v. 1, no. 1, p. 24-45.
- Martin, G.C., 1926, The Mesozoic stratigraphy of Alaska: U.S. Geological Survey Bulletin 776, 493 p.
- Nichols, K.M., and Silberling, N.J., 1979, Early Triassic (Smithian) ammonites of paleoequatorial affinity from the Chulitna terrane, south-central Alaska: U.S. Geological Survey Professional Paper 1121-B, 5 p.
- Ross, C.P., 1933, Mineral deposits near the west fork of the Chulitna River, Alaska: U.S. Geological Survey Bulletin 849-E, p. 289-333.
- Silberling, N.J., Jones, D.L., Csejtey, Bela, Jr., and Nelson, W.H., 1978, Interpretive bedrock geologic map of part of the upper Chulitna district, Healy A-6 quadrangle, Alaska Range, Alaska: U.S. Geological Survey Open-File Report 78-545, 1 sheet, scale 1:63,360.
- Smith, J.P., 1927, Upper Triassic marine invertebrate faunas of North America: U.S. Geological Survey Professional Paper 141, 262 p.
- Stanley, G.D. Jr., 1999, Upper Triassic reef faunas from the Chulitna terrane, Alaska: *Geological Society of America Abstracts with Programs*, v. 31, no. 7, p. A-104.
- Stefanoff, Monica, 1998, Late Triassic brachiopods from the central belt of the Upper Chulitna District, south-central Alaska. University of Dayton, Department of Geology, undergraduate thesis, unpublished, 18 p.
- Stefanoff, Monica, Sandy, M.R., and Blodgett, R.B., 1999, Late Triassic brachiopods from the Chulitna terrane, south-central Alaska and the paleogeographic significance: *Geological Society of America Abstracts with Programs*, v. 31, no. 7, p. A-472.
- Wardlaw, B.R., 1982, Smithian and Spathian (Early Triassic) conodont faunas from the Chulitna terrane, south-central Alaska, in Coonrad, W.L., ed., *The United States Geological Survey in Alaska: Accomplishments during 1980: U.S. Geological Survey Circular 844*, p. 106-107.
- Whalen, M.T., Clough, J.G., Blodgett, R.B., Stanley, G.D., Jr., Clautice, K.H., and Newberry, R.J., 1999, Late Paleozoic and Early Mesozoic carbonate rocks and depositional history of the Chulitna terrane, in Reifensuhl, R.R., ed., *The Alaska Geological Society 1999 Science and Technology Conference (April 23-24, 1999, Fairbanks, Alaska)*, 2 p.
- Won, M.Z., Blodgett, R.B., Clautice, K.H., and Newberry, R.J., 2000 (in press), Late Permian (late Late Devonian) radiolarians from the Chulitna terrane, south-central Alaska: *Short Notes on Alaskan Geology 1999: Alaska Division of Geological & Geophysical Surveys Professional Report 119*, p. 145-152.
- Yarnell, J.M., Stanley, George, and Hart, C.J.R., 1999, New paleontological investigations of Upper Triassic shallow-water reef carbonates (Lewes River Group) in the Whitehorse area, Yukon, p. 179-184, in Roots, C.F., and Emond, D.S., eds., *Yukon Exploration and Geology 1998: Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada*.

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Table 1. Fossil data from the Healy A-6 Quadrangle, Alaska. Collector's initials from the 1997-1998 field mapping effort of DGGs are: HA (Ellen Harris), RB (Robert B. Blodgett), KC (Karen Clautice), AM (Marti Miller), RN (Rainer Newberry), DP (DeAnne Pinney), RR (Rocky Reifenhuhl), SS (Sarah Schlichtholz).

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
1	Sec. 26, T19S, R11W 63°14'02" 149°36'44"	67ACx74 =fossil locality 2 of Hawley and Clark, 1974	Brachiopods: • <i>Avonia</i> (?) • <i>Martiniopsis</i> (?) Bryozoan: • <i>Rhombotrypella</i> sp.	Late Paleozoic	J.T. Dutro, Jr., in Hawley and Clark, 1974, p. B5, fossil locality 2	detrital limestone with brachiopods, bryozoans, and crinoid columnals
2	Sec. 30, T19S, R11W	97BT230	Numerous belemnite guards	Early Cretaceous	R.B. Blodgett	numerous belemnite guards in black limestone
3	Sec. 25, T19S, R12W	97BT229	Numerous belemnite guards	Early Cretaceous	R.B. Blodgett	numerous belemnite guards in black limestone (same lithology as 97BT230)
4	Sec. 26, T19S, R12W	97BT227	• Belemnite guards • <i>Inoceramus</i> prisms	Early Cretaceous	R.B. Blodgett	
5	Sec. 36, T19S, R11W	97RN363	Radiolarians	Jurassic	M.Z. Won, written commun., 1998	"more precise range cannot be obtained because of poor preservation"
6	Sec. 35, T19S, R11W	98RN45	Radiolarians: • Poor spumellarians with bladed spines, possibly entactinids	Early Devonian or younger	Paula J. Noble, written commun., Dec. 22, 1998	near barren
7	Sec. 34, T19S, R11W	98RN43	• Stick-like ramose bryozoans • Fenestellid bryozoans, • Fan-shaped, lamellose bryozoan (<i>Rhombotrypa</i> ? sp.); Brachiopods: • <i>Spiriferellina cristata</i> (Schlotheim), • Undetermined ribbed spiriferoid brachiopod • Undetermined smooth brachiopod	Late Permian	R.B. Blodgett	from yellowish-brown weathering fine sandstone/ siltstone equivalent in age and fauna to Upper Permian limestone unit

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
8	Sec. 34, T19S, R11W 63°13'12" 149°38'50"	Locality 20 of Jones and others, 1980 =USGS Mesozoic locality M5027 =98RB145	Ammonoids: <ul style="list-style-type: none"> • <i>Dieneroceras</i> cf. <i>D. knechti</i> (Hyatt and Smith) • <i>Euflemingites</i> sp. indet. (immature specimen) • <i>Prosphingites</i> cf. <i>P. slossi</i> Kummel and Steele • ?<i>Juvenites</i> sp. indet. (immature specimens) • <i>Lanceolites bicarinatus</i> Smith • <i>Aspenites</i> cf. <i>A. acutus</i> Hyatt and Smith • <i>Arctoceras</i> cf. <i>A. bloomstrandii</i> (Lindström) • <i>Wyomingites</i> sp. indet. Nautiloids: <ul style="list-style-type: none"> • Indet. orthocone Pelecypods: <ul style="list-style-type: none"> • "<i>Posidonia</i>" <i>mimer</i> Oeberg • Unident. aviculopectinid • Unident. pteriid 	Early Triassic (Scythian)	Silberling in Hawley and Clark, 1974, p. B5-B6	This fauna has closest affinities with <i>Meekoceras gracilitatis</i> Zone of the conterminous United States.
		----- USGS Mesozoic loc. M5027 (=Loc. 20 of Jones and others, 1980, Plate 1)	----- Ammonoids of <i>Meekoceras gracilitatis</i> Zone	----- Early Triassic (early Smithian)	----- K.M. Nichols, written commun., 1977 cited in Jones and others, 1980, Plate 1, locality 20	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
8 (con't)		----- Locality 20 of Jones and others, 1980 (=USGS Mesozoic locality M5027) =98RB145	----- Ammonoids: • <i>Xenocelites</i> <i>intermontanus</i> (Smith) • <i>Meekoceras gracilitatis</i> White • <i>Wyomingites aplanatus</i> (White) • <i>Dieneroceras knechti</i> (Hyatt and Smith) • <i>Euflemingites cirratus</i> (White) • <i>Arctoceras tuberculatus</i> (Smith) • <i>Juvenites septentrionalis</i> Smith • <i>Paranannites aspenensis</i> Hyatt and Smith • <i>P. slossi</i> (Kummel and Steele) • <i>Owenites</i> cf. <i>O. koeneni</i> Hyatt and Smith • <i>Metussuria waageni</i> (Hyatt and Smith) • <i>Lanceolites compactus</i> Hyatt and Smith • <i>Aspenites acutus</i> Hyatt and Smith • <i>Pseudosageceras</i> indet. sp. • Large orthoconic nautiloids Bivalves: • <i>Posidonia</i> -like pectenacid (= <i>P. mimer</i> Oeberg of faunal list in Hawley and Clark) • Mytilacid and aviculopectinid bivalves	----- Early Triassic (early Smithian)	----- Nichols and Silberling, 1979, p. B3	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
8 (con't)			Conodonts: <ul style="list-style-type: none"> • <i>Ellisonia triassica</i> Muller • <i>Neogondolella silberlingi</i> Wardlaw and Collinson • <i>Neogondolella tozeri</i> Wardlaw and Collinson • <i>Neospathodus waageni</i> Sweet 	Early Triassic (late Smithian)	Wardlaw, 1982, p. 107	CAI 4.0 The conodonts species <i>Neogondolella silberlingi</i> Wardlaw and Collinson and <i>Neogondolella tozeri</i> Wardlaw and Collinson remain as <i>nomena</i> <i>nuda</i> at the time of this report
		97RB145 =locality 20 of Jones and others, 1980	Conodonts <ul style="list-style-type: none"> • <i>Neospathodus dieneri</i> Sweet, 1970 • <i>Neospathodus pakistanensis</i> Sweet, 1970 • <i>Neospathodus waageni</i> Sweet, 1970 • <i>Neospathodus cristagalli</i> (Huckriede, 1958) • <i>Neospathodus bransonii</i> (Müller, 1956) 	<i>N. milleri</i> Zone, Smithian (Early Triassic)	N.M. Savage, written commun., 1998	{194 elements total, CAI 5}
9	Sec. 34, T19S, R11W	97RB143	<ul style="list-style-type: none"> • Undetermined bryozoans • Fenestellid bryozoans • Crinoid ossicles • Indeterminate brachiopods 	Late Permian	R.B. Blodgett	calcareous siltstone with numerous bryozoans
		97RB144	<ul style="list-style-type: none"> • Crinoid ossicles • Solitary rugose corals • Indeterminate rhynchonellid? brachiopod • Undetermined ribbed brachiopod • Ramose bryozoan 	probably Permian	R.B. Blodgett	encrinoidal limestone that appears to overlie interval of 97RB143
10	Center of NE¼ Sec. 32, T19S, R11W	98KC194	<ul style="list-style-type: none"> • Coquinoid hash of <i>Buchia</i> 	Early Cretaceous	R.B. Blodgett	southeast side of creek
11	Center of SE¼ Sec. 32, T19S, R11W	98KC195	<ul style="list-style-type: none"> • Numerous <i>Buchia sublaevis</i> (Keyserling) 	Early Cretaceous (early Valanginian)	R.B. Blodgett	southeast side of creek

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
12	Sec. 36, T19S, R12W 63°13'12" 149°45'33"	77-S-111 =locality 1 of Jones and others, 1980, Plate 1	<ul style="list-style-type: none"> • <i>Spondylospira?</i> (brachiopod) • Scleractinian corals 	Triassic (probably Norian)	Jones and others, 1980, Plate 1, locality 1	from limestone and pillow basalt unit of Jones and others, 1980
			<ul style="list-style-type: none"> • <i>Spondylospira lewesensis</i> Lees) 	Late Triassic (Late Carnian)	Hoover, 1991, p. 74, 82	
13	Sec. 36, T19S, R12W 63°13'06" 149°45'32"	77-J-12 =locality 4 of Jones and others, 1980, Plate 1 77-J-13 =locality 4 of Jones and others, 1980, Plate 1	<ul style="list-style-type: none"> • <i>Buchia sublaevis</i> 	Early Cretaceous (Valaginian)	Jones and others, 1980, Plate 1, locality 4	from argillite, sandstone, and chert unit of Jones and others, 1980
			<ul style="list-style-type: none"> • <i>Parvicingula citae</i> and other Valaginian radiolarians 	Early Cretaceous (Valaginian)	Jones and others, 1980, Plate 1, locality 4	
14	Sec. 3, T20S, R11W 63°12'39" 149°38'16"	76-J-1 =locality 21 of Jones and others, 1980	Radiolarians	upper Paleozoic, probably Carboniferous (according to Plate 1), Mississippian (according to p. A4)	Jones and others, 1980, p. A4 and Plate 1, locality 21	
15	Sec. 3, T20S, R11W 63°12'33" 149°38'14"	USGS loc. 26672-PC =locality 22 of Jones and others, 1980	Brachiopods: <ul style="list-style-type: none"> • <i>Fimbrinia</i> sp., a large reticularid, probably <i>Antiquatonia</i> sp., an internal pedicle mold that might be <i>Rugatia</i> 	Early Permian (Wolfcampian to early Leonardian)	J.T. Dutro, Jr., written commun., 1976, cited in Jones and others, 1980, p. A4 and Plate 1	from a volcanic conglomerate or breccia

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
15 (con't)		97RB162 =97RN385	Brachiopods: <ul style="list-style-type: none"> • <i>Choristites</i> sp., <i>Alispiriferella</i> cf. <i>A. ordinaria</i> (Einar, 1939), • Reticularid brachiopod, • Linoproductid brachiopod, • Undetermined productoid • Undetermined brachiopods; Bryozoans (including fenestellids), solitary rugose corals, syringoporoid tabulate corals, crinoid ossicles (of varying size, some still articulated in stem pieces)	Early Permian (Asselian-Sakmarian)	R.B. Blodgett	this locality plots out identical with USGS loc. 26672-PC The collection size from this locality is rather limited at present; further collection could markedly improve the identifiable taxa, which is presently limited due to fragmentary nature of material at hand.
16	Sec. 3, T20S, R11W	98RN37	Radiolarians: <ul style="list-style-type: none"> • Rare spumellarians with bladed spines and pentagonal pore frames 	Early Devonian or younger	Paula Noble, written commun., Dec. 23, 1998	red chert clast in red matrix clast-supported conglomerate
17	Sec. 4, T20S, R11W	97RB186	<i>Composita</i> -like brachiopod	Permian age fossil in limestone clast within Triassic "red bed" unit	R.B. Blodgett	Fossil occurs as clast within Triassic "red bed" sequence
18	Sec. 4, T20S, R11W	97RB148	Conodonts: <ul style="list-style-type: none"> • <i>Neogondolella navicula</i> (Huckriede, 1958) [258 elements, CAI 6] • Smooth pectenacean bivalves	<i>E. nodosa</i> Zone U. Carnian (Late Triassic)	N.M. Savage R.B. Blodgett	peloidal limestone along south side of ditch road w. of Golden Zone Mine
19	Sec. 4, T20S, R11W	97RB156	Undetermined trace fossil	Permian, on basis of stratigraphic position (interbedded argillite and graywacke interval below Late Permian limestone unit)	R.B. Blodgett	from talus in creek valley, about 50 feet below ditch on north side

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
20	Sec. 4, T20S, R11W	97RN342	<ul style="list-style-type: none"> • <i>Chondrites</i> sp. (branching trace fossil) 	Permian, on basis of stratigraphic position (interbedded argillite and graywacke interval below Late Permian limestone unit)	R.B. Blodgett	
21	Sec. 4, T20S, R11W	97RB183	<ul style="list-style-type: none"> • <i>Scalarituba</i> sp. • <i>Chondrites</i> sp. (trace fossils) 	Permian, on basis of stratigraphic position (interbedded argillite and graywacke interval below Late Permian limestone unit)	R.B. Blodgett	The ichnogenus <i>Scalarituba</i> has been recognized only once before in Permian strata (in rocks exposed near Ciudad Victoria, State of Tamaulipas, Mexico).
22	Sec. 4, T20S, R11W	97RB185	<ul style="list-style-type: none"> • <i>Scalarituba</i> sp. • <i>Chondrites</i> sp. (trace fossils) 	Permian, on basis of stratigraphic position (interbedded argillite and graywacke interval below Late Permian limestone unit)	R.B. Blodgett	The ichnogenus <i>Scalarituba</i> has been recognized only once before in Permian strata (in rocks exposed near Ciudad Victoria, State of Tamaulipas, Mexico).
23	Sec. 4, T20S, R11W 63°12'56" 149°40'55"	77-S-101 =locality 19 of Jones and others, 1980 =locality 19 of Silberling and others, 1978	Several of the same distinctive species of Smithian ammonites (as at USGS Mesozoic locality M5027, =locality 20 of Jones and others, 1980)	Early Triassic (early Smithian)	Nichols and Silberling, 1979	Nichols and Silberling, 1979, p. B3: "Here, several species of Smithian ammonites were collected from limestone whose exposed thickness is only about 1 m. A short distance uphill, across a covered interval, is a massive basalt flow about 10 m thick overlain by red conglomeratic sandstone lithologically similar to that associated with fossiliferous Upper Triassic red beds elsewhere in the Chulitna terrane."

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
23 (con't)		77-S-101 =locality 19 of Jones and others, Plate 1	<ul style="list-style-type: none"> Ammonites of <i>Meekoceras gracilitatis</i> Zone 	Early Triassic (early Smithian)	K.M. Nichols, written commun., 1977, cited in Jones and others, 1980, Plate 21	
		78JCH-1 =locality 19 of Jones and others, 1980, and Silberling and others, 1978	Conodonts: <ul style="list-style-type: none"> <i>Neogondelella jubata</i> Sweet "<i>Neospathodus</i>" <i>conservativus</i> (Muller) 	Early Triassic (earliest Spathian)	Wardlaw, 1982, p. 107	CAI 4.0 From a "radiolarian phosphatic chert about 10 cm thick that caps a meter-thick exposure of ammonite bearing limestone"
24	border between Secs. 4 and 5, T20S, R11W	97RB160	Conodonts: <ul style="list-style-type: none"> <i>Neogondelella</i> sp. (28 elements) 	Permian-Triassic	Norman Savage	CAI 6; massive recrystallized limestone outcrop exposed along flume path
25	Sec. 4, T20S, R11W	98KC192	Crinoid ossicles	probably Permian or Triassic	R.B. Blodgett	brownish-gray weathering, encrinoidal limestone
26	Sec. 5, T20S, R11W	98RB14	Radiolarians: <ul style="list-style-type: none"> Parvicingulids? or possibly <i>Canoptum</i> spp. (wall structure obscured), hsuuids <i>Praeconocaryomma</i> sp. Abundant paronellids including <i>P. mulleri</i>?, <i>P. broennimanni</i>?, <i>Angulobrachia</i> sp., <i>Emiluvia</i> sp.?, <i>Orbiculiforma</i>, <i>Acanthocircus trizonalis</i>?, <i>Acaenotile</i> sp., <i>Triactoma</i> sp., possible <i>Gorgansium</i>. 	Jurassic	Paula J. Noble, written commun., Dec. 22, 1998	Preservation: Radiolarians were recrystallized with a sucrosic coarsely crystalline texture that obscured wall structure, particularly on the nassellarians
27	Sec. 5, T20S, R11W 63°12'31" 149°42'42"	76-S-343 =locality 10 of Jones and others, 1980, Plate 1	<ul style="list-style-type: none"> <i>Cassianella</i> <i>Septocardia</i>? 	Late Triassic	Jones and others, 1980, Plate 1	from "Brown sandstone and argillite" unit of Jones and others, 1980

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
28	Sec. 5, T20S, R11W	97RB194	Bivalves: <ul style="list-style-type: none"> • <i>Cassianella lingulata</i> (Gabb) • cf. <i>Tutcheria</i> • cf. <i>Septocardia</i> 	Late Triassic (early Rhaetian)	Chris McRoberts, written commun., Dec. 29, 1998	Although the material was poorly preserved (recrystallized and mostly fragments), I was able to get a few things out of it. These include: <i>Cassianella lingulata</i> (Gabb). This species is characteristic of the lower half of the Rhaetian and is known from Tyaughton Creek in British Columbia (as <i>C. beyrichi</i>) as well as from New York Canyon in Nevada. Also, there appear to be fewer specimens I can attribute to cf. <i>Tutcheria</i> and cf. <i>Septocardia</i> (both are too poorly preserved for confident identification).
29	Sec. 5, T20S, R11W	97RB193	Brachiopod: <ul style="list-style-type: none"> • <i>Spondylospira lewesensis</i> (Lees, 1934) 	Late Triassic (Norian)	R.B. Blodgett	from limestone in Triassic limestone and basalt unit
30	Sec. 5, T20S, R11W	97RB200 =Sandy's locality 98/1	Brachiopods: <ul style="list-style-type: none"> • <i>Spondylospira lewesensis</i> (Lees, 1934) • <i>Lobothyris praepunctata</i> (Biltner, 1890) • <i>Lobothyris</i> sp. cf. <i>L. monstrifer</i> (Dagys, 1963) 	Late Triassic (Norian)	Monica Stefanoff and Michael Sandy, written commun., Jan. 8, 1999	
			Bivalves: <ul style="list-style-type: none"> • Pectenacean, perhaps juvenile monotids; miscellaneous indeterminate bivalves 	Late Triassic, probably Norian	Chris McRoberts, written commun., March 10, 1999	
31	Sec. 5, T20S, R11W	97RB153 =Sandy's locality 98/2	Brachiopods: <ul style="list-style-type: none"> • <i>Spondylospira lewesensis</i> (Lees, 1934) • <i>Lobothyris</i> sp. cf. <i>L. monstrifer</i> (Dagys, 1963) • <i>Fissirhynchia fissicostata</i> (Suess, 1854) 	Late Triassic (Norian)	Monica Stefanoff and Michael Sandy, written commun., Jan. 8, 1999	collected from talus of yellow-brown weathering sandy and silty limestone

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
32	Sec. 5, T20S, R11W	97RB152	• Rhynchonellids	Late Triassic	Michael Sandy, written commun., Nov. 14, 1997	
33	Sec. 5, T20S, R11W	97BT248	Bivalves: • Pteriod gen. et sp. indet.	indeterminate	Chris McRoberts, written commun., March 10, 1999	tan to gray limestone, silty limestone and calcareous sandstone
			• Bivalve coquina with numerous bivalves (including <i>Cassianella</i> sp.) • Undetermined high-spired gastropod	Late Triassic	R.B. Blodgett	
34	Sec. 6, T20S, R11W	97RB191	Bivalves: • cf. <i>Cardinioides</i> , miscellaneous indeterminate bivalves	Late Triassic	Chris McRoberts, written commun., Mar. 10, 1999	yellow-brown weathering, gray-green calcareous and non-calcareous sandstone and siltstone
			Undetermined plants		R.B. Blodgett	
35	Sec. 6, T20S, R11W	97RB190	Bivalves: • <i>Septocardia</i> sp., • Pteriod gen. et sp. indet.	Late Triassic, probably Norian or Rhaetian	Chris McRoberts, written commun., March 10, 1999	calcareous conquinoid sandstone
36	Sec. 6, T20S, R11W	97RB189	Undetermined small, digitate scleractinian corals Brachiopods: • " <i>Fissirhynchia</i> " sp. • <i>Spondylospira?</i> sp. (poorly preserved external mold of dorsal valve)	Late Triassic (probably Norian)	R.B. Blodgett	collected from orange-brown weathering calcareous sandstone, but most sandstone in rubble is non-calcareous
37	Sec. 6, T20S, R11W	97BT253	• <i>Inoceramus</i> (large shell fragments and prisms)	Cretaceous	R.B. Blodgett	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
38	Sec. 1, T20W, R12W 63°12'18" 149°44'48"	none given =locality 7 of Jones and others, 1980, Plate 1	• <i>Buchia sublaevis</i> (not collected)	Early Cretaceous (Valanginian)	Jones and others, 1980, Plate 1, locality 7)	from the "Argillite, sandstone, and chert" unit of Jones and others, 1980
39	Sec. 1, T20W, R12W 63°12'14" 149°45'57"	76-J-45 =locality 6 of Jones and others, 1980, Plate 1	<ul style="list-style-type: none"> • <i>Inoceramus</i> <p>Stratigraphically 2 m lower is chert containing upper Valanginian radiolarians</p> <p>P. A9 gives more detailed faunal list:</p> <ul style="list-style-type: none"> • <i>Parvicingula citae</i> Pessagno • <i>P. boesii</i> (Parona) • <i>P. rothwelli</i> Pessagno • <i>P. sp.</i> • <i>Pseudodictyomitra</i> sp. • <i>Thanaria conica</i> (Aliev) • <i>Praeconocaryomma</i> cf. <i>P. prisca</i> Pessagno • <i>Archaeodictyomitra</i> <i>apiarum</i> (Rüst) <p>Another 2 m lower <i>Buchia</i> <i>sublaevis</i></p>	<p>all collections of Early Cretaceous age</p> <p>Hauterivian to Barremian</p> <p>late Valanginian</p> <p>late Valanginian</p> <p>Valanginian</p>	<p>Jones and others, 1980, p. A9 and Plate 1</p> <p>E.A. Pessagno, Jr., written commun., 1976, cited in Jones and others, 1980, plate 1</p> <p>E.A. Pessagno, Jr., written commun., 1976, cited in Jones and others, 1980, p. A9</p> <p>Jones and others, 1980, p. A9 and Plate 1</p> <p>R.B. Blodgett</p>	<p>from the "Argillite, sandstone, and chert" unit of Jones and others, 1980</p> <p>from the "Argillite, sandstone, and chert" unit of Jones and others, 1980</p> <p>"Pessagno assigns this assemblage to his Zone 5, subzone 5C (Pessagno, 1977) of late Valanginian age"</p> <p>occurs in <i>Buchia</i>-bearing limestone</p>
40	Sec. 1, T20W, R12W	97BT255	Coquinoïd hash of <i>Buchia</i>	Late Jurassic or Early Cretaceous (probably Early Cretaceous)	R.B. Blodgett	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
41	Sec. 9, T20S, R11W	97RB196	Numerous crinoid ossicles (both large and small); bryozoans (including fenestellids and polyporoids); limpet. Brachiopods: <ul style="list-style-type: none"> • <i>Schizophoria</i> sp. • <i>Waagenites</i> sp. • Echinoconchid, <i>Liosotella</i> aff. <i>hemisphaerica</i> Dunbar, • <i>Kochiproductus?</i> sp. • Linoproductid, • <i>Krotovia</i> sp., • "<i>Camarophoria</i>" sp. • Rhynchonellid, <i>Phricadothyris</i> sp., • <i>Spiriferellina cristata?</i> (Schlothheim) 	Late Permian	R.B. Blodgett	Prominent exposure on north side of creek in lower (western part) of Upper Permian limestone unit
		----- 97RB196 at 0.0 to 0.1 m	Conodonts: <ul style="list-style-type: none"> • <i>Hindeodus</i> 	Mississippian-Permian	N.M. Savage, written commun., 1999	CAI 5.0 (5 elements present)
42	Sec. 9, T20S, R11W 63°11'48" 149°39'34"	78-J-15 =locality 24 of Jones and others, 1980, Plate 1	Radiolarians	Late Paleozoic, probably Permian		
			----- Radiolarians	Permian(?)	Csejtey and others, 1992, Table 2, Map no. 135	
43	Sec. 9, T20S, R11W 63°12'00" 149°39'35"	77-J-14 =USGS locality 9799-SD =locality 23 of Jones and others, 1980	Conodonts and radiolarians Conodonts : <ul style="list-style-type: none"> • 4 p elements of <i>Polygnathus</i> cf. <i>P. glaber</i> Ulrich and Bassler • 1 p element fragment of <i>P. aff. P. webbi</i> (Stauffer) 	Late Devonian (Famennian)	A.G. Harris, written commun., 1977, cited in Jones and others, 1980, p. A4 and Plate 1	from chert clasts in conglomerate [confusion caused by appearance of locality 23 twice in Jones and others, 1980; true location found by referring to Silberling and others, 1978 and Csejtey and others, 1992]

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
43 (con't)		=Map no. 135 of Csejtey and others, 1992	Conodonts: • <i>Polygnathus</i> cf. <i>P. glaber</i> • <i>P. aff. P. webbi</i>	Late Devonian (Famennian)	Csejtey and others, 1992, Table 2, Map no. 135	CAI 4.5-5.0
44	Sec. 9, T20S, R11W 63°11'59" 149°39'52"	78-J-3C =locality 26A of Jones and others, 1980, Plate I	Radiolarians	Late Devonian (Famennian)	Brian Holds- worth, 1977, cited in Jones and others, 1980, Plate I	from "ophiolitic and ultramafic rocks" unit of Jones and others, 1980
45	Sec. 9, T20S, R11W 63°12'07" 149°40'26"	78-J-12 =locality 23B of Jones and others, 1980, Plate I	Radiolarians	Late Paleozoic (probably Permian)	Brian Holds- worth, 1978, cited in Jones and others, 1980, Plate I	The location of this site is uncertain due to misprint in map of Jones and others, 1980 (locality 23 appears twice, but no 23B); the proper location can be ascertained by consulting geographic information provided in Csejtey and others, 1992, Table 2, Map no. 134, indicating the westernmost of the two localities 23 shown on map of Jones and others, 1980
46	Sec. 9, T20S, R11W	98RB20	Numerous molds of crinoid ossicles	Late Paleozoic	R.B. Blodgett	from exposure of turbidites on upper reaches of south-flowing tributary on north side of Long Creek
47	Sec. 9, T20S, R11W	98RB16 (=98RN42)	Crinoid ossicles, indeterminate brachiopod, spiriferoid brachiopod, trilobite free cheek, undetermined tube-like object	Late Paleozoic	R.B. Blodgett	locality on north side of Long Creek; coarse-grained sandstone with large granule-size clasts (lithologically similar to localities 98RB15 and 97RB162) (=97RN385)
48	Sec. 9, T20S, R11W	98RB15	Ramose bryozoans, small solitary rugose coral, crinoid ossicles, indeterminate productoid brachiopod (flattened, poorly preserved), linoproductid brachiopod, undetermined tube-like object	probably Early Permian, based on lithologic correlation with locality 97RB162	R.B. Blodgett	locality on south side of Long Creek, opposite locality 98RB16; pyrite-rich, coarse grained granule conglomeratic sandstone

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
49	Sec. 8, T20S, R11W 63°12'07" 149°41'34"	78-J-13 =locality 23A of Jones and others, 1980, Plate 1	Radiolarians	Mississippian	Brian Holdsworth, 1978, cited in Jones and others, 1980, p. A4 and Plate 1	
50	Sec. 8, T20S, R11W	98RN79	Radiolarians: poor spheres, spumellarians with pentagonal pore frames	Late Silurian or younger	Paula Noble, written commun., Dec. 22, 1998	preservation state poor
51	Sec. 8, T20S, R11W	97RB169	Scleractinian corals (coral thicket beds on south side of Long Creek)	Late Triassic	G.D. Stanley, Jr., written commun., Aug. 22, 1997	This suite contains abundant with very large corals—both ceriomeandroid and dendroid taxa. I am very surprised by these corals because my first reaction was that they could not be Triassic but rather Mid-Upper Jurassic or even Cretaceous. However this is only a gut reaction and they would need further study. This assessment is based not so much on positive ID but rather their large colony size, something I've never seen before with the possible exception of the Lime Peak reef in the Whitehorse trough, Yukon. I'd want to study these corals in detail. They look well preserved enough for thin sections.
52	Sec. 8, T20S, R11W	97RB188	Corals and spongiomorphs, like 97RB187, very recrystallized but they look Triassic	Triassic	G.D. Stanley, Jr., written commun., Aug. 22, 1997	locality opposite of 97RB169 on north side of Long Creek
		=97SS2 (same locality as 97RB188)	• <i>Astraeomorpha crassiseptra</i>	Late Triassic (Norian)	G.D. Stanley, Jr., written commun., Aug. 22, 1997	This coral is an Alpine form well known from Tethys and many other North American terranes
53	Sec. 8, T20S, R11W	97RB187	Spongiomorphs and megalodontid bivalves	Late Triassic	R.B. Blodgett	locality on north side of Long Creek, slightly upstream from 97RB188

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
54	Sec. 8, T20S, R11W	97RB168	Brachiopods • <i>Zugmayerella koessensis</i> • <i>Spondylospira lewesensis</i> (Lees)	Late Triassic (Norian)	Michael Sandy, written commun., Nov. 14, 1997	crack-out collection from limestone beds about 10-20 ft. higher in stratigraphic section than 97RB167 (to north of same locality)
		97RB167	Brachiopods: • <i>Spondylospira lewesensis</i> (Lees) • <i>Zugmayerella?</i> sp.	Late Triassic (Norian)	Michael Sandy, written commun., Nov. 14, 1997	limestone bed with silicified brachiopods; downslope and along strike ridge of 97RB166
		98RB3 =M. Sandy's locality 98/5	Brachiopods: • <i>Spondylospira lewesensis</i> (Lees, 1934) • <i>Lobothyris praepunctata</i> (Bittner, 1890) • <i>Lobothyris</i> sp. cf. <i>L. monstrifer</i> (Dagys, 1963)	Late Triassic (Norian)	Monica Stefanoff and Michael Sandy, written commun., Jan. 8, 1999	from rubbly limestone outcrop on east side of ridge, due east of 97RB167
			Bivalve: • <i>Cassianella</i> sp.		Robert B. Blodgett	
		97RB166	Brachiopods: • <i>Spondylospira lewesensis</i> (Lees, 1934) terebratulid	Late Triassic	Robert B. Blodgett	good helicopter site south and above 97RB167
55	Sec. 8, T20S, R11W	97RB151 =M. Sandy's locality 98/6	Brachiopods: • <i>Spondylospira lewesensis</i> (Lees, 1934) • <i>Laballa suessi</i> (Zugmayer, 1880) • <i>Lobothyris praepunctata</i> (Bittner, 1890) • <i>Lobothyris</i> sp. cf. <i>L. monstrifer</i> (Dagys, 1963)	Late Triassic (Norian)	Monica Stefanoff and Michael Sandy, written commun., Jan. 8, 1999	
			Conodonts • <i>Epigondolella</i> cf. <i>bidentata</i> Mosher, 1968	<i>E. bidentata</i> Zone, Mid-Upper Norian (Late Triassic)	N.M. Savage, written commun., 1998	[2 elements, CAI 3]

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
55 (cont)			Bivalves: <ul style="list-style-type: none"> • <i>Chlamys</i> sp., large limoid, possibly a <i>Mysidiopteria</i> 	Late Triassic, probably Norian	Chris McRoberts, written commun., March 10, 1999	
			Mostly branching spongiomorph hydrozoans and some corals	Looks Upper Triassic	G.D. Stanley, Jr., written commun., Aug. 22, 1997	
56	Sec. 8, T20S, R11W	97RN457	• <i>Retiophyllia</i> corals	Late Triassic	G.D. Stanley, Jr., written commun., Feb. 3, 1999	
57	Sec. 7, T20S, R11W	97BT216	Undetermined small bivalve	undetermined	R.B. Blodgett	
58	Sec. 7, T20S, R11W	97BT215	Trace fossil (burrow)	undetermined	R.B. Blodgett	
59	Sec. 7, T20S, R11W	Fossil locality 8 of Hawley and Clark, 1974	Ammonite fragments	suggestive of Triassic age	R.W. Imlay, written commun., 1969, cited in Hawley and Clark, 1974, p. B6	from "limestone, calcareous siltstone, and argillite" unit of Hawley and Clark, 1974
60	Sec. 7, T20S, R11W 63°11'59" 149°44'06"	76-S-342 =locality 9 of Jones and others, 1980, Plate 1	• <i>Septocardia?</i>	Late Triassic	Jones and others, 1980, Plate 1	from "Brown sandstone and argillite" unit of Jones and others, 1980
61	Sec. 7, T20S, R11W 63°12'06" 149°44'23"	76-S-333 =USGS Mesozoic locality 31266; =locality 8 of Jones and others, 1980, Plate 1	Ammonites including <i>Psiloceras? canadense</i>	Early Jurassic (earliest Sinemurian)	R.W. Imlay, written commun., 1976, cited in Jones and others, 1980, Plate 1	from "Brown sandstone and argillite" unit of Jones and others, 1980
			<ul style="list-style-type: none"> • <i>Paracaloceras rursicostatum</i> Frebold • <i>Badouxia canadense</i> (Frebold) • <i>Weyla</i> sp. <i>Lima?</i> sp. <i>Eopecten?</i> sp. 	Early Jurassic (earliest Sinemurian)	R.W. Imlay, written commun., 1976, cited in Jones and others, 1980, p. A8	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
61 (con't)			<ul style="list-style-type: none"> • <i>Vermiceras</i> (<i>Paracaloceras</i>) cf. <i>V. (P.) rursicostatum</i>, • <i>Psiloceras?</i> <i>canadense</i> • <i>Weyla</i> sp. <i>Limá?</i> sp. <i>Eopecten?</i> sp. 	Early Jurassic (earliest Sinemurian)	R.W. Inlay, written commun., 1976, cited in Csejtey and others, Table 2, Map No. 113	
62	Sec. 12, T20S, R12W	97RN492	Abundant Upper Triassic corals: <ul style="list-style-type: none"> • <i>Retiophyllia</i>, • <i>Astraeomorpha</i> • <i>Margarosmia</i>. Some are partly silicified.	Late Triassic (probably Norian-- Rhaetian)	G.D. Stanley, Jr., written commun., Aug. 22, 1997	
63	Sec. 11, T20S, R12W 63°11'50" 149°48'28"	76-Cy-133 =locality 5 of Jones and others, 1980, Plate 1	<ul style="list-style-type: none"> • <i>Praeconocaryomma</i> <i>mamillaria</i> and other radiolarians 	Late Jurassic (late Kimmeridgian and early Tithonian)	E.A. Pessagno, Jr., written commun., 1976, cited in Jones and others, 1980, Plate 1	from the "Argillite, sandstone, and chert" unit of Jones and others, 1980
			<ul style="list-style-type: none"> • <i>Parvingula</i> cf. <i>P.</i> <i>procera</i> Pessagno • <i>P. turrita</i> (Rüst) • <i>Mirifusus</i> sp. • <i>Emiluvia pessagno</i> Foreman • <i>Hsuum maxwelli</i> Pessagno 	Late Jurassic (Callovian to early Tithonian)	E.A. Pessagno, Jr., written commun., 1976, cited in Jones and others, 1980, p. A9	"This assemblage is indicative of Zone 1 or Zone 2 of Pessagno (1977)"
64	Sec. 11, T20S, R12W	Fossil locality 10 of Hawley and Clark, 1974, p. B7, Plate 1	Unidentified fossils occurring in abundant platelike masses or layers, approximately 1/8-inch thick		Hawley and Clark, 1974, p. B7	from "Argillite, graywacke, and conglomerate" unit of Hawley and Clark, 1974
65	Sec. 15, T20, R11W 63°07'36" 149°38'24"	76-J-55 =locality 34 of Jones and others, Plate 1	Radiolarians	Late Jurassic	Jones and others, 1980, Plate 1	from "Argillite, chert, and sandstone" unit of Jones and others, 1980
			Radiolarians	Late Jurassic (Callovian to early Tithonia)	Csejtey and others, 1992, Table 2, Map No. 71	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
66	Sec. 16, T20S, R11W	98RN69	Radiolarians: • 1 poorly preserved <i>Archocyrtium</i> sp. • Spumellarians with pentagonal pore frames and very robust bladed spines • Possible entactinoids, H-frames from albailellarian: good match for H-frame of <i>Holoeciscus foremanae</i>	Late Devonian (Famennian), based on possible <i>H. foremanae</i> and <i>Archocyrtium</i>	Paula J. Noble, written commun., Dec. 22, 1998	Preservation: poor
67	Sec. 17, T20S, R11W 63°11'08" 149°41'06"	76-J-9 =locality 26 of Jones and others, Plate 1	Radiolarians	Late Devonian (Famennian)	Brian Holdsworth, 1977, in Jones and others, 1980, Plate 1	from red radiolarian chert
68	Sec. 17, T20S, R11W	97RB171	• <i>Scalarituba</i> sp.	Permian, on basis of stratigraphic position (interbedded argillite and graywacke interval below Late Permian limestone unit)	R.B. Blodgett	The ichnogenus <i>Scalarituba</i> has been recognized only once before in Permian strata (in rocks exposed near Ciudad Victoria, State of Tamaulipas, Mexico)
69	Sec. 17, T20S, R11W	97RB170	Undetermined small solitary rugose coral. Brachiopods: • <i>Phricadothyris</i> sp. • Undetermined small brachiopods The trace fossil <i>Chondrites</i>	Late Permian, on basis of stratigraphic position, and on the fact that this uppermost interval within the argillite and graywacke unit grades immediately upward into Upper Permian limestone unit	R.B. Blodgett	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
70	Sec. 17, T20S, R11W	97RB138	Brachiopods: <ul style="list-style-type: none"> • <i>Linoproductus</i> sp., • strophomenid (possibly <i>Derbyia</i>) Gastropods: <ul style="list-style-type: none"> • <i>Platyceras</i> sp. Numerous crinoid ossicles Bryozoans of many types	Late Permian (on basis of associated fauna from nearby localities)	R.B. Blodgett	97RB138 is the uppermost of two small prominent outcrops of limestone in lower part of Permian limestone unit
		97RB139	<ul style="list-style-type: none"> • Smooth ostracodes • Crinoid ossicles • Undetermined bryozoans • <i>Schizophoria</i> sp. • Undetermined productid brachiopod • Fish plate 	Late Permian (on basis of associated fauna from nearby localities)	R.B. Blodgett	lowermost of two small prominent outcrops of limestone in lower part of Permian limestone unit
71	Sec. 17, T20S, R11W	97RB141	Brachiopod: <ul style="list-style-type: none"> • <i>Spiriferellina cristata</i> (Schlothheim) 	Late Permian	R.B. Blodgett	single specimen from silicified limestone; this species is typical element of the Zechstein fauna of northern Europe, as well as Greenland
72	Sec. 17, T20S, R11W 63°10'53" 149°41'02"	68ACK218 (USGS locality 23402-PC) =fossil locality 3 of Hawley and Clark, 1974	<ul style="list-style-type: none"> • Echinoderm debris (including large crinoid ossicles) Brachiopods: <ul style="list-style-type: none"> • Productoid brachiopods • <i>Waagenoconcha</i> • Probable <i>Linoproductus</i> • Large terebratuloid (<i>Dielasma</i> cf. <i>D. giganteum</i> Tschermyschew) • Massive and ramose bryozoans • Single indeterminate rugose coral 	probably Permian	J.T. Dutro, Jr., written commun., 1969, cited in Hawley and Clark, 1974, p. B-5	
		=locality 25 of Jones and others, 1980, Plate 1	Productoid brachiopods and other megafossils	definitely Paleozoic, probably Permian	above reference cited in Jones and others, 1980, Plate 1	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
73	Sec. 17, T20S, R11W	97RB134	Ramose bryozoans • <i>Spiriferellina cristata</i> (Schlotheim) • <i>Dielasma</i> sp. (large) • echinococonchid • trilobite pygidia • crinoid ossicles • solitary rugose corals	Late Permian	R.B. Blodgett	
74	Sec. 17, T20S, R11W	97RB164	Brachiopods: • <i>Horridonia</i> sp. • <i>Spiriferellina cristata</i> (Schlotheim) many other forms	Late Permian	R.B. Blodgett	Caribou Wallow locality, top of Permian limestone unit
75	Sec. 17, T20S, R11W	97RB132	• <i>Horridonia</i> sp. • <i>Spiriferellina cristata</i> (Schlotheim)	Late Permian	R.B. Blodgett	
76	Sec. 17, T20S, R11W 63°10'38" 149°41'40"	76-NW-162 =locality 27 of Jones and others, 1980	Radiolarians	Late Devonian (Famennian)	Brian Holdsworth, 1977, cited in Jones and others, 1980, Plate 1	
77	Sec. 18, T20S, R11W	97KC314	Undetermined bivalves • <i>Cassianella</i> sp.	Late Triassic	R.B. Blodgett	
78	Sec. 13, T20S, R12W	97RN490	Several undetermined bivalves of Triassic aspect	Late Triassic	R.B. Blodgett	
79	Sec. 15, T20S, R12W	97BT264	Coquinoid hash of <i>Buchia</i>	Late Jurassic or Early Cretaceous (most likely Early Cretaceous)	R.B. Blodgett	within brown sandstone, similar to unit KJs of Jones and others (1980)
80	Sec. 18, T20S, R12W	97BT213	Horizontal feeding trace (trace fossil)	not age diagnostic	R.B. Blodgett	
81	Sec. 20, T20S, R10W 63°10'24" 149°31'04"	77-J-7 =locality 43 of Jones and others, 1980	Radiolarians	Late Paleozoic (Late Devonian or younger Paleozoic)	Jones and others, 1980, Plate 1	from "Chert and argillite" unit (Broad Pass terrane) of Jones and others, 1980
82	Sec. 21, T20S, R11W	97RB126	Radiolarians	Late Devonian (late Famennian)	M.Z. Won., written commun., Feb. 2, 1998	radiolarian elements from this locality are illustrated in Won and others, in press.

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
83	Sec. 21, T20S, R11W	77-J-21 =locality 30 of Jones and others, 1980	Radiolarians	Late Devonian (Famennian)	Brian Holdsworth, 1977, in Jones and others, 1980, Plate 1	from red radiolarian chert
84	Sec. 21, T20S, R11W	77-J-20 =locality 29 of Jones and others, 1980	Radiolarians	Late Devonian (Famennian)	Brian Holdsworth, 1977, in Jones and others, 1980, Plate 1	from red radiolarian chert
85	Sec. 21, T20S, R11W	76-Nw-165 =locality 32 of Jones and others, 1980	Radiolarians	Late Devonian (Famennian)	Brian Holdsworth, 1977, in Jones and others, 1980, Plate 1	from red radiolarian chert
86	Sec. 21, T20S, R11W	76-Nw-164 =locality 31 of Jones and others, 1980	Radiolarians	Late Devonian (Famennian)	Brian Holdsworth, 1977, in Jones and others, 1980, Plate 1	from red radiolarian chert
87	Sec. 21, T20S, R11W	77-J-19 =locality 28 of Jones and others, 1980	Radiolarians	Late Devonian (Famennian)	Brian Holdsworth, 1977, in Jones and others, 1980, Plate 1	from red radiolarian chert
88	Sec. 20, T20S, R11W	97RB174	<ul style="list-style-type: none"> • Crinoid ossicles • Undetermined bryozoans 	probably Paleozoic	R.B. Blodgett	from coarse, calcareous bioclastic sandstones and granule conglomerate
89	Sec. 19, T20S, R11W	98RB1 =M. Sandy's locality 98/3	Brachiopods: <ul style="list-style-type: none"> • <i>Spondylospira lewesensis</i> (Lees, 1934) • <i>Lobothyris</i> sp. cf. <i>L.</i> <i>monstrifer</i> (Dagys, 1963) • <i>Fissirhynchia fissicostata</i> (Suess, 1854) <hr style="width: 50%; margin-left: 0;"/> <ul style="list-style-type: none"> • Scleractinian corals 	Late Triassic (Norian)	Monica Stefanoff and Michael Sandy, written commun., Jan. 8, 1999	east side of hilltop of limestone hill in SW¼ NW¼ Sec. 19
90	Sec. 19, T20S, R11W	98RB2 =M. Sandy's locality 98/4	Brachiopods: <ul style="list-style-type: none"> • <i>Spondylospira lewesensis</i> (Lees, 1934) • <i>Lobothyris</i> sp. cf. <i>L.</i> <i>monstrifer</i> (Dagys, 1963) 	Late Triassic (Norian)	Monica Stefanoff and Michael Sandy, written commun., Jan. 8, 1999	collection derived from talus slope several hundred feet NNW of 98RB2

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
91	Sec. 23, T20S, R12W	97RN409	Undetermined bivalves • Cyrtinoid brachiopod (probably <i>Spondylospira</i>)	Late Triassic	R.B. Blodgett	
92	Sec. 22, T20S, R12W	97BT277	• <i>Buchia</i> hash • <i>Buchia crassicolis</i> (Keyserling) • <i>Inocerasmus</i> sp. • Inoceramid bivalve prisms	Early Cretaceous (Valanginian)	R.B. Blodgett	
93	Sec. 29, T20S, R11W	98RN158	• <i>Buchia</i> hash	Late Jurassic or Early Cretaceous; most likely Early Cretaceous		locally derived float
94	Sec. 25, T20S, R12W	Fossil locality 7 of Hawley and Clark, 1974	• Ammonite fragments	suggestive of Triassic age	R.W. Imlay, written commun., 1969, cited in Hawley and Clark, 1974, p. B6	from "limestone, calcareous siltstone, and argillite" unit of Hawley and Clark, 1974
95	Sec. 25, T20S, R12W 63°09'11" 149°46'30"	76-S-297 =locality 11 of Jones and others, 1980, Plate 1	• <i>Cassianella</i>	Late Triassic	Jones and others, 1980, Plate 1	from "Brown sandstone and argillite" unit of Jones and others, 1980
96	Sec. 25, T20S, R12W	locality 5 of Hawley and Clark, 1974	No data given due to misprint in text, and confusion with locality 6 of Hawley and Clark, 1974			
97	Sec. 27, T20S, R12W	97RN498	Bivalves: • Indeterminate limoid	age indeterminate	Chris McRoberts, written commun., March 10, 1999	
98	Sec. 36, T20S, R11W 63°08'17" 149°33'51"	77-J-18 =locality 44 of Jones and others, 1980, Plate 1	Radiolarians	Late Paleozoic (Late Devonian or younger Paleozoic)	Jones and others, 1980, Plate 1	from "Chert and argillite" unit (Broad Pass terrane) of Jones and others, 1980
99	Sec. 31, T20S, R11W	97RN501	Radiolarians	Late Devonian (late Famennian)	M.Z. Won, written commun., 1998	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
100	Sec. 36, T20S, R12W	97RN423	<ul style="list-style-type: none"> • crinoid ossicles, • coralline object, • indeterminate molluscan debris, • indeterminate high-spired gastropod (in transverse cross-section) 	probably Late Triassic	R.B. Blodgett	
101	Sec. 36, T20S, R12W 63°08'29" 149°08'11"	USGS Mesozoic loc. M6505 =locality 14 of Jones and others, 1980, Plate 1105	<ul style="list-style-type: none"> • <i>Pseudosirenites</i>, • <i>Indojuvavites</i> and other ammonites 	Late Triassic (early middle Norian)	Jones and others, 1980, Plate 1	from "Redbeds" unit of Jones and others, 1980
			<ul style="list-style-type: none"> • <i>Hauerites</i> n. sp. (= "<i>Metacarnites</i> sp." of McLearn, 1960) • <i>Indojuvavites</i> • <i>Rhacophyllites</i> 	Late Triassic (middle Norian)	Jones and others, 1980, p. A8.	occurs stratigraphically higher than locality 15 of Jones and others, 1980
		97RN425	<ul style="list-style-type: none"> • Solitary scleractinian coral • Indeterminate high-spired gastropod • Hydrozoans? 		R.B. Blodgett	This locality appears on the map as the same locality as USGS Mesozoic locality M6505
102	Sec. 36, T20S, R12W 63°08'12" 149°46'23"	USGS Mesozoic locality M6504 =locality 15 of Jones and others, 1980, Plate 1	Juvavitinid ammonite	Late Triassic (latest Carnian to middle Norian)	Jones and others, 1980, p. A8 and Plate 1	from "Redbeds" unit of Jones and others, 1980
103	Sec. 33, T20S, R12W	97DP63	<ul style="list-style-type: none"> • Undetermined bivalves • <i>Septocardia</i> sp. • Scaphopods? • Colonial scleractinian corals 	Late Triassic	R.B. Blodgett	float collection of fossiliferous argillite

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
104	Sec. 6, T21S, R11W 63°07'36" 149°44'00"	76-J-31 =USGS Mesozoic locality 31261; =locality 42 of Jones and others, 1980, Plate 1	Ammonites including • <i>Arctoasteroceras jeletskyi</i>	Early Jurassic (late Sinemurian)	R.W. Imlay, written commun., 1976, cited in Jones and others, 1980, Plate 1	from "Massive Tuff" unit (West Fork terrane) of Jones and others, 1980
			• <i>Arctoasteroceras jeletskyi</i> Frebold • <i>Paltechioceras</i> (<i>Orthechioceras?</i>) sp. • <i>Weyla</i> sp.	Early Jurassic (late Sinemurian)	R.W. Imlay, written commun., 1976, cited in Jones and others, 1980, p. A12	
			• <i>Arctoasteroceras jeletskyi</i> • <i>Paltechioceras</i> (<i>Orthechioceras?</i>) sp. • Belemnite fragment • <i>Weyla</i> sp.	Early Jurassic (late Sinemurian)	R.W. Imlay, written commun., 1976, cited in Csejtey and others, 1992, Table 2, Map No. 70	
105	Sec. 6, T21S, R11W 63°07'33" 149°44'30"	76-J-27 =USGS Mesozoic locality 31260; =locality 37 of Jones and others, 1980, Plate 1	Ammonites including • <i>Arnioceras cf. A.</i> <i>densicosta</i>	Early Jurassic (early Sinemurian)	R.W. Imlay, written commun., 1976, cited in Jones and others, 1980, plate 1	from "Sandy limestone and calcareous sandstone" unit (West Fork terrane) of Jones and others, 1980
			• <i>Arnioceras cf. A.</i> <i>densicosta</i> (Quenstedt) • <i>Weyla</i> sp.	Early Jurassic (early Sinemurian)	R.W. Imlay, written commun., 1976, cited in Jones and others, 1980, p. A11	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
105 (cont)			<ul style="list-style-type: none"> • <i>Amioceras</i> cf. <i>A. densicosta</i> 	Early Jurassic (early Sinemurian)	R.W. Imray, written commun., 1976, cited in Csejtei and others, 1992, Table 2, Map No. 69	
106	Sec. 6, T21S, R11W 63°07'41" 149°44'35"	97HA9 76-J-22 =locality 35 of Jones and others, 1980, Plate 1	<p>Ammonites</p> <p>Radiolarians:</p> <ul style="list-style-type: none"> • <i>Paronaella</i> sp. A • <i>Praeconocaryomma magnimanima</i> • <i>Praeconocaryomma mamillaria</i> • <i>Archaeodicyomitra</i> cf. <i>A. rigida</i> • <i>Hsiium</i> (?) sp. • <i>Parvingula</i> sp. aff. <i>P. khakovi</i> • <i>Parvingula</i> sp. A • <i>Xitus</i> (?) sp. • Unknown sp. A • Unknown sp. B • Unknown sp. C • Unknown sp. F 	Late Jurassic (Calloviaian-early Tithonian)	R.B. Blodgett C.D. Blome in Jones and others, 1980, p. A10, Fig. 4, and Plate 1	from "Argillite, chert, and sandstone" unit (West Fork terrane) of Jones and others. Plate 1
107	Sec. 6, T21S, R11W	97HA7	Radiolarians	Late Jurassic (Calloviaian-Tithonian)	M.Z. Won, written commun., Feb. 2, 1998	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
108	Sec. 1, T21S, R12W 63°07'48" 149°45'34"	75-J-3B =locality 33 of Jones and others, 1980, Plate 1	Sparse conodonts and poorly preserved radiolarians from red radiolarian chert Conodonts: • 1 p element of <i>Polygnathus</i> cf. <i>P. glaber</i> Ulrich and Bassler • 1 N element (synprioniodinan) probably of <i>Polygnathus</i> • 1 simple cone element fragment (possibly acodid)	Late Devonian (Famennian)	Identification of A.G. Harris and B.R. Wardlaw, 1977, cited in Jones and others, 1980, p. A3 and Plate 1	from "Ophiolitic and ultramafic rocks" unit of Jones and others, 1980
			----- Conodonts		Csejtcy and others, 1992, Table 2, Map. no. 141	CAI given as 4
		probably equivalent to 97RN404	Radiolarians	Late Devonian (late Famennian)	M.Z. Won, written commun., 1998	This locality plots out as same locality as 75-J-3B
109	Sec. 1, T21S, R12W	97RN397	Radiolarians	Late Devonian (late Famennian)	M.Z. Won, written commun., 1998	
110	Sec. 1, T21S, R12W	97HA1	Radiolarians	Late Devonian (late Famennian)	M.Z. Won, written commun., 1998	
111	Sec. 1, T21S, R12W	97KC205	Radiolarians	Late Jurassic (Callovian)	M.Z. Won, written commun., 1998	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
112	Sec. 1, T21S, R12W 63°07'13" 149°46'34"	76-J-41 =locality 36 of Jones and others, 1980, Plate 1	Radiolarians: <ul style="list-style-type: none"> • <i>Paronaella</i> sp. A • <i>Praeconocaryomma magnimamma</i> • <i>Praeconocaryomma mamillaria</i> • <i>Archaeodictyomitra</i> cf. <i>A. rigida</i> • <i>Parvicingula</i> sp. aff. <i>P. khabakovi</i> • <i>Parvicingula</i> sp. A • Unknown sp. A • Unknown sp. B • Unknown sp. D • Unknown sp. E 	Late Jurassic (Callovian-early Tithonian)	Jones and others, 1980, p. A10, Fig. 4, and Plate 1	from "Argillite, chert, and sandstone" (West Fork terrane) of Jones and others, 1980
			Radiolarians	Late Jurassic (Callovian to early Tithonian)	Csejtey and others, 1992, Table 2, Map No. 68	
113	Center of SW¼, Sec. 4, T21S, R12W	97RN494	Various pectenacean bivalves of Triassic aspect, <i>Cassianella</i> sp.	Late Triassic	R.B. Blodgett	on ridge
114	Sec. 11, T21S, R11W 63°06'27" 149°36'40"	75ANw-76 =USGS loc. 9744- SD =locality 46 of Jones and others, 1980, Plate 1	Corals	Silurian or Devonian	W.A. Oliver, Jr., written commun., 1977, cited in Jones and others, 1980, Plate 1	Csejtey and others (1992) interpreted this locality to represent a fault block or slide block within melange of Cretaceous age. However, we (Clautice and others, 2000) believe these rocks to be part of a coherent pre-Famennian (late Late Devonian) age section that includes rocks in a north- northeast-trending belt that extends from the southern part of the Healy A-6 quadrangle as far north as the Healy B-4 quadrangle. Fossils recovered from this succession are dominantly of Middle Devonian age.

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
114 (con't)			<ul style="list-style-type: none"> • <i>Labechia</i> sp. • <i>Favosites</i> sp. 	Middle Devonian or older	W.A. Oliver, Jr., written commun., 1977, cited in Jones and others, 1980, p. A13	
			<ul style="list-style-type: none"> • <i>Labechia</i> sp. • <i>Favosites</i> sp. 	Silurian or Devonian	W.A. Oliver, written commun., 1977, cited in Csejtey and others, 1992, Table 2, Map No. 53	
115	Sec. 11, T21S, R11W 63°06'51" 149°37'03"	75ANw-75 =USGS locality 9743-SD =locality 45 of Jones and others, Plate 1	Corals	Silurian and Devonian, probably Middle Devonian	W.A. Oliver, Jr., written commun., 1977, cited in Jones and others, 1980, Plate 1	from "Chert and argillite" unit (Broad Pass terrane) of Jones and others, 1980
			<ul style="list-style-type: none"> • Massive stromatoporoid • <i>Dendrostella(?)</i> sp. 	Middle Devonian or older	W.A. Oliver, Jr., written commun., 1977, cited in Jones and others, 1980, p. A13	
			<ul style="list-style-type: none"> • <i>Dendrostella?</i> sp. • Massive stromatoporoid 	Silurian and Devonian, Middle Devonian(?)	W.A. Oliver, written commun., 1977, cited in Csejtey and others, 1992, Table 2, Map No. 52	same locality as USGS locality 9743-SD

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
115 (con't)		97RB146	<ul style="list-style-type: none"> • Undetermined solitary rugose corals • Undetermined dendroid tabulate coral • Smooth ambocoelid brachiopod 		R.B. Blodgett	
116	Sec. 11, T21S, R11W	97KC232	• Dendroid tabulate corals	Devonian	R.B. Blodgett	
117	Sec. 8, T21S, R12W	97RR153	<p>Hydrozoan:</p> <ul style="list-style-type: none"> • <i>Heterastridium conglobatum</i>—the spherical hydrozoan. These look like the typical Upper Triassic floating hydrozoan. It is taken to be an important biostratigraphic fossils for the Norian and lowest Rhaetian (as presently defined). <p>Bivalve:</p> <ul style="list-style-type: none"> • Indet. trigoniid, perhaps <i>Minetrigonia</i> 	<p>Late Triassic (Norian-earliest Rhaetian)</p> <p>Late Triassic</p>	<p>G.D. Stanley, Jr., written commun., Aug. 22, 1997</p> <p>Chris McRoberts, written commun., March 10, 1999</p>	
118	Sec. 8, T21S, R12W	97RR149	<p>Bivalves:</p> <ul style="list-style-type: none"> • Large myophoroniid, • Pectinacean, possibly a <i>Chlamys</i> or <i>Tosapecten</i> • Large limoid, possibly an <i>Antiquilima</i> sp. 	Late Triassic, probably Norian or Rhaetian	Chris McRoberts, written commun., March 10, 1999	light gray-green weathering sandstone with large quartz clasts

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
118 (con't)			Gastropods: • <i>Chulitnacula alaskana</i> (Smith, 1927) • Undetermined neritimorph, • Zygopleuroidea, genus indet., • Several undetermined genera Undetermined scleractinian corals	Late Triassic (late Norian)	R.B. Blodgett & J. Fryda, 1999	
119	Sec. 7, T21S, R12W	97RR150	Bivalves: • <i>Mysidiopteria</i> sp. • Miscellaneous indeterminate bivalves	Late Triassic	Chris McRoberts, written commun., March 10, 1999	float collection
120	Sec. 7, T21S, R12W	97RR142	• Solitary scleractinian corals • Large undetermined bivalves • <i>Cassianella</i> sp. Gastropods: • <i>Chulitnacula alaskana</i> (Smith, 1927) • Indeterminate high spired gastropod • Undetermined caenogastropod genus	Late Triassic (late Norian)	R.B. Blodgett & J. Fryda, 1999	light gray-green weathering sandstone with large quartz clasts
121	Sec. 22, T21S, R12W	97RN323	Radiolarians	Late Jurassic (Callovian- Tithonian)	M.Z. Won, written commun., Feb. 2, 1998	
122	Sec. 22, T21S, R12W	97RN321	Radiolarians	Late Devonian (late Famennian)	M.Z. Won, written commun., 2.2.98	
123	Sec. 21, T21S, R12W	97RN320	Radiolarians	Late Devonian (late Famennian)	M.Z. Won, written commun., 2.2.98	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
124	Sec. 21, T21S, R12W	97RN318	<ul style="list-style-type: none"> • Indeterminate gastropods of Triassic aspect • Solitary scleractinian corals 	Late Triassic	R.B. Blodgett	10-20 ft thick green calcareous fossiliferous sandstone-wacke
125	Sec. 21, T21S, R12W	97RN446	<ul style="list-style-type: none"> • Indeterminate biotic debris • Pectenacean bivalve of Triassic aspect 	Late Triassic	R.B. Blodgett	
126	Sec. 21, T21S, R12W 63°04'33" 149°52'08"	76-N-138 =locality 16 of Jones and others, 1980, Plate 1	<ul style="list-style-type: none"> • <i>Juvavites</i> cf. <i>J. magnus</i> McLearn 	Late Triassic (early Middle Norian)	Jones and others, 1980, p. A8 and Plate 1	from "Redbeds" unit of Jones and others, 1980
127	Sec. 20, T21S, R12W	97RR135	<ul style="list-style-type: none"> • Naticopsid gastropod steinkerns • Undetermined pectenacid bivalve 	Late Triassic	R.B. Blodgett	from brown weathering calcareous sandstone
128	Sec. 19, T21S, R12W 63°05'14" 149°55'36"	77-S-131 =locality 12 of Jones and others, 1980, Plate 1	<ul style="list-style-type: none"> • <i>Heterastridium</i> 	Late Triassic (late Norian)	Jones and others, 1980, Plate 1	from "Brown sandstone and argillite" unit of Jones and others, 1980
129	Sec. 23, T21S, R13W 63°4'48" 149°59'31"	76-S-324 =locality 2 of Jones and others, 1980, Plate 1	Scleractinian corals Megalodontid bivalves	Late Triassic	Jones and others, 1980, Plate 1, locality 2	from limestone and pillow basalt unit of Jones and others, 1980
130	Sec. 29, T21S, R11W 63°03'45" 149°41'55"	75ANw-82 =USGS locality 9824-SD =locality 47 of Jones and others, 1980, Plate 1	Conodonts	Late Silurian (latest Pridolian) or Early Devonian (Gedinnian, =Lochkovian)	A.G. Harris, written commun., 1978, cited in Jones and others, 1980, Plate 1, locality 47	from isolated exposure of limestone associated with serpentine in "Chert and argillite" unit of Broad Pass terrane of Jones and others, 1980

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
131	Sec. 27, T21S, R12W	68ACs823F =Fossil locality 4 of Hawley and Clark, 1974 =USGS locality 23693-PC)	Pelecypods, mollusks, and brachiopods (examined by John Pojeta, Jr., E.L. Yochelson, and R.E. Grant). Only the pelecypods were diagnostic.	Late Paleozoic	J. Pojeta, Jr., written commun., 1969, cited in Hawley and Clark, 1974, p. B5	"Of the identifiable pelecypods in the collection <i>Streblopteria</i> and <i>?Pseudomonotis</i> are epifaunal whereas <i>Phestia</i> is infaunal"
		According to Jones and others, 1980, p. A11 (footnote 1), this locality is same as their fossil locality 38. However, their plotted occurrences on the map suggest that they are separated from one another by a short distance.	Pelecypods: "The dominant pelecypod in this collection is a species of <i>Streblopteria</i> ranges throughout the upper Paleozoic but has not been reported in post-Paleozoic rocks. Other pelecypods in the collection are not well preserved; identifications of these are as follows: • <i>?Pseudomonotis</i> sp. • <i>Phestia</i> sp. • Pelecypods, genus & sp. indeterminate."			----- Note: Jones and others, 1980, p. A11 (footnote 1) suggest that the Late Paleozoic age determination on the bivalves was probably due to misidentification, since they believe this locality is identical to their nearby locality 38, from which Early Jurassic fauna were recovered.
		97RN325	Indeterminate poorly preserved bivalves	not age diagnostic	R.B. Biodgett	Map locality same as fossil locality 4 of Hawley and Clark, 1974

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
132	Sec. 27, T21S, R12S 63°04'18" 149°49'48"	76-SP-325 =USGS Mesozoic locality M31263 =locality 38 of Jones and others, 1980, Plate 1 According to Jones and others, 1980, p. A11 (footnote 1), this locality is same as locality 4 of Hawley and Clark (1974). However, their plotted occurrences on maps suggest that they are separated from one another by a short distance.	Ammonites including • <i>Arnioceras</i> cf. <i>A.</i> <i>densicosta</i>	Early Jurassic (early Sinemurian)	R.W. Imlay, written commun., 1976, cited in Jones and others, 1980, Plate 1	from "Sandy limestone and calcareous sandstone unit" (West Fork terrane) of Jones and others, 1980
			• <i>Arnioceras</i> cf. <i>A.</i> <i>densicosta</i> (Quenstedt) • <i>Weyla</i> sp. • <i>Pleuromya</i> sp.	Early Jurassic (early Sinemurian)	R.W. Imlay, written commun., 1976, cited in Jones and others, 1980, p. A11.	
			• <i>Arnioceras</i> cf. <i>A.</i> <i>densicosta</i> • <i>Weyla</i> sp. • <i>Pleuromya</i> sp.	Early Jurassic (early Sinemurian)	R.W. Imlay, written commun., 1976, cited in Csejtey and others, 1992, Table 2, Map No. 67	
		97HA63	• Ammonites • <i>Weyla</i> sp.		R.B. Blodgett	Plots out as same locality as USGS Mesozoic locality M31263; contains same fauna

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
133	Sec. 29, T21S, R12S	97RR131	Undetermined gastropod with prominent cancellate ornament	Late Triassic	R. B. Blodgett	from dark gray limestone within brown sandstone, same or similar species occurs at map no. 146
134	Sec. 25, T21S, R13W 63°03'55" 149°56'20"	76-S-306 =locality 3 of Jones and others, 1980, Plate 1	Scleractinian corals Megalonotid bivalves	Late Triassic	Jones and others, 1980, Plate 1, locality 3	from limestone and pillow basalt unit of Jones and others, 1980
135	Sec. 36, T21S, R11W 63°02'48" 149°34'20"	80AMM-23 =locality 98 of Csejley and others, 1992	Bivalve: <i>Momolis</i> cf. <i>M. subcircularis</i>	Late Triassic (Norian)	N. J. Silberling, written commun., 1983, cited in Csejley and others, 1992	in argillite found as float from road-cut exposure
136	Sec. 36, T21S, R12W	97DP106	<i>Heterastridium</i>	Late Triassic	G. D. Stanley, Jr.	recovered in float
137	Sec. 33, T21S, R12W 63°02'48" 149°51'21"	76-SP-3331 =USGS Mesozoic locality 31264 =locality 39 of Jones and others, 1980, Plate 1	Ammonites including <i>Psiloceras?</i> <i>canadense</i> • <i>Artetiid ammonite</i> • <i>Badouxia canadense</i> (Frebold) • <i>B. columbiana</i> (Frebold)	Early Jurassic (early Sinemurian)	R. W. Imlay, written commun., 1976, cited in Jones and others, 1980, p. A11	from the "Sandy limestone and calcareous sandstone" unit (West Fork terrane) of Jones and others, 1980
138	Sec. 32, T21S, R12W	97RN390	Radiolarians	Late Devonian (late Famennian)	M. Z. Wan, written commun., 1998	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
139	Sec. 32, T21S, R12W	97RN387	<ul style="list-style-type: none"> • <i>Epigondolella</i> n. sp. C of Orchard, 1982 	Middle Norian (Late Triassic) <i>E. n. sp. C Zone</i>	N.M. Savage, written commun.,	49 elements, CAI 3
140	Sec. 32, T21S, R12W	97RN388	<ul style="list-style-type: none"> • Possible <i>Heterastridium</i> 	Late Triassic	R.B. Blodgett	
141	Sec. 32, T21S, R12W	97RR105	Bivalves: <ul style="list-style-type: none"> • <i>Propeamusium</i> sp. • <i>Veneroida</i> gen. et sp. indet. 	Late Triassic	Chris McRoberts, written commun., March 10, 1999	
			<hr/> <ul style="list-style-type: none"> • <i>Heterastridium</i> 		R.B. Blodgett	
142	Sec. 31, T21S, R12W 63°03'16" 149°55'46"	76-S-304 =locality 18 of Jones and others, 1980, Plate 1	<ul style="list-style-type: none"> • <i>Heterastridium</i> 	Late Triassic (late Norian)	Jones and others, 1980, Plate 1	
143	Sec. 31, T21S, R12W	97BT245	<ul style="list-style-type: none"> • <i>Heterastridium</i> 	Late Triassic (Norian)	G.D. Stanley, Jr., written commun., Feb. 3, 1999	
144	Sec. 31, T21S, R12W 63°03'08" 149°55'30"	76-S-303 =locality 13 of Jones and others, 1980, Plate 1	<ul style="list-style-type: none"> • <i>Heterastridium</i> 	Late Triassic (late Norian)	Jones and others, 1980, Plate 1	from "Brown sandstone and argillite" unit of Jones and others, 1980
			<hr/> <ul style="list-style-type: none"> • <i>Heterastridium</i> • Long-ranging Norian ammonite genus <i>Placites</i> 	Late Triassic (Norian)	Jones and others, 1980, p. A8	
145	Sec. 31, T21S, R12W	97SS8	<ul style="list-style-type: none"> • <i>Heterastridium conglobatum</i>—the spherical hydrozoan. These look like the typical Upper Triassic floating hydrozoan. It is taken to be an important biostratigraphic fossil for the Norian and lowest Rhaetian (as presently defined). 	Late Triassic (Norian—early Rhaetian)	G.D. Stanley, Jr., written commun., Aug. 22, 1997	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
146	Sec. 3, T22S, R11W 63°01'55" 149°37'20"	78ACy-52, 53 =locality 97 of Csejtey and others, 1992	Hydrozoan: • <i>Heterastridium</i> sp. Bivalve: • <i>Monotis subcircularis</i>	Late Triassic (late Norian)	N.J. Silberling, written commun., 1978, cited in Csejtey and others, 1992, Table 2, Map No. 97; also p. A16 and locality 57 of fig. 6 in Jones and others, 1980	
		98HA30	Hydrozoan: • <i>Heterastridium</i> sp. • Gastropod with cancellate external sculpture	Late Triassic (late Norian)	G.D. Stanley, Jr., written commun., Feb. 3, 1999; R.B. Blodgett (for gastropod)	plots as same locality as 78ACy-52, 53
147	Sec. 4, T22S, R12W 63°02'23" 149°51'47"	76-S-332 =USGS Mesozoic locality 31265 =locality 40 of Jones and others, 1980, Plate 1	Ammonites including • <i>Arnioceras</i> cf. <i>A.</i> <i>densicosta</i> • <i>Arnioceras</i> cf. <i>A.</i> <i>densicosta</i> (Quenstedt) • <i>Lytoceras?</i> sp. • belemnite fragment • <i>Pleuromya</i> sp. • <i>Arnioceras(?)</i> sp. • <i>Psiloceras? canadense</i> • Belemnite fragment • <i>Pleuromya</i> sp.	Early Jurassic (early Sinemurian)	R.W. Imray, written commun., 1976, cited in Jones and others, 1980, Plate 1	from "Sandy limestone and calcareous sandstone" (West Fork terrane) of Jones and others, 1980
				Early Jurassic (early Sinemurian)	R.W. Imray, written commun., 1976, cited in Jones and others, 1980, P. A 11	
				Early Jurassic (early Sinemurian)	R.W. Imray, written commun., 1976, cited in Csejtey and others, 1992, Table 2, Map No. 65	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments
148	Sec. 5, T22S, R12W 63°02'07" 149°54'10"	76-N-135 =locality 17 of Jones and others, 1980, Plate 1	<ul style="list-style-type: none"> <i>Juvavites</i> cf. <i>J. magnus</i> McLearn 	Late Triassic (early Middle Norian)	Jones and others, 1980, p. A8 and Plate 1	
149	Sec. 5, T22S, R12W	97KC290	Possible sphinctozoan sponges	Late Triassic?	R.B. Blodgett	If these are indeed sphinctozoan sponges, then a probable age of Late Triassic is indicated, since they are only recognized in Late Triassic age strata in this region
150	Sec. 2, T22S, R13W	97KC342	<ul style="list-style-type: none"> <i>Heterastridium</i> <i>conglobatum</i>—the spherical hydrozoan. These look like the typical Upper Triassic floating hydrozoan. It is taken to be an important biostratigraphic fossil for the Norian and lowest Rhaetian (as presently defined). 	Late Triassic (Norian-earliest Rhaetian)	G.D. Stanley, Jr., written commun., Aug. 22, 1997	
151	Sec. 2, T22S, R13W	97AM241	Gastropod: <ul style="list-style-type: none"> <i>Chulitnacula alaskana</i> (Smith, 1927) Other faunal elements are also present including several indeterminate gastropods steinkerns, a flat bivalve, and scaphopod.	Late Triassic (late Norian)	R.B. Blodgett	

Map no.	Location	Field no.	Fossils	Fossil age	Reference	Comments	
152	Sec. 8, T22S, R12W 63°01'23" 149°53'04"	76-SP-322 =USGS Mesozoic locality 31262 =locality 41 of Jones and others, 1980, Plate 1	Ammonites including	Early Jurassic (early Sinemurian)	R.W. Imlay, written commun., 1976, cited in Jones and others, 1980, Plate 1	from "Sandy limestone and calcareous sandstone" unit (West Fork terrane) of Jones and others, 1980	
			<ul style="list-style-type: none"> • <i>Arnioceras</i> cf. <i>A.</i> <i>densicosta</i> 				
			<ul style="list-style-type: none"> • <i>Arnioceras</i> cf. <i>A.</i> <i>densicosta</i> (Quenstedt) • <i>Pleuromya</i> sp. 	Early Jurassic (early Sinemurian)	R.W. Imlay, written commun., 1976, cited in Jones and others, 1980, p. A11		
			<ul style="list-style-type: none"> • <i>Arnioceras</i> cf. <i>A.</i> <i>densicosta</i> • <i>Pleuromya</i> sp. 	Early Jurassic (early Sinemurian)	R.W. Imlay, written commun., 1976, cited in Csejtey and others, 1992, Table 2, Map No. 64		
153	Sec. 13, T22S, R13W	98KC162	Recrystallized phaceloid colonial corals	probably Triassic	R.B. Blodgett		
154	Sec. 13, T22S, R13W	98KC163	Conodonts: <ul style="list-style-type: none"> • <i>Metapolygnathus</i> <i>primitius</i> (Mosher) 	Late Triassic (late Carnian to early Norian), Early to Late <i>primitius</i> Zones	N.M. Savage, written commun., 1999	CAI 4.5	