



# APPENDIX A

## DESCRIPTIONS OF FOSSIL LOCALITIES

These fossil data are for those localities established during the fieldwork and from unpublished data from other localities within the mapped areas (Table A.1). The details of published fossil localities appear in the references given in the paleontology and palynology tables of the map areas (Maps 1 to 7). The data are organized from oldest to youngest within each map area, starting with the southeasternmost area and ending with the northwesternmost.

## A1. PRINCETON AND TULAMEEN BASINS (92H/7 to 10)

### A1.1. Nicola Group

**Map No.: F1 GSC Loc. No.: C-116701**

UTM Coordinates:

FK0678800 E Latitude: 49°33'47"

FK5492400 N Longitude: 120°31'39"

NTS Sheet: 92H/10 Identified By: M.J. Orchard

Location: At 915 metres (3000') elevation on the north valley wall of Allison Creek, 2.65 kilometres at 346° from the junction of Highway 5 and Summers Creek Road.

Rock Unit: Nicola Group, unit uTRc

Lithology: Medium grey tuffaceous limestone and limy volcanic breccia.

Fauna: *Metapolygnathus nodosus* Hayashi (16)  
*Metapolygnathus* cf. M. n.sp. F Orchard (4)  
ichthyoliths  
sponge spicules

C.A.I.: approximately 4

Age: Late Triassic, late Carnian

**TABLE A.1**  
**FOSSIL COLLECTIONS IN STRATIGRAPHIC ORDER**

Map No.	UTM Coordinates		NTS Sheet	Rock Unit	Age
	Easting	Northing			
<b>CHILCOTIN GROUP</b>					
<b>Deadman River Formation</b>					
F1	FM0644200	FM5674350	92P/2	Mvr	Middle Miocene
F2	FM0644850	FM5673000	92P/2	Mvr	Middle Miocene
<b>PRINCETON GROUP and unnamed Eocene sediments</b>					
F2	FL0653150	FL5562300	92I/2	EAcP	Eocene to Miocene
F3	FL0652900	FL5562000	92I/2	EAcP	Middle Eocene
F4	FL0679250	FL5556740	92I/1	EAcP	Middle Eocene to Early Oligocene
F**	EM0562230	EM5664840	92O/1	EtfS	younger than mid-Paleocene
<b>Silverquick Formation</b>					
F6	FM0647920	FM5655450	92P/2	luKs	Albian
<b>SPENCES BRIDGE GROUP</b>					
F**	EM0579500	EM5632070	92I/13	IKsBS	unrefined Mesozoic or Tertiary
<b>JACKASS MOUNTAIN GROUP</b>					
F**	EM0565330	EM5658270	92O/1	IKJM	Middle to Late Albian
<b>NICOLA GROUP</b>					
F6	FM0644170	FM5645520	92I/15	uTAV	Late Triassic, Early Norian
F8	FM0644270	FM5642630	92I/15	uTAc	Middle Triassic, Ladinian
F17	FM0640050	FM5628630	92I/14	uTAc	Late Triassic, Early Norian
F18	FM0640200	FM5628400	92I/14	uTAc	Late Triassic, Early Norian
F1	FK0678800	FK5492400	92H/10	uTAc	Late Triassic, Late Carnian
F59	FK0679000	FK5459600	92H/7	uTAV	Late Triassic, Norian

**Map No.: F59 GSC Loc. No.: C-087490**

## UTM Coordinates:

FK0679000 E Latitude: 49°14'45"  
 FK5459600 N Longitude: 120°32'50"  
 NTS Sheet: 92H/7 Identified By: M.J. Orchard  
 Location: At 1035 metres (3400') elevation in a roadcut a few hundred metres south of Sunday Creek.  
 Rock Unit: Nicola Group, unit uTRv  
 Lithology: Carbonate  
 Fauna: *Epigondolella* sp. (2) ichthyoliths  
 C.A.I.: approximately 4  
 Age: Late Triassic, Norian  
 Remarks: Both specimens are broken posteriorly, but have high nodes. This collection was previously published (Monger, 1989c) as Triassic - late Carnian.

**A2. MERRITT BASIN (92I/1, 2)****A2.1. Princeton Group, Coldwater Formation****Map No.: F2 GSC Loc. No.: C-039526**

## UTM Coordinates:

FL0653150 E Latitude: 50°11'50"  
 FL5562300 N Longitude: 120°51'10"  
 NTS Sheet: 92I/2 Identified By: J.M. White  
 Location: At 745 metres (2450') elevation in Guichon Valley 0.3 kilometre west of the highway to Logan Lake and 5.15 kilometres at 020° from Lower Nicola.  
 Rock Unit: Princeton Group, Coldwater Formation, unit EPcp  
 Lithology: Carbonaceous siltstone.  
 Flora: unsieved fraction:  

<i>Monoporosporites</i> sp.	common
<i>Reduviasporonites</i> sp.	rare
<i>Osmunda</i> sp.	common
<i>Tsuga</i> sp.	abundant
cf. <i>Picea</i> sp.	common
<i>Sequoiapollenites</i> sp.	rare
Taxodiaceae - Cupressaceae - Taxaceae	common
<i>Liquidambar</i> sp.	rare
<i>Potamogeton</i> cf. <i>P. narcosli</i> Piel 1971	rare
<i>Ulmus/Zelkova</i> sp.	common
<i>Myrica annulites</i> Martin and Rouse 1966	common
<i>?Ilex</i> sp.	rare
<i>Pterocarya</i> sp.	common
<i>Carya</i> sp., heteropolar	scarce
2, on <i>Alnus</i> sp.	

## T.A.I.:

Remarks: The age is probably Eocene to Miocene, based on the presence of *Tsuga*, *Ulmus/Zelkova*, *Carya*, *Juglans*, *Liquidambar* and *Myrica annulites* (Rouse *et al.*, 1970; Piel, 1971, 1977; Clague, 1974; Rouse and Mathews, 1979; Mathews and Rouse, 1984)

Age: Eocene to Miocene

**Map No.: F3 GSC Loc. No.: C-023488**

## UTM Coordinates:

FL0652900 E Latitude: 50°11'38"  
 FL5562000 N Longitude: 120°51'29"  
 NTS Sheet: 92I/2 Identified By: W.S. Hopkins  
 Location: At 695 metres (2275') elevation on the left bank of Guichon Creek 0.6 kilometres south of the mouth of Morgan Creek and 4.75 kilometres at 019° from Lower Nicola.  
 Rock Unit: Princeton Group, Coldwater Formation, unit EPcp  
 Flora: *Baculatisporites* sp.  
 Bisaccate conifer pollen  
*Glyptostrobus* sp.

Taxodiaceae - Cupressaceae

*Taxodium* sp.*Metasequoia* sp.*Alnus* sp.*Pistillipollenites* sp.*Pterocarya* sp.*Castanea* - type*Carya* sp.*Tricolpites* spp.*Tricolporopollenites* sp.*Tripoporopollenites* spp.

probably Middle Eocene

Age:

**Map No.: F4 GSC Loc. No.: C-039525**

## UTM Coordinates:

FL0679250 E Latitude: 50°08'29"  
 FL5556740 N Longitude: 120°29'30"  
 NTS Sheet: 92I/1 Identified By: J.M. White  
 Location: At 740 metres (2425') elevation on the east side of Quilchena Valley 4.05 kilometres at 178° from the outlet of Robb Creek into Nicola Lake.

Rock Unit: Princeton Group, Coldwater Formation, unit EPcp

## Lithology:

Dark grey carbonaceous shale.

## Flora:

unsieved fraction:  
 Ctenosporites wolfei Elsik and Jansonius 1974 rare  
 Monoporosporites sp. common  
 Taxodiaceae - Cupressaceae - Taxaceae rare  
 Ulmipollenites undulosus Wolf 1934 very abundant  
*Alnus* sp. rare  
*Carya* sp. rare

## T.A.I.:

2 to 2+ on Ulmipollenites

## Age:

Middle Eocene to Early Oligocene

Remarks: The stratigraphic range of *Ctenosporites wolfei* in the southern interior of British Columbia is Middle Eocene to Early Oligocene (Rouse and Mathews 1979).**A3. CACHE CREEK AND TRANQUILLE RIVER (92I/14, 15)****A3.1. Nicola Group****Map No.: F6 GSC Loc. No.: C-158288**

## UTM Coordinates:

FM0644170 E Latitude: 50°56'47"  
 FM5645520 N Longitude: 120°56'52"  
 NTS Sheet: 92I/15 Identified By: M.J. Orchard  
 Location: 2.50 kilometres at 120° from the junction of Gorge Creek and Deadman River at an elevation of 1130 metres (3700').  
 Rock Unit: Nicola Group, unit uTRv  
 Lithology: Dark grey limy argillite and argillaceous limestone  
 Fauna: *Epigondolella abneptis* subsp. A Orchard (12)  
 ramiform elements (7)  
 ichthyoliths

## C.A.I.:

5

## Age:

Late Triassic, Early Norian

**Map No.: F8 GSC Loc. No.: C-158290**

## UTM Coordinates:

FM0644270 E Latitude: 50°55'13"  
 FM5642630 N Longitude: 120°56'51"  
 NTS Sheet: 92I/15 Identified By: M.J. Orchard  
 Location: 4.65 kilometres at 151° from the junction of Gorge Creek and Deadman River at an elevation of 1135 metres (3725').

Rock Unit: Nicola Group, unit uTRc  
 Lithology: Light grey, unbedded limestone  
 Fauna: Budurovignathus ex gr. Mungoensis (Diebel) (6)  
 Neogondolella sp. (1)  
 ramiform elements (1)  
 C.A.I.: 5  
 Age: Middle Triassic, late Ladinian

Cicatricosporites exilioides  
 Dinocysts:  
*Gonyaulacysta cassidata*  
 Ovoidites sp.  
 Pareodinia - 1  
 Canningia minor

Remarks: This assemblage correlates with those from the Spences Bridge Group reported from the Nicola and Coldwater rivers by Thorkelson and Rouse (1989).  
 Age: Albian

**Map No.: F17 GSC Loc. No.: C-158286**

UTM Coordinates:  
 FM0640050 E Latitude: 50°47'43"  
 FM5628630 N Longitude: 121°00'46"  
 NTS Sheet: 92I/14 Identified By: M.J. Orchard  
 Location: 3.9 kilometres at 052° from Anglesey station on the Canadian National Railway on the north side of the Thompson River east of the town of Cache Creek.  
 Rock Unit: Nicola Group, unit uTRc  
 Lithology: Unbedded, medium grey crinoidal limestone  
 Fauna: Epigondolella triangularis (Budurov) (20)  
 ramiform elements (6)  
 ichthyoliths  
 C.A.I.: 3-3.5  
 Age: Late Triassic, early Norian

**A4.2. Chilcotin Group, Deadman River Formation**

**Map No.: F1 GSC Loc. No.: C-210060**

UTM Coordinates:  
 FM0644200 E Latitude: 51°12'20"  
 FM5674350 N Longitude: 120°56'09"  
 NTS Sheet: 92P/2 Identified By: G.E. Rouse  
 Location: At 1065 metres (3500') elevation on the west wall of Deadman Valley, 4.7 kilometres at 331° from the village of Vidette.  
 Rock Unit: Chilcotin Group, Deadman River Formation  
 Lithology: Grey-brown carbonaceous siltstone  
 Flora: Palynomorphs:  
*Picea grandivescipites*  
*Carya juxtaporipites*  
*C. viridifluminipites*  
*Tilia vespicipites*  
*T. crassipites*  
*Tsuga viridifluminipites*  
*Ilex infissa*  
*Abies* sp.  
*Cedrus perialata*  
*Quercus shiabiensis*

Remarks: This assemblage correlates with that of the Fraser Bend Formation extending from the Nechako River to Quesnel to the Gang Ranch to Big Bar region on the Fraser River.  
 Age: Middle Miocene

**Map No.: F18 GSC Loc. No.: C-158285**

UTM Coordinates:  
 FM0640200 E Latitude: 50°47'36"  
 FM5628400 N Longitude: 121°00'39"  
 NTS Sheet: 92I/14 Identified By: M.J. Orchard  
 Location: 3.9 kilometres at 056° from Anglesey station on the Canadian National Railway on the north side of the Thompson River east of the town of Cache Creek.  
 Rock Unit: Nicola Group, unit uTRc  
 Lithology: Unbedded, medium grey crinoidal limestone  
 Fauna: *Epigondolella abneptis* subsp. A Orchard (5)  
 ramiform elements (2)  
 ichthyoliths  
 C.A.I.: 3-4  
 Age: Late Triassic, early Norian

**Map No.: F2 GSC Loc. No.: C-210061**

UTM Coordinates:  
 FM0644850 E Latitude: 51°11'35"  
 FM5673000 N Longitude: 120°56'09"  
 NTS Sheet: 92P/2 Identified By: G.E. Rouse  
 Location: At 1060 metres (3475') elevation on the east wall of Deadman Valley, 3.25 kilometres at 331° from the village of Vidette.  
 Rock Unit: Chilcotin Group, Deadman River Formation  
 Lithology: Dark grey carbonaceous shale and siltstone  
 Flora: Palynomorphs:  
 Inapertipollenites irregularis  
 Liquidambar sp. 1  
*Laevigatosporites* ovatus  
 Cupressacites sp.  
*Laricoidites* "minor"

Remarks: This assemblage correlates with that of the Fraser Bend Formation from Prince George to Quesnel to Gang Ranch and Big Bar.  
 Age: Middle Miocene

**A4. BONAPARTE TO DEADMAN RIVERS (92P/2, 3)**

**A4.1. Silverquick Formation**

**Map No.: F6 GSC Loc. No.: C-210059**

UTM Coordinates:  
 FM0647920 E Latitude: 51°02'05"  
 FM5655450 N Longitude: 120°53'26"  
 NTS Sheet: 92P/2 Identified By: G.E. Rouse  
 Location: In a roadcut on the Deadman Valley road at 785 metres (2575') elevation, 1.0 kilometre south of the north end of Mowich Lake on the east side of the lake.  
 Rock Unit: Silverquick Formation, luKs  
 Lithology: Minor carbonaceous siltstone and shale partings from an interbedded lithic wacke, siltstone and shale sequence  
 Flora: Fern spores:  
*Cicatricosporites imbricatus*  
*Klukisporites foveolatus*  
 cf. *Tricolpites micromunus*  
*Foveosporites labiosus*  
*Leptolepidites verrucosus*  
*Deltoidospora diaphana*  
*Kuylisporites lunaris*

Remarks: This assemblage correlates with that of the Fraser Bend Formation from Prince George to Quesnel to Gang Ranch and Big Bar.

**A5. HAT CREEK (92I/12 to 14)**

Because 135 palynology collections from Hat Creek are unpublished, and are part of a detailed structural and stratigraphic investigation by Rouse and Read (in preparation), the palynology table (OF 1990-23) summarizes only those aspects of the collections necessary for the unravelling of the stratigraphy and structure of the area.

## A6. FRASER RIVER (92I/5, 12, 13, 16; 92O/1, 8; 92P/4)

### A6.1. Jackass Mountain Group

**Map No.:n/a GSC Loc. No.: C-162590**

UTM Coordinates:

EM0565330 E Latitude: 51°04'27"

EM5658270 N Longitude: 122°04'03"

NTS Sheet: 92O/1 Identified By: A.R. Sweet

Location: At 655 metres (2150') elevation in an irrigation ditch on the south side of Watson Bar Creek 2.1 kilometres at 080° from the confluence of Watson Bar and Madson creeks.

Rock Unit: Jackass Mountain Group

Lithology: Carbonaceous shale lenses in sandstone

Flora:

Selected flora:

*Appendicisporites* sp.

*Cicatricosisporites* spp.

*Clavatricolpites prolatus* Pierce 1961

*Distaltriangulisporites perplexus* Singh 1964

*Eucommiidites minor* Groot and

Penny 1960

*Gleicheniidites* sp.

*Phimipollenites psuedocheros* Ward

1986

*Sestrosporites pseudoalveolatus*

(*Couper*) Dettman 1963

*Vitreisporites pallidus* (Reissinger)

Nilsson 1958

Remarks: Preservation and recovery good. The above combination of species favours a middle to late Albian age although an Early-Late Cretaceous age cannot be completely excluded. A maximum age of middle Albian is based on the common occurrence of tricolpate angiosperm pollen (*Clavatricolpites prolatus* and *Phimipollenites psuedocheros*)

Age: Middle to late Albian

### A6.2. Spences Bridge Group

**Map No.:n/a GSC Loc. No.: C-162588**

UTM Coordinates:

EM0579500 E Latitude: 50°50'13"

EM5632070 N Longitude: 121°52'16"

NTS Sheet: 92I/13 Identified By: A.R. Sweet

Location: On the left bank of the Fraser River about 10 metres above river level 3.4 kilometres downstream from the mouth of Pavilion Creek.

Rock Unit: Spences Bridge Group, unit IKsBs

Lithology: Dark grey carbonaceous shale

Flora: Bisaccate pollen

Taxodiaceae-Cupressaceae pollen

Remarks: Organic residue highly carbonized and dominated by woody fragments. Bisaccate and Taxodiaceae-Cupressaceae pollen are recognizable.

Age: unrefined Mesozoic or Tertiary

### A6.3. Unnamed Eocene Unit

**Map No.: n/a GSC Loc. No.: C-162591**

UTM Coordinates:

EM0562230 E Latitude: 51°08'01"

EM5664840 N Longitude: 122°06'38"

NTS Sheet: 92O/1 Identified By: A.R. Sweet

Location: At 1005 metres (3300') elevation on the north side of Ward Creek, 5.05 kilometres upstream of its confluence with the Fraser River.

Rock Unit: Unnamed Eocene unit EtfS

Lithology: Carbonaceous siltstone

Flora: *Ulmipollenites undulosus* Wolff 1934

Remarks: Preservation good. Residue dominated by cuticles and algal cysts (one dinoflagellate). Based on the presence of *Ulmipollenites undulosus* this sample is younger than mid-Paleocene in age.

Age: younger than mid-Paleocene.

