STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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Plate 1

Schematic Fence Diagram of the Southern Tyee Basin, Oregon Coast Range, showing stratigraphic relationships of exploration wells to surface measured sections

by

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By I. Ryu and others

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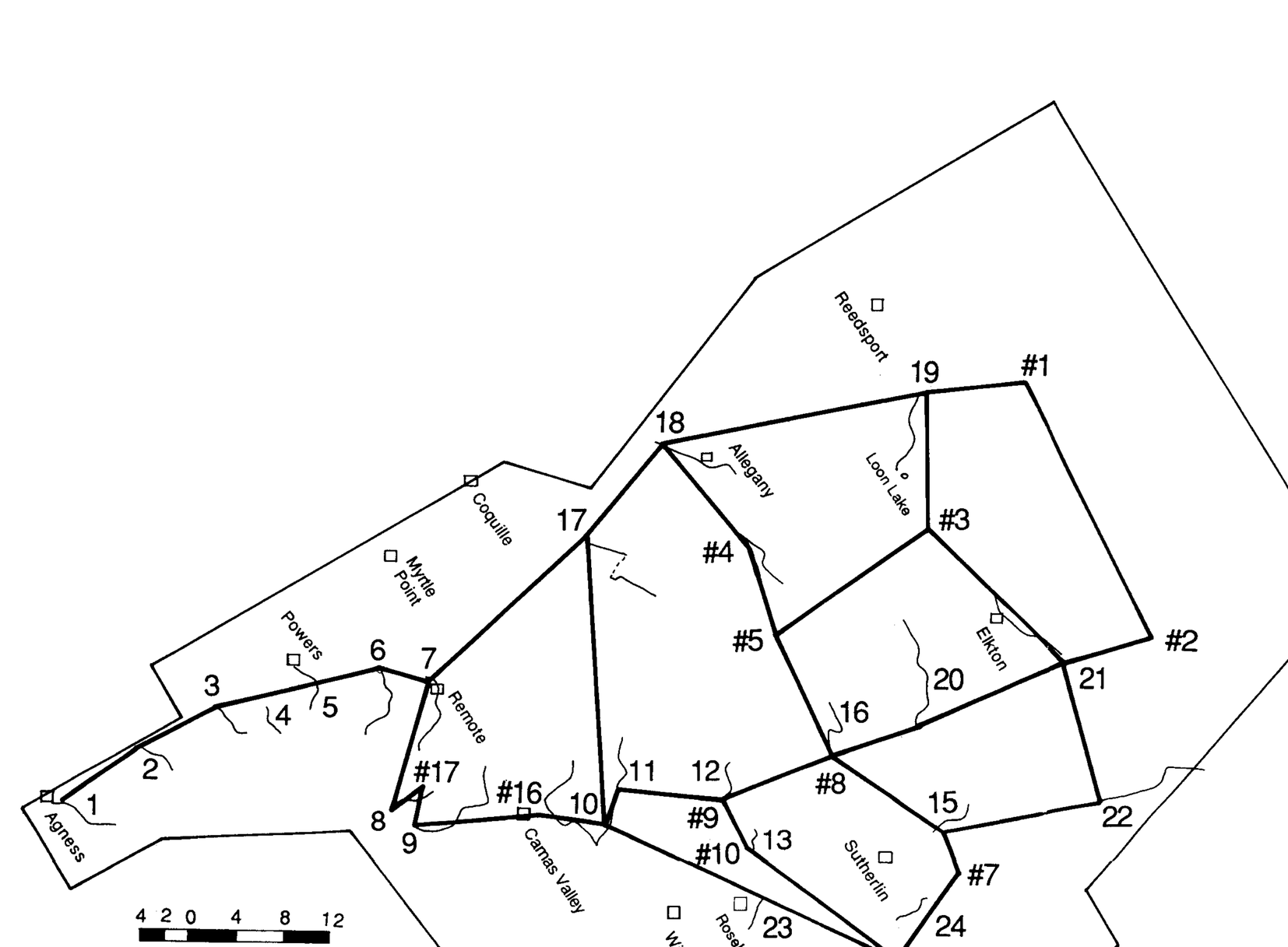


Fig. 1 Location map of southern Tyee basin, rotated such that the north arrow of Fig. 1 parallels north on the fence diagram.

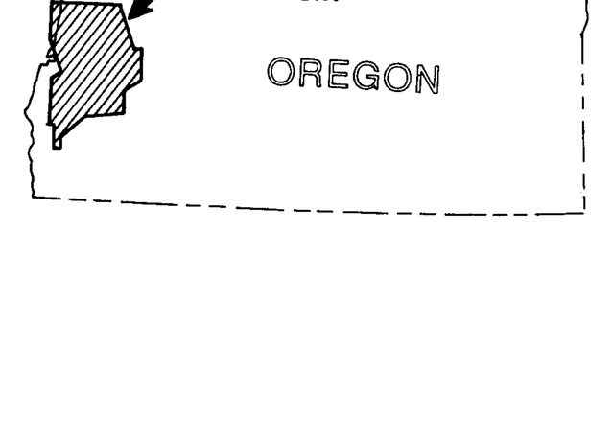
Explanation of symbols on Fig. 1:

Location of measured section

3 Measured section; number identified in Table II

#4 Exploration well; number identified in Table I

INDEX MAP



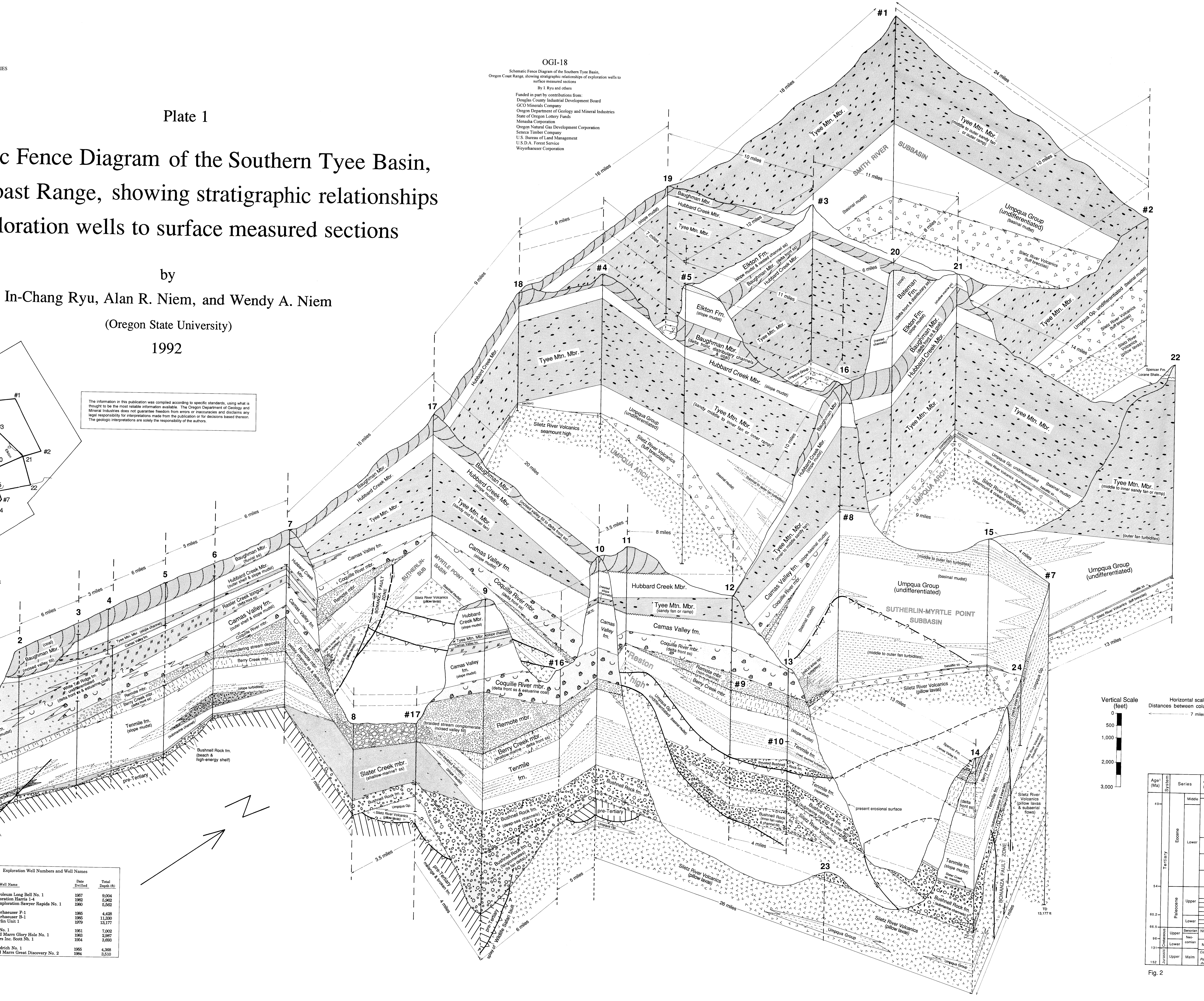


Table II List of Measured Sections and Exploration Holes that comprise the Stratigraphic Columns

Column No.	Measured Sections and Exploration Holes
1	Agness
2	Agness Pass
3	China Flat
4	Coal Creek and Sand Rock Mountain
5	Powers
6	Rasler Creek
7	Remote and Sandy Creek
8	Slater Creek
9	Twelvemile Creek, Oregon Highway 42, and Bingham Creek
10	Reston Road, Suicide Creek, Shield Creek, and Lost Lake
11	Reston Junction and Burnt Ridge
12	Glory Hole well (#9), Lookingglass Road, and Callahan Road
13	Scott well (#10), Cow Hollow, and Melrose
14	Glide
15	Metz Hill
16	Union Liles well (#8) and Tyee Road
17	LaVern Creek and Middle Creek
18	Allegany
19	Loon Lake
20	Kellog and Waggoner Creek
21	Elkton
22	I-5
23	S. Roseburg
24	Sutherlin Creek

Table I Exploration Well Numbers and Well Names

No.	Operator and Well Name	Date Drilled	Total Depth (ft)
#1	General Petroleum Long Bell No. 1	1957	9,004
#2	Florida Exploration Harris 1-4	1982	5,962
#3	Northwest Exploration Sawyer Rapids No. 1	1980	5,562
#4	Amoco Weyerhaeuser F-1	1985	4,428
#5	Amoco Weyerhaeuser B-1	1985	11,330
#7	Mobil Sutherlin Unit 1	1979	13,177
#8	Union Liles No. 1	1951	7,002
#9	Hutchins and Marrs Glory Hole No. 1	1983	2,987
#10	Oil Developers Inc. Scott No. 1	1954	3,693
#16	Uranium Ziedrich No. 1	1955	4,368
#17	Hutchins and Marrs Great Discovery No. 2	1984	3,510

EXPLANATION

Sequence IV [*1]

Bateman Formation — 2500 ft of moderately indurated, cross-bedded, micaceous arkosic sandstone; minor overbank mudstone; some coal; thickening-upward parasequences; wave-dominated delta.

Elkton Formation — 1500 ft of upper slope to basinal, laminated, medium to dark gray micaceous mudstone; some nested channels of micaceous arkosic turbidite sandstone; a few beds of shallow-marine, fossiliferous, micaceous arkosic sandstone in lower part.

Baughman Member — 1,000 to 2,000 ft of zeolite-cemented, coarse-grained, micaceous, lithic arkosic sandstone; cliff-former; some large-scale cross-bedded pebbly sandstone and conglomerate beds; fluvial- to wave-dominated delta; delta plain facies includes massive, green, overbank mudstone and abundant coal beds; delta front facies contains some oyster-bearing estuarine deposits, paralic coal, and thickening-upward parasequences of hummocky bedded bioturbated to ripple-laminated sandstone.

LOCAL UNCONFORMITY *2

Sequence III — Tyee Formation

Hubbard Creek Member — 400 to 1,000 ft of slope to basinal micaceous, laminated mudstone; minor fine-grained, arkosic micaceous sandstone and mudstone in nested turbidite channels.

Tyee Mountain Member — Well-indurated, clay-cemented, micaceous (abundant large flakes of muscovite and biotite), fine- to medium-grained, massive, lithic feldspathic sandstone (wacke) and subordinate deep-marine, dark gray mudstone; massive sandstone overlain by thin intervals of carbonaceous plant and micaceous laminae; Bouma ab sequences are common; thin, slope channel turbidite sandstones (60 to 250 ft) with mudstone-chip conglomerates to 5,000 to 6,000 ft of very thick-bedded to amalgamated inner and middle fan to thinner bedded sandstone and mudstone of outer sandy submarine fan or ramp; some mudstone rip-ups, flute and groove marks, load casts, and slumped bedding.

LOCAL UNCONFORMITY

Sequence II

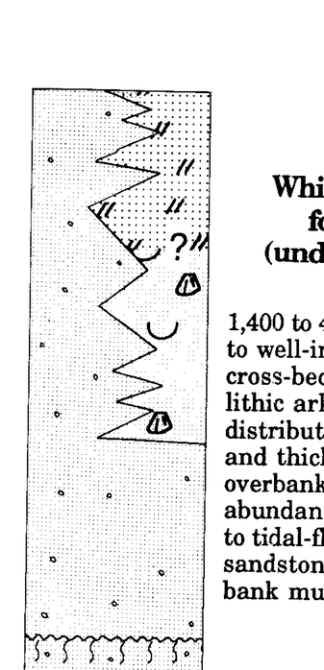
Camas Valley formation — Up to 1800 ft of outer shelf and upper slope, medium gray mudstone; massive; upper few hundred feet contain some calcareous concretions and shallow-marine fossil mollusks.

White Tail Ridge formation

Rasler Creek tongue — 500 ft of moderately to well-indurated, delta front lithic arkosic sandstone; bioturbated to hummocky bedded; rare coal and thin mudstone interbeds; thickening-upward parasequences; unit occurs mainly as a tongue that extends into and pinches out into mudstone of the Camas Valley formation.

Coquille River member — 1,000 ft of delta front, moderately indurated, shell-bearing, fine- to medium- grained, bioturbated to hummocky bedded, lithic arkosic sandstone that occur in thickening-upward parasequences; some lower delta plain, thick, massive, overbank mudstone interbeds, paralic coal, and estuarine to shallow-marine bioturbated, mollusk-bearing fine-grained ss.

Remote member — 2,200 ft of moderately indurated braided fluvial pebble-cobble-boulder polymict conglomerate (filling incised valleys) to meandering river, cross-bedded, pebbly lithic arkosic sandstone channels, thick overbank green, massive mudstone, carbonaceous siltstone, and some coal.



White Tail Ridge formation (undifferentiated) — 1,400 to 4,700 ft of moderately to well-indurated delta plain, cross-bedded, channelized, lithic arkosic sandstone, distributary mouth sandstone, and thick, massive, green, overbank mudstone with abundant coal and estuarine to tidal-flat oyster-bearing sandstone and accretionary bank mudstone.

LOCAL UNCONFORMITY

Sequence I — Umpqua Group

Berry Creek member — 500+ ft, well-indurated delta front, hummocky bedded cross-bedded and bioturbated, mollusk-bearing, pebbly lithic arkosic sandstone and minor mudstone and conglomerate interbeds; many thickening-upward parasequences.

Tenmile formation — 3,000 ft of massive to well-bedded, very thick sequences of well-indurated, medium gray, rhythmically bedded, thin, graded, coarse-grained lithic turbidites (Bouma abcd sequence) and thin dark gray mudstone ( ) interstratified with foraminifer-bearing, upper to lower slope, dark gray mudstone; minor medium- to thick-bedded, very coarse-grained, lithic turbidites ( ); some thick lenses and channels of massive, pebbly sandstone to polymict conglomerate ( ).

Bushnell Rock formation

Slater Creek member — Up to 2,100 ft of well-indurated, shallow-marine(?), fine-grained, thick-bedded, massive to faintly laminated, lithic feldspathic sandstone and minor dark gray mudstone partings; a few fossil mollusks and minor polymict conglomerate lenses; may be deep-water turbidites(?) in part.

Up to 1,600 ft of well-indurated deep-water pebble-cobble-boulder polymict to basaltic conglomerate; thick- to very thick-bedded, graded and reverse graded; some debris flow deposits; pebbly very coarse-grained lithic sandstone, very thin dark gray laminated mudstone interbeds; locally interbedded with submarine flows and sills of Siletz River Volcanics.

Up to 2,400 ft of ridge- and cliff-forming, reddish brown, alluvial polymict fanglomerate, debris flows, poorly sorted boulder-cobble-pebble conglomerate, and cross-bedded braided river deposits of conglomerate, coarse-grained lithic sandstone; minor massive maroon mudstone, ripple-laminated, fine-grained lithic sandstone interbeds and mollusk-bearing sandstone at top (fan delta); locally unconformable on pre-Tertiary Klamath terranes and on Siletz River Volcanics.

Less than 250 ft of nearshore, mollusk-bearing, cross-bedded, tight, moderately sorted, pebbly, medium- to coarse-grained lithic sandstone; polymict conglomerate lenses become more abundant toward the base of the unit; unconformably overlies Siletz River Volcanics.

LOCAL UNCONFORMITY

Basement rocks — Siletz River Volcanics

Volcanic breccia; basaltic siltstone and sandstone interbeds; up to 2,500 ft thick.

Basalt: pillow lavas and subaerial flows; some dark brown basaltic tuffaceous siltstone interbeds; 6,300 ft to several km thick.

FAULT CONTACT

Pre-Tertiary rocks — Mesozoic Klamath Mtn. terranes (largely broken formation and mélange)

Basalt/diabase sill

Spencer Formation — 400+ ft of friable, moderately well-sorted, thick, micaceous arkosic deltaic, fluvial, and minor shallow-marine, mollusk-bearing sandstone; a few coal beds and carbonaceous mudstone overbank deposits.

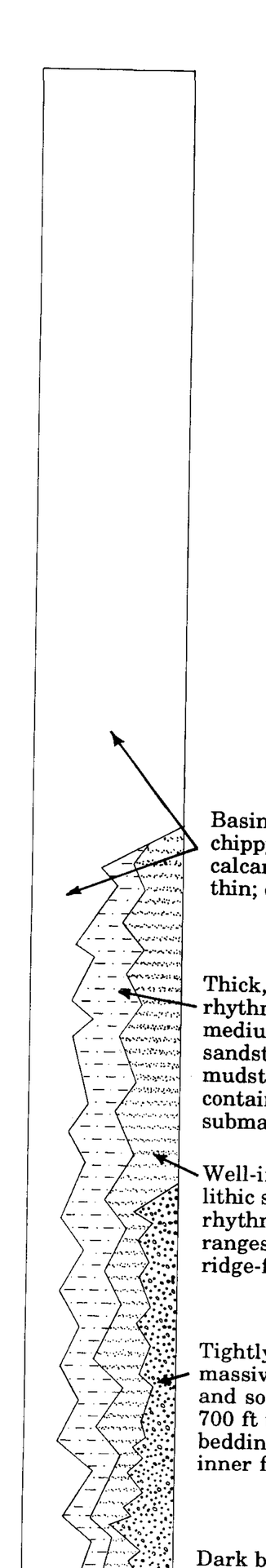
LOCAL UNCONFORMITY

Lorane Shale — 100+ ft of upper slope to basinal micaceous, laminated, medium gray mudstone.

*1 Depositional sequence; see sequence stratigraphy terminology of Van Wagoner and others (1990) and text accompanying Plate 1.

*2 Local unconformities are replaced basinward by conformities and are sequence boundaries (see terminology of Van Wagoner and others, 1990, and text accompanying Plate 1).

Umpqua Group undifferentiated



Basinal mudstone, gray, laminated to massive, chippy-weathering, up to 3,700 ft thick; some calcareous concretions; (condensed section where thin; e.g., less than 100 ft).

Thick, interstratified sequences of well-indurated, rhythmically bedded, thin to very thin, graded, medium gray, fine- to medium-grained lithic turbidite sandstone and dark gray mudstone; sandstone to mudstone ratio ranges from 1:1 to 1:4; some beds contain flutes, grooves, and burrows; outer submarine fan to basinal facies; up to 3,500 ft thick.

Well-indurated, medium- to thick-bedded, graded, lithic sandstone turbidites (150 to 500 ft thick intervals), rhythmically bedded; sandstone to mudstone ratio ranges from 2:1 to 5:1; burrows at base of some beds; ridge-former; mid fan lobes and channels.

Tightly cemented, very thick-bedded, amalgamated, massive to graded, ridge-forming, pebbly lithic sandstone and some lenses of polymictic conglomerate more than 700 ft thick and gray mudstone partings; some slumped bedding; inner fan and mid fan channel and inner fan valley.

Dark brown, tightly cemented basaltic sandstone (up to 100+ ft thick); massive to medium- to thick-bedded, moderately to poorly sorted; some basalt clasts contain amygdules; minor molluscan fossils; local deposit in base of condensed section of Umpqua Group overlying subaerial flows of Siletz River Volcanics; formed as shallow-marine and pocket beach(?) deposits around oceanic island headlands and sea stacks.

EXPLANATION OF SYMBOLS USED ON FENCE DIAGRAM

#1 Identification number of exploration well (refer to Table I)

2 Identification number of stratigraphic column (refer to Table II)

column — Measured stratigraphic section or well section

Projected section

Schematic present land surface

Lateral projection of member or formation prior to erosion

Formation or member boundary

Interfingering formation or member boundary

Unconformable contact

Thrust fault (teeth on upper plate)

Thrust fault with some oblique or strike-slip motion (T = toward reader; A = away from reader)

This fence diagram is not a palinspastic reconstruction.

Local tectonic and subsurface features named on this diagram:

SMITH RIVER SUBBASIN
UMPQUA ARCH
Reston high
SUTHERLIN-MYRTLE POINT SUBBASIN

Vertical Scale (feet): 0, 500, 1,000, 2,000, 3,000

Horizontal scale is variable. Distances between columns are shown by: ← 7 miles →

TIME-ROCK CHART

Age[1] (Ma)	System	Series		Calcareous[2] Nannofossils	Foraminiferal[3] Stage (Mallory)	(Laiming)	Lithostratigraphic Unit (N – S)
	Tertiary	Eocene	Middle	CP13 a	Narizian	A-2	Spencer Fm.; Lorane Shale; Bateman Fm.; Elkton Fm.; Spencer Fm.
49			Lower	CP12 b	Ulatisian	Pseudo-C; B-1	Tyee Fm.: Baughman Mbr., Hubbard Creek Mbr., Tyee Mtn. Mbr.
				CP11		B-2/B-3	Umpqua undifferentiated; Camas Valley fm.; Rasler Creek tongue; Coquille River mbr.; Remote mbr.; White Tail Ridge fm.
				CP10		B-4	Berry Creek mbr.; Tenmile fm.
				CP9	Penutian	C	Slater Creek mbr.; Bushnell Rock fm.
54					Bulitian	D	
		Paleocene	Upper	CP8, CP7, CP6, CP5, CP4	Ynezian	E	Siletz River Volcanics
60.2			Lower	CP3, CP2, CP1			
66.5	Cretaceous	Upper	Senonian	NC23 - NC10	Maastrichtian-Cenomanian		Sixes River Terrane
96		Lower	Neo-comian	NC9 - NC1	Albian - Ryazanian		
131	Jurassic	Upper	Malm	Conusphaera mexicana - Polypodorhabdus rhala	Portlandian; Kimmeridgian; Oxfordian		Sixes River Terrane
152							

Fig. 2

[1] Haq et al. (1988)
[2] Okada & Bukry (1980)
[3] Tertiary stages after Almgren et al. (1988); Mesozoic stages after Haq et al. (1988)

STRATIGRAPHIC NOMENCLATURE

Series		Foram Stage	Sequences	This Report (N – S)	Molenaar (1985) (NW – SE)	Baldwin (1974); Baldwin and Perttu (1989)
Eocene	Middle	Narizian	IV	Spencer & Bateman formations		Bateman Formation
				Lorane & Elkton formations	Elkton Formation	Elkton Formation
	Lower	Ulatisian	III	Tyee Fm.: Baughman Member; Hubbard Creek Member; Tyee Mtn. Member	Tyee Fm.: Deltaic facies; Upper slope-outer shelf facies?; Deep-water fan facies	Tyee Fm.: Baughman Member; Hubbard Creek Member?; Tyee Mtn. Member
			II	Umpqua Group: Umpqua Gp. undifferentiated; Camas Valley fm.; Rasler Creek tongue; Coquille River mbr.; Remote mbr.; White Tail Ridge fm.	Umpqua Formation: Camas Valley Member; White Tail Ridge Mbr.	Umpqua Group: Camas Valley Member; White Tail Ridge Mbr.; Olalla Creek Member (Flournoy Formation)
		Penutian	I	Berry Creek mbr.; Tenmile fm.; Slater Creek ss. member; Bushnell Rock fm.	Tenmile Member; Bushnell Rock Member	Tenmile Member; Bushnell Rock Member (Lookingglass Formation)
		Bulit.		pre-Tertiary	?	
Paleocene			basement	Siletz River Volcanics	Siletz River Volcanics (basement)	Roseburg Formation (basaltic rocks)

Fig. 3