RESEARCH INSTITUTE EARTH SCIENCE LAB.

MISCELLANEOUS FIELD STUDIES SOUTH HALF OF THE AMMON QUAD., IDAHO JRn NUGGET SANDSTONE (JURASSIC(?) AND TRIASSIC(?))--CORRELATION OF MAP UNITS Pinkish to reddish, fine- to medium-grained subarkosic sandstone. Fine laminations common. Upper part probably truncated by faults QUATERNARY Raw WOOD SHALE TONGUE OF ANKAREH FORMATION (UPPER TRIASSIC) -- Red siltstone and silty shale. Poorly Q1 | Pleistocene exposed. Maximum thickness 25 m Rdm DEADMAN LIMESTONE (UPPER TRIASSIC) -- Variegated, cherty, lithographic limestone. Irregular bedding surfaces. Nonfossiliferous. Thickness 50 m Rh HIGHAM GRIT (UPPER TRIASSIC) -- Coarse-grained sandstone and quartz pebble conglomerate. Mainly pink, white, and purple. Fracturing common. ▶ Pliocene Thickness 60 m Rti TIMOTHY SANDSTONE (LOWER TRIASSIC) -- Light-brown to > TERTIARY light-gray and partly white, dense, well-sorted but immature sandstone. Crossbeds present at some localities. Forms low ledges. Approximately 65 m Pliocene and Miocene THAYNES LIMESTONE (LOWER TRIASSIC) Tam Tao The Portneuf Limestone Member--Medium- to light-gray or buff siliceous limestone with abundant chert; Miocene some sandstone; reddish calcareous siltstone characteristic of upper part of member. Medium to UNCONFORMITY massively bedded Main part--Cherty, sandy limestone with abundant brachiopods and pelecypods in upper part. Finegrained yellowish sandstone commonly bioturbated in middle part. Black calcareous shale and thinto medium-bedded grayish-brown silty limestone, and Lower Cretaceous CRETACEOUS some minor fine-grained sandstone in lower part. Base of unit is placed at the bottom of massive. moderately clean limestone bearing the ammonite Meekoceras. All lithologies are gradational. Thickness 335-520 m; probably structurally thickened locally Upper Jurassic Rd DINWOODY FORMATION (LOWER TRIASSIC) -- Yellowish-brown, somewhat fissile siltstone and silty limestone that characteristically weathers chocolate Middle Jurassic brown. Overall color is drab olive yellow. Thickness 365-550 m; local structural thickening JURASSIC(?) AND TRIASSIC(?) PHOSPHORIA FORMATION (PERMIAN) Tkaw Rex Chert Member--Dark, recrystallized, and much fractured chert with almost equal amounts of tan Te dm arkosic quartzite. Forms prominent, wall-like ∀ Upper Triassic ledges. Thickness 75-150 m Meade Peak Phosphatic Shale Member--Phosphatic shale and oolitic phosphorite, shale, and petroliferous limestone. Medium to very dark brown and black, and thin bedded. Partly silicified. Dark, bluish-white color on weathered surfaces, very Lower Triassic distinctive. Forms low saddles. Thickness 25 m PPw WELLS FORMATION (PERMIAN AND PENNSYLVANIAN) Upper part (Permian and Pennsylvanian)--Light-gray Ppr Ppm dolomitic sandstone and dolomite; minor limestone and quartzite. Reddish to yellowish friable calcareous quartz sandstone in upper part of Lower Permian and | PERMIAN AND unit. Massive dark chert and limestone at top of Middle Pennsylvanian → PENNSYLVANIAN section is probable correlative of Grandeur Tongue IPwm PIPs of the Park City Formation. Thickness 300-Middle Pennsylvania PENNSYLVANIAN Pw1 380 m. Only mapped locally Middle part (Pennsylvanian) -- Fine-grained tan to pinkish quartzite and sandstone. Outcrops poorly but forms extensive talus slopes. Thickness 120-Upper Mississippian 150 m. Only mapped locally ≻ MISSISSIPPIAN Lower part (Pennsylvanian)--Medium-gray sandy Lower Mississippian limestone interbedded with tan calcareous sandstone in upper part; grades downward into massive, partly sandy, fossiliferous limestone (corals and crinoids characteristic). Dark chert beds and cherty limestone present in lower part. DESCRIPTION OF MAP UNITS Base not exposed. Exposed thickness 275 m Mmc MONROE CANYON LIMESTONE (UPPER MISSISSIPPIAN) -- Medium Oal ALLUVIUM (HOLOCENE) -- Silt sand, and gravels in stream to dark-gray clean bioclastic limestone. Thickchannels and on flood plains to massively bedded; forms prominent ledges 5 to Oaf ALLUVIAL FAN (HOLOCENE) -- Coarse gravels 10 m high. Top not exposed. Base placed at top Qls LANDSLIDE DEPOSITS (HOLOCENE) -- Hummocky terrain of of uppermost sandstone bed in underlying surficial slides primarily on Triassic, formation. Exposed thickness 230 m Cretaceous, and Cenozoic units LITTLE FLAT FORMATION (UPPER AND LOWER MISSISSIPPIAN) Qc COLLUVIUM (HOLOCENE) -- Generally soil and silt, locally Mlfu Upper part--Fine-grained quartz sandstone and talus. Also locally includes older alluvium interbedded sandstone and sandy limestone. TRAVERTINE (PLEISTOCENE) Sandstone is tan or rusty colored and partly LOESS (PLEISTOCENE) -- Windblown silt, paximum 5 m thick brecciated. Bedding moderately thick. Sand in BASALT (PLEISTOCENE) -- Intracanyon flows limestone weathers out in fine laminae. Thickness BASALTS OF WILLOW CREEK (PLIOCENE) Twy Youngest or lowest unit--Intracanyon flows. Large, Mlfl Lower part--Massive medium-gray limestone with dark, sparse plagioclase phenocrysts in dense finethin fractured, ribbon chert stringers. Also, grained matrix. Large but sparse vesicles finely laminated micrite with local dolomitization Twm Middle unit--Areally extensive flow Rock has a or silicification. Prominent cliff former. "salt-and-pepper" texture due to abundant small Partial equivalent of the lower part of the Little plagioclase phenocrysts in a dark matrix. Flat Formation. Thickness 170 m Microporosity common. Sub-ophitic texture with M1 LODGEPOLE LIMESTONE (LOWER MISSISSIPPIAN)--Mediumsubordinate augite grains; oliving very minor gray thin-bedded bioclastic and micritic Highest or oldest unit--Agglomeratic and flow limestone. Abundant fossil hash. Silty partings banded, with vesicles increasing towards top. on bedding planes. Undulatory bedding common in Phenocryst poor; chocolate brown on weathered outcrop; forms low ledges. Grades downward into silty limestone and limey shale which outcrop very ASH FLOW TUFF (PLIOCENE) poorly. Base not exposed. Exposed thickness Tay Youngest unit--Rhyolitic ash flow tiff. Sparse to abundant phenocrysts of sanidine, quartz and subsidiary plagioclase. Brown to brick-red pumice fragments. Abundant large lithophysae. Welding CONTACT--Dashed where approximately located, dotted variable; composite of several colling units. where concealed Forms caprock on flanks of Blackfoot Range Trl RHYOLITE OF HENRY'S CREEK--(PLIOCENE) -Rhyodacite lava FAULT-Dashed where approximately located, dotted flow. Pinkish-gray with thick vitrophyre at where concealed, queried where uncertain. U, base. Normal magnetic polarity upthrown side; D, downthrown side. Arrow shows Tb BASALT (PLIOCENE) -- Olivine tholeiite lasalt flow. direction of dip of fault surface Dense, fine grained with small olivine phenocrysts most abundant. Reverse polarity TEAR FAULT--Arrows show relative horizontal movement Ts SALT LAKE FORMATION (PLIOCENE AND MIOCENE) -- Locally derived conglomerate and diamictite; subordinate THRUST FAULT--Dashed where approximately located, sandstone, siltstone, and volcanic ash dotted where concealed, queried where uncertain. ASH FLOW TUFF (PLIOCENE AND MICCENE) Sawteeth on upper plate Tam Middle unit--Light-gray rhyolitic ash flow tuff. Sparse plagioclase phenocrysts. \$trongly welded GRAVITY SLIDE--Sawteeth on upper plate. Low angle with thick vitrophyre at base. Platy weathered fault containing pervasively brecciated material Tao Oldest unit--Purplish rhyolitic ash-flow tuff. Relatively abundant (10 percent) hafic ANTICLINE--Showing trace of axial surface; dashed phenocrysts. Strongly welded with thin where approximately located, dotted where vitrophyre at base. Normal polarity and concealed. Double arrows indicate steeper limb. dated by K/Ar as 5.86+0.18 m.y. (G. B. Arrow on end shows plunge Dalrymple, 1979, written commun.) Kw WAYAN FORMATION (LOWER CRETACEOUS) -- Yellowish-gray, SYNCLINE--Showing trace of axial surface; dashed where medium- to coarse-grained sandstone interbedded approximately located, dotted where concealed. with thin red and green shales. Pebble Double arrows indicate steeper limb. Arrow on end conglomerates locally present. Base mapped below shows plunge lowest redbed Ksf SMITHS FORMATION (LOWER CRETACEOUS) -- Tan to gray-OVERTURNED ANTICLINE--Showing trace of axial surface; green, medium-grained sandstone with interbedded dashed where approximately located, dotted where dark calcareous shale particularly abundant concealed. Arrow shows plunge direction towards base of unit. Sandstone is markedly crossbedded. Base mapped at contact with OVERTURNED SYNCLINE--Showing trace of axial surface; underlying red siltstone. Thickness 150-160 m dashed where approximately located, dotted where GANNETT GROUP (LOWER CRETACEOUS) concealed. Arrow shows plunge direction Smoot Formation of Eyer (1969)--Bright red calcareous siltstone. Very poorly exposed. STRIKE AND DIP OF BEDS Thickness 100(?) m Draney Limestone--Light-gray to very light gray lithographic limestone. Reddish partings and thin red shale beds. Silicified sparsely. Forms Overturned--Shown only where positively identified ridges. Approximtely 100 m thick from stratigraphy or sedimentary structures Bechler Formation--Coarse-grained salt-and-pepper sandstone. Chert pebble conglomerate common. Dominantly reddish color. Approximately 485 m Horizonta1 Peterson Limestone--Light-gray, medium- to finegrained limestone. Rarely crops but. TREND AND PLUNGE OF LINEATION--SS, slickensides; FA, Approximately 30 m thick minor fold axis. S or Z shows sense of fold Ephraim Conglomerate--Red chert pebble conglomerate asymmetry and coarse-grained sandstone. Sandstones commonly cross bedded. Base mapped at bottom of lowest STRIKE AND DIP OF CLEAVAGE conglomerate bed. May include some Jurassic rocks. Thickness 275 m __85 STRIKE AND DIP OF JOINT STUMP FORMATION (UPPER AND MIDDLE JURASSIC) -- Greenishto steely-gray, medium-grained sandstone. Glauconite is generally characteristic. Trough-REFERENCE set crossbeds are common. Ledge former. Thickness 140 m Eyer, J. A., 1969, Gannett Group of Western Wyoming PREUSS SANDSTONE (MIDDLE JURASSIC) -- Maroon calcareous and Southeastern Idaho: American Association sandstone and siltstone. Poorly exposed, though of Petroleum Geologists Bulletin, v. 53, talus commonly present. Thickness 210 m no. 7, p. 1368-1390. Jt TWIN CREEK LIMESTONE (MIDDLE JURASSIQ) -- Massive, medium-gray fossiliferous limestone in lower

DEPARTMENT OF THE INTERIOR UNITED STATES GEOLOGICAL SURVEY Geology mapped in 1977 and 1978 SCALE 1:24 000 Base from U.S. Geological Survey 1 1/2 0 1 Ammon SE and Ammon SW, 1976, unedited advance prints 1 .5 0 1 CONTOUR INTERVAL 40 FEET

GEOLOGIC MAP OF THE SOUTH HALF OF THE AMMON QUADRANGLE, BINGHAM AND BONNEVILLE COUNTIES, IDAHO

DATUM IS MEAN SEA LEVEL

Richard W. Allmendinger

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INTERIOR-GEOLOGICAL SURVEY, RESTON, VIRGINIA-1980

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part. Middle part is characterized by light-gray weathering, micritic splinter shale. Upper part characterized by fine-grained sandstone, sandy

locally mapped separately. Thickness 1000 m

limestone, and red siltstone

Jtr Red siltstone in upper part of the Twin Creek,