DESCRIPTION OF MAP UNITS

QUATERNARY SURFICIAL UNITS

- Qa **Alluvium**
  - Qa_1 **Younger alluvium**
  - Qa_2 **Older alluvium**
- Qcl **Colluvial and landslide deposits**

MID-AND UPPER TERTIARY STRATIFIED UNITS

- Tq **Quiburis Formation (Pliocene and Miocene)** Slightly indurated gravel and grit
- Tt **Tinaja beds (Miocene)** Slighty indurated gravel and grit

San Manuel Formation (Miocene)

- Tsmt **Tucson Wash Member** Conglomerate and local sedimentary megabreccia, with clasts of Cloudburst Formation and rhyolite
- Tsmk **Kannally Member** Conglomerate and local sedimentary megabreccia

Cloudburst Formation (Miocene and Oligocene)

- Tcbu **Upper member** Conglomerate
  - Tcbut **Tuff unit**
  - Tcbua **Arenite unit**
  - Tcbuv **Volcanic unit**
- Tcbl **Lower member** Conglomerate and volcanic rocks.
- Tst **Stratton unit (Oligocene?)** Conglomerate and volcanic rocks. A new informal unit.
- Tp **Pantano Formation (Oligocene)** Semi-indurated gravel and grit

PLUTONIC IGNEOUS ROCKS OF TERTIARY AND MESOZOIC AGE

- Tl **Lamprophyre (late Tertiary)** Biotitic fine-grained dikes
- Tk **Knagge granite (Miocene and Oligocene?)** Biotite-muscovite granite. A new informal unit.
- Try **Rhyolite (Miocene and Oligocene)** Intrusive dikes and extrusive ash-flow tuffs
- Trd **Rhyodacitic intrusives (Miocene and Oligocene)** Porphyritic dikes and plugs
- Tcg **Catalina Suite (of Keith and others, 1980; Miocene and Oligocene)** Porphyritic granite, marginal leucogranite, porphyritic ring-dikes, and felsite dikes

Wilderness Suite (of Keith and others, 1980; Eocene)

- Tws **Seven Falls sill** Leucogranite
- Twg **Gibbon Mountain sill** Leucogranite
- Twt **Thimble Peak sill** Leucogranite
- Twsh **Shreve Pass sill** Leucogranite
- Twc **Catnip Canyon sill** Banded leucogranite
- Twi **Inclusion zone** Leucogranite with numerous xenoliths, not shown on correlation.
- Tww **Wilderness Granite sill** Muscovite-garnet leucogranite
- Twl **Lemmon Rock pegmatite-aplite** Simple pegmatite, locally megacrystic, and aplite
  - Twlg **Garnet aplite band**
- Twsp **Spencer sill** Leucogranite
- TKr **Porphyries of Rice Peak (Paleocene? and Late Cretaceous;** consisting of two units not mapped separately) Granodioritic porphyry
  - TKrv **Vent facies**
- Ks **Porphyries of San Manuel (Late Cretaceous)** Dark plagioclase porphyry.
- TKo **Other porphyry dikes (Late Cretaceous?;** in Oracle area) Dark plagioclase porphyry.
- Kl **Leatherwood granodiorite (Late Cretaceous)** Equigranular dark granitoid rock
  - Klp **Porphyritic facies east of main body**

SEDIMENTARY AND VOLCANIC ROCKS OF MESOZOIC AGE

- Ka **American Flag Formation (Upper Cretaceous)** Conglomerate, argillite, and lesser sandstone. Informal members described in text. Probable American Flag Formation(Ka?) mapped near Mammoth Wash
- Klb **Bisbee(?) Group (Lower Cretaceous and Upper Jurassic)** Quartzite and conglomerate

PALEOZOIC SEDIMENTARY ROCKS

- PPe **Earp Formation (Lower Permian and Upper Pennsylvanian)** Limestone, quartzite, argillite, and local chert-pebble conglomerate
- IPh **Horquilla Limestone (Upper and Middle Pennsylvanian)** Finely bedded limestone and dolomite
- Me **Escabrosa Limestone (Upper and Lower Mississippian;** includes Martin Formation on Marble Peak) Massive to laminated calcarenite and dolomite
- Dm **Martin Formation (Upper Devonian)** Massive to laminated dolomite and local sandstone
- Dl **Mt. Lemmon unit (Middle and/or Lower Devonian?)** Micaceous sandstone and sandy phyllite, conglomeratic at base. A new informal unit
- Ca **Abrigo Formation (Upper and Middle Cambrian)** Silty dolomite and dolomitic sandstone, calc-silicate rock where metamorphosed
  - Cas **Southern Belle Member (Upper and Middle? Cambrian;** shown separately only where practical) Quartzite
- Cb **Bolsa Quartzite (Middle Cambrian)** Gray-maroon to white quartzite

PROBABLE LATE PROTEROZOIC UNIT

- Zc **Campo Bonito Formation** Maroon siltstone and basal and/or local diamictite. A new unit
  - Zcd **Diamictite** Poorly sorted polymictic sedimentary breccia

YOUNGER MIDDLE PROTEROZOIC ROCKS APACHE GROUP AND RELATED ROCKS

- Ydb **Diabase** Dikes and sills of dark subophitic equigranular intrusives
- Ym **Mescal Limestone** Marble or cherty limestone
- Yds **Dripping Spring Quartzite** Fine feldspathic quartzite and arenaceous shale to phyllite, and local dark pyritic laminated argillite; basal Barnes Conglomerate Member in many sections
- Yp **Pioneer Formation** Tuffaceous argillite and siltstone to phyllite and schist, local coarse pyroclastics; basal Scanlan Conglomerate Member and sandstone

OLDER MIDDLE PROTEROZOIC AND EARLY PROTEROZOIC ROCKS

- Ya **Aplite and pegmatite (Middle Proterozoic)** Dikes
- Yo **Oracle Granite (Middle Proterozoic)** Porphyritic coarse biotite granite
  - Yol **Leucocratic facies** Equigranular medium-grained leucogranite
- Yg **Granodiorite (Middle? Proterozoic;** northern edge of study area only) Equigranular mesocratic granitic rock
- Xp **Pinal Schist (Early Proterozoic)** Phyllite and metarhyolite, local schist

CORRELATION OF MAP UNITS

DESCRIPTION OF MAP SYMBOLS

Contact, dashed where location uncertain, dotted where concealed, showing true direction and magnitude of dip

Fault, dashed where location uncertain, dotted where concealed, showing true direction and magnitude of dip

- Pre-Eocene, barbed where thrust
- Mid-Tertiary, double tics where detachment
- Post-mid Tertiary or unknown

Bedding or primary igneous banding, showing strike and dip

- Inclined
- Vertical
- Horizontal
- Overturned

Mylonitic foliation of apparent mid-Tertiary age, mostly cataclastic in Sabino Basin, showing strike and dip

Mylonitic lineation of apparent mid-Tertiary age, showing direction and magnitude of plunge, dot at point of observation

- Inclined
- Horizontal
- In combination with planar feature

Phyllitic to schistose foliation of Proterozoic (in Pinal Schist only) or Laramide age, showing strike and dip

- Inclined
- Vertical
- Horizontal

Phyllitic to schistose lineation, defined by stretched domains, crinkle axes, or mineral alignment of Laramide age, showing direction and magnitude of plunge, dot at point of observation

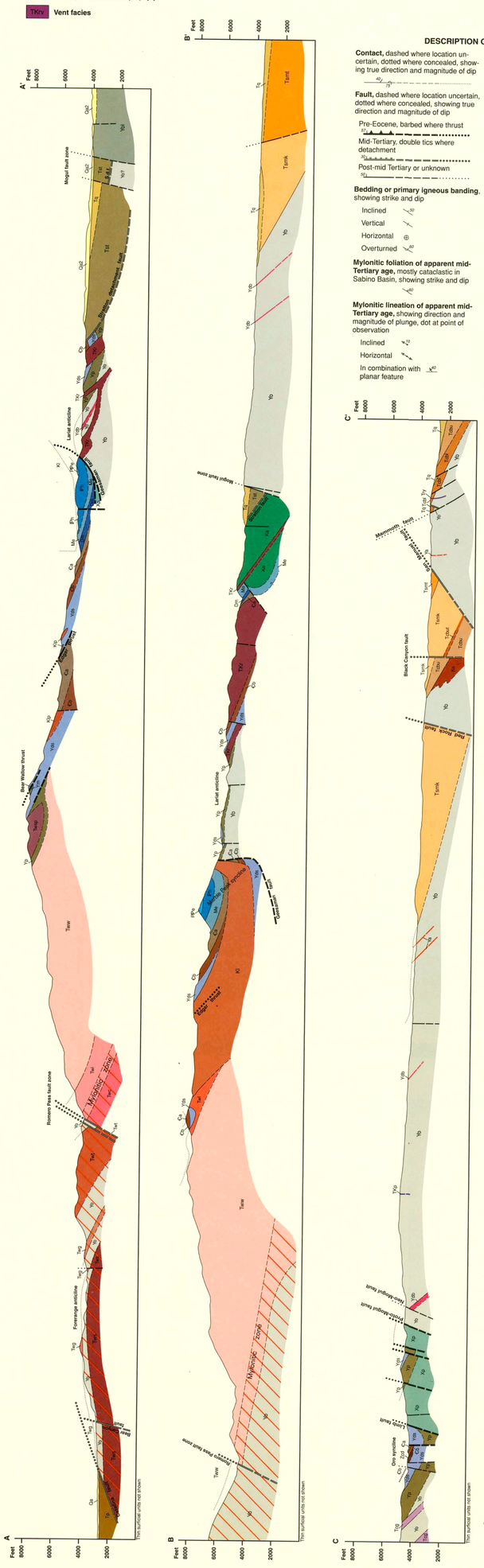
- Inclined
- Horizontal
- In combination with planar feature

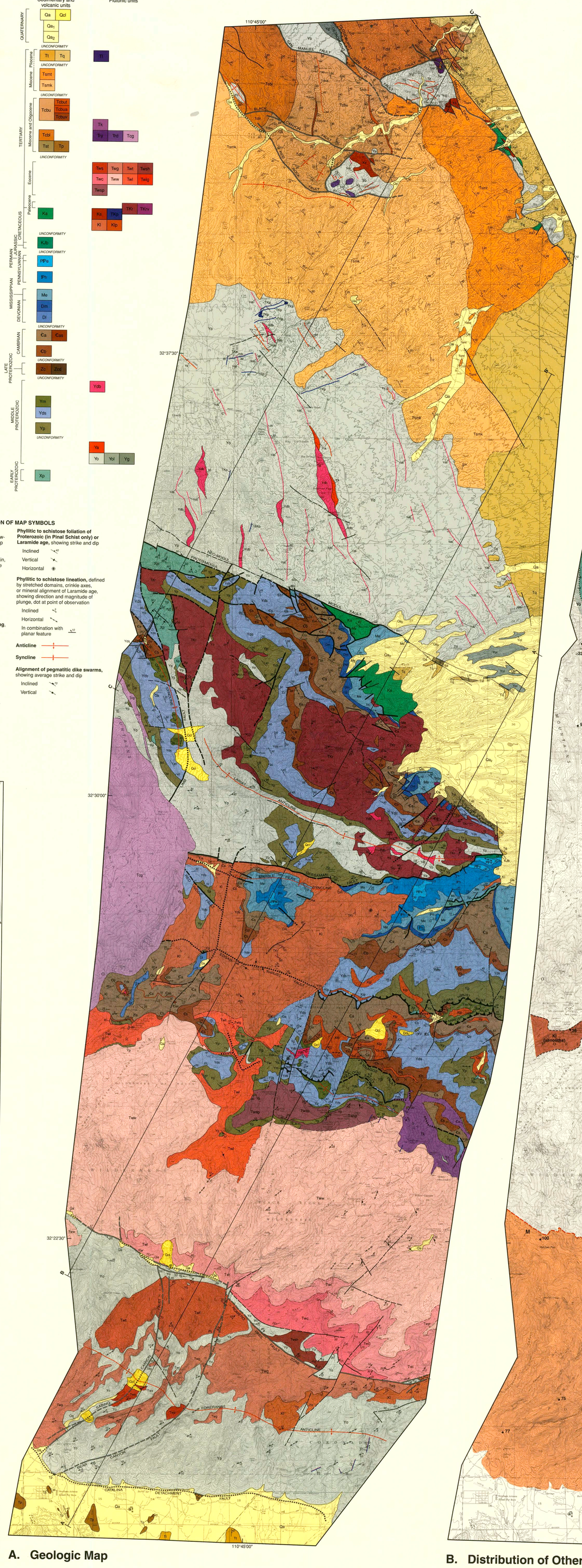
Anticline

Syncline

Alignment of pegmatitic dike swarms, showing average strike and dip

- Inclined
- Vertical





A. Geologic Map

B. Distribution of Other Geologic Features

DESCRIPTION OF BOUNDARIES

Boundary of pervasive mylonitiation (in bedrock) including the Windy Point zone

Structure contours (in feet) on the base of a mylonitic zone in the Windy Point area, inferred to have been continuous originally; dashed where inferred

Boundary of xenolith populations in leucogranites and pegmatites of the Wilderness suite; unit symbol without boundary represents a regional observation with unknown or map-unit boundary

- Kl Leatherwood granodiorite
- Yo Oracle Granite
- Yag Apache Group

Southern boundary of Oligocene tilting, dashed where approximately located.

Northern boundary of Wilderness suite leucogranite and pegmatite dikes (in older host rocks), drawn at an approximate abundance of 5 percent

Boundaries of domains of differing basement rock types, dashed where approximately located, dotted where concealed; offsets by faults other than Mogul fault not shown; southern boundary of Pinal Schist unclear in both areas

- Yo Oracle Granite
- Xp Pinal Schist

Approximate apparent limits of the lacustrine facies of upper Dripping Spring Quartzite (Yds); dashed where approximately located, dotted where concealed; offsets by faults not shown; L symbol without boundary represents a point observation.

Approximate apparent limits of thick, coarse pyroclastics in Pioneer Formation (Yp) (mostly in upper part); dashed where approximately located, dotted where concealed; offsets by faults not shown; P symbol without boundary represents a point observation.

Numbered locality described in appendix

GEOLOGIC MAP, CROSS SECTIONS, AND DISTRIBUTION OF OTHER GEOLOGIC FEATURES OF PART OF THE SANTA CATALINA MOUNTAINS, ARIZONA

Eric R. Force

1997

Field work done 1989-92

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