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map 1

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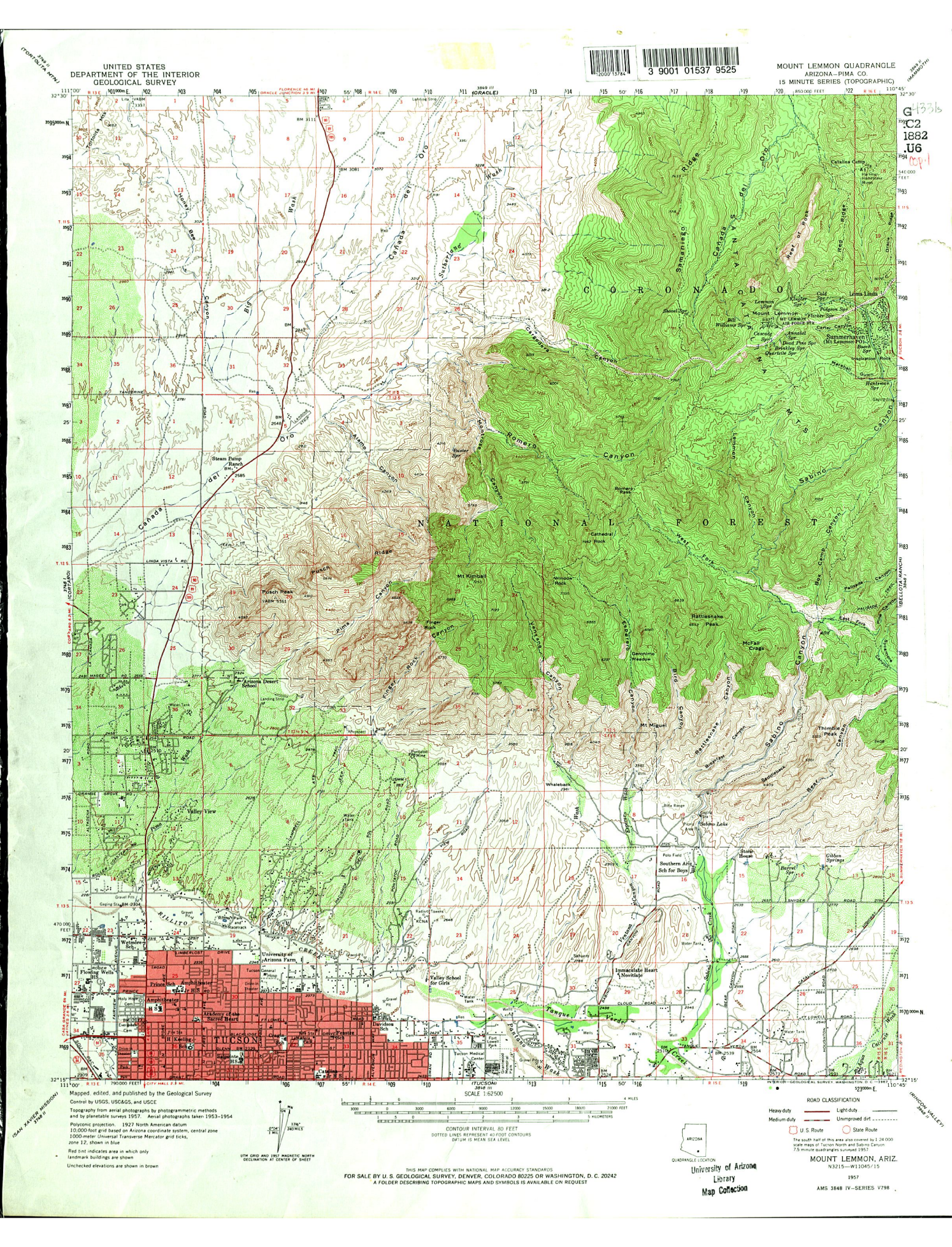
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

MOUNT LEMMON QUADRANGLE
ARIZONA—PIMA CO.
15 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography from aerial photographs by photogrammetric methods and by planetable surveys 1957. Aerial photographs taken 1953–1954

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

Red tint indicates area in which only landmark buildings are shown

Unchecked elevations are shown in brown

SCALE 1:62500

CONTOUR INTERVAL 80 FEET
DOTTED LINES REPRESENT 40 FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

UTM GRID AND 1957 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium duty — Unimproved dirt
U.S. Route — State Route

The south half of this area also covered by 1:24 000 scale maps of Tucson North and Sabino Canyon 7.5 minute quadrangles surveyed 1957

MOUNT LEMMON, ARIZ.
N3215—W11045/15

1957

AMS 3848 IV—SERIES V798

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

CORTARO QUADRANGLE
ARIZONA—PIMA CO.
15 MINUTE SERIES (TOPOGRAPHIC)

Copy 6

Mapped, edited, and published by the Geological Survey

Control by USGS, and USC&GS

Topography by planetable surveys 1946
Culture revised from aerial photographs taken 1954
Field check 1957

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

SCALE 1:62500

CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
State Route

APPROXIMATE MEAN DECLINATION, 1957

QUADRANGLE LOCATION

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CORTARO, ARIZ.
N3215—W11100/15

1957

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

SAN XAVIER MISSION QUADRANGLE
ARIZONA—PIMA CO.
15 MINUTE SERIES (TOPOGRAPHIC)

G4336
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1882
U6
Copy 6

Mapped, edited, and published by the Geological Survey

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Topography by planetable surveys 1940–41
Culture revision and field check 1957

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

Red tint indicates areas in which only landmark buildings are shown

SCALE 1:62500

1 0 1 2 3 4 MILES
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET
1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1957
13° TRUE NORTH MAGNETIC NORTH

ROAD CLASSIFICATION
Medium-duty ——— Light-duty ———
Unimproved dirt - - - - - -
State Route

ARIZONA
QUADRANGLE LOCATION

SAN XAVIER MISSION, ARIZ.
N3200—W11100/15

1957

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UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

SAN XAVIER MISSION QUADRANGLE
ARIZONA—PIMA CO.
15 MINUTE SERIES (TOPOGRAPHIC)

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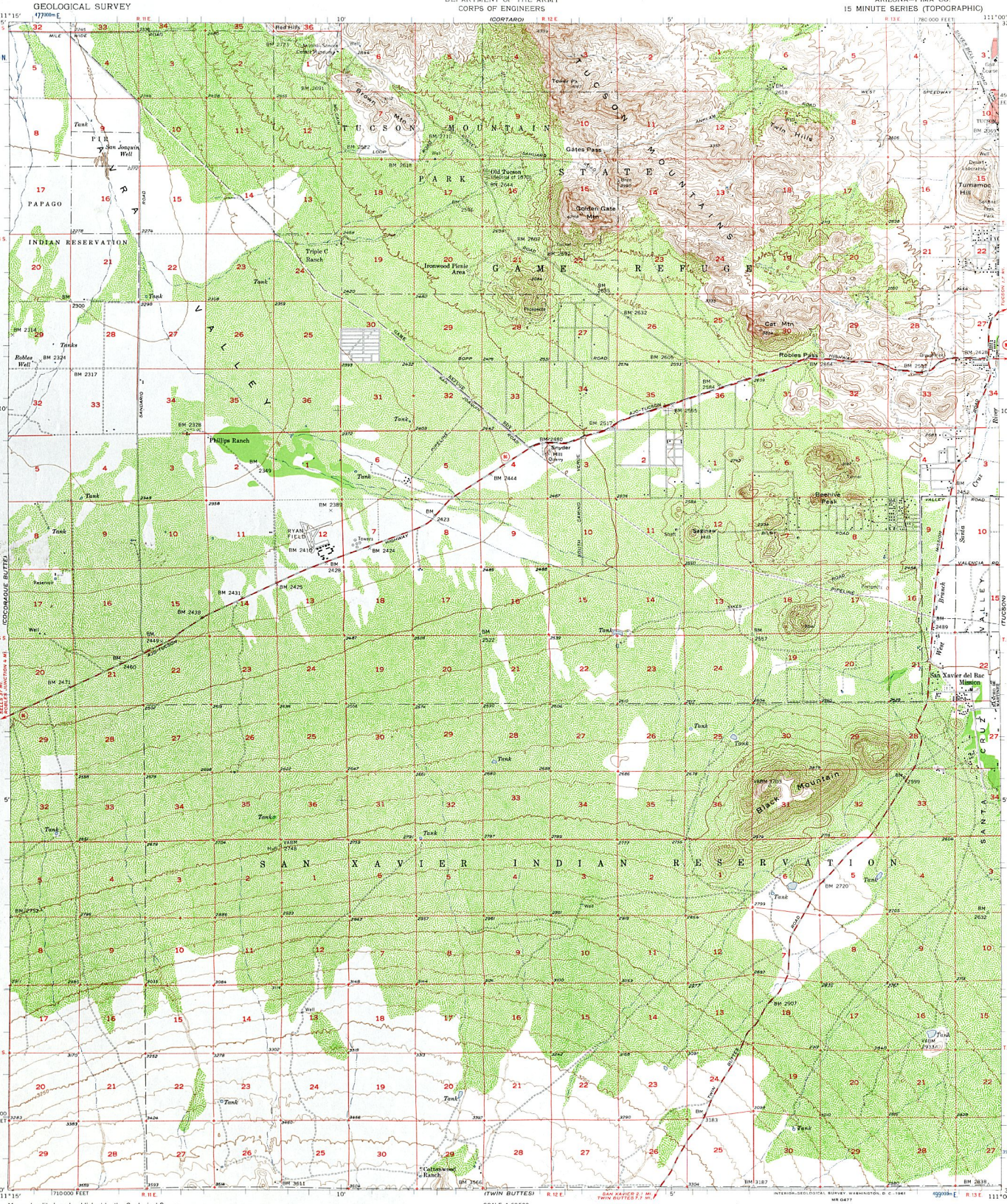

SCALE 1:62500

1 0 1 2 3 4 MILES
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET
1 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Medium-duty — Light-duty
Unimproved dirt
State Route

Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and State of Arizona
Topography by planetable surveys 1940–41
Culture revision and field check 1957
Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue
Red tint indicates areas in which only landmark buildings are shown

APPROXIMATE MEAN DECLINATION, 1957

QUADRANGLE LOCATION
ARIZONA

SAN XAVIER MISSION, ARIZ.
N3200—W11100/15
1957

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1882
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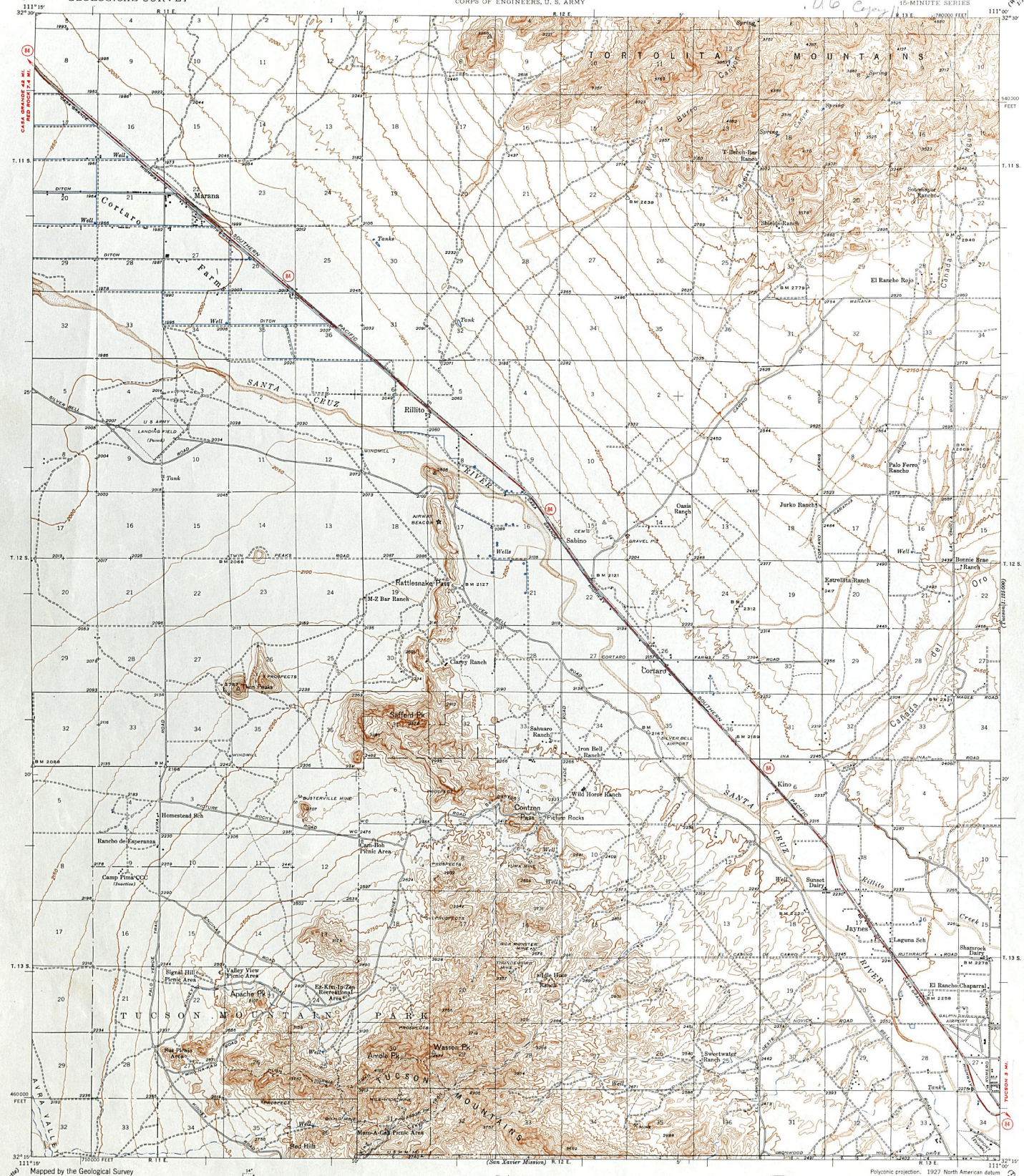
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WAR DEPARTMENT
CORPS OF ENGINEERS, U. S. ARMY

ARIZONA
(PIMA COUNTY)
CORTARO QUADRANGLE
15-MINUTE SERIES



Mapped by the Geological Survey
1946

ROAD CLASSIFICATION
1947

Dependable hard-surface heavy-duty road
Secondary hard-surface all weather road
Dry weather roads
Loose-surface graded
Unsurfaced, graded
Dirt road
U. S. Route 13
State Route 28
More than two lanes indicated along road with tick at point of change 2 LANE 4 LANE

TRUE NORTH
MAGNETIC NORTH
14°
APPROXIMATE MEAN DECLINATION, 1946

Scale 1:62500

1 ½ 0 1 2 3 4 Miles
1000 500 0 1000 2000 3000 4000 5000 6000 7000 Yards
1000 0 3000 6000 9000 12000 15000 18000 Feet
1 .5 0 1 2 3 4 5 Kilometers

Contour interval 50 feet
Datum is mean sea level

Polyconic projection. 1927 North American datum
10000 foot grid based on Arizona (Central) rectangular coordinate system

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CORTARO, ARIZ.
Edition of 1947

N3215—W11100/15

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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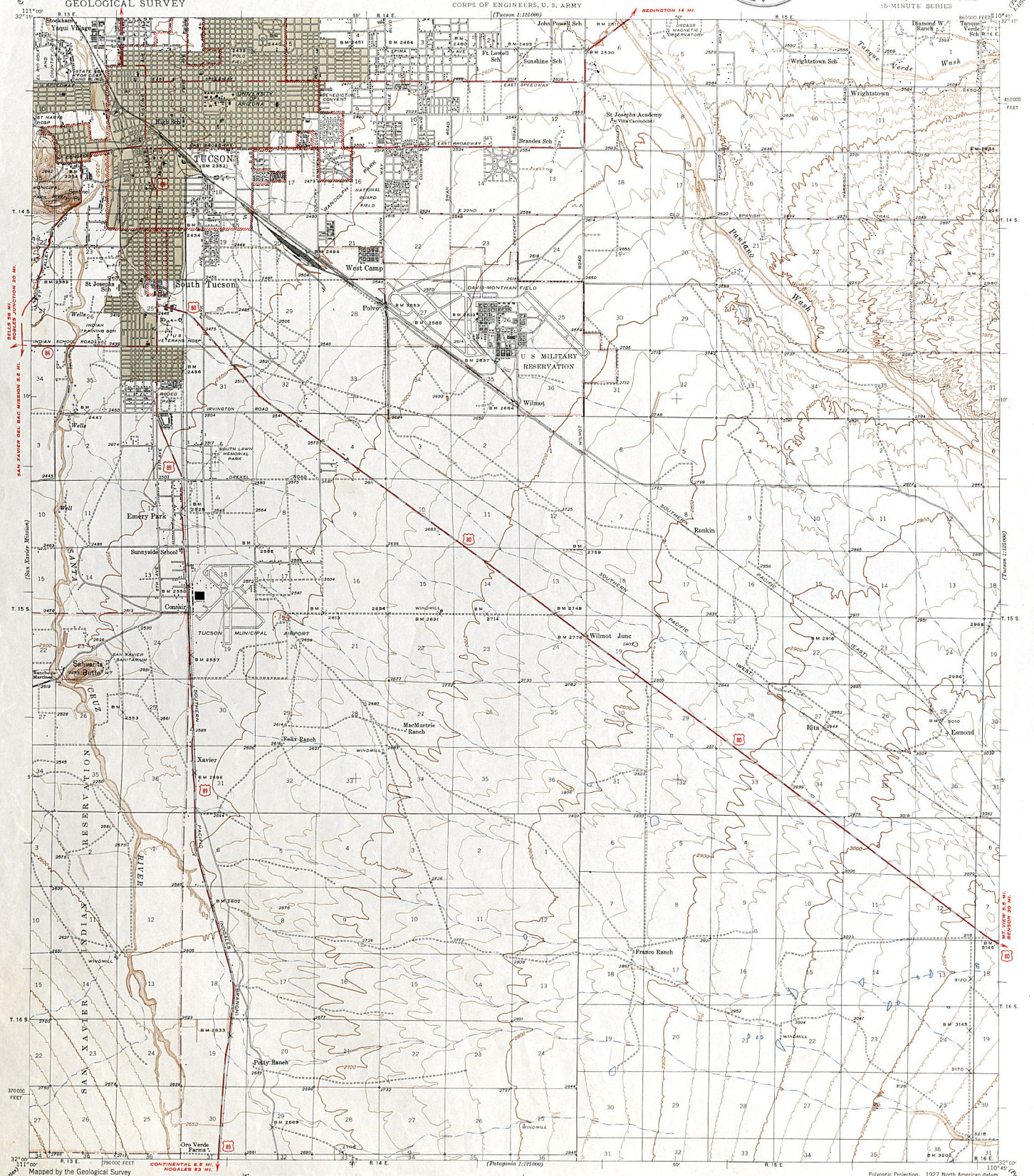
CORPS OF ENGINEERS, U. S. ARMY

ARIZONA
(PIMA COUNTY)
TUCSON QUADRANGLE
15-MINUTE SERIES



Mapped by the Geological Survey
1946

Gray tint indicates areas in which only landmark buildings are shown

ROAD CLASSIFICATION
1947

Dependable hard-surface heavy-duty road
Secondary hard-surface all weather road
Dry weather roads
Loose-surface graded
Unsurfaced, graded
Dirt road
U. S. Route
State Route
More than two lanes indicated along road with tick at point of change
2 LANE, 4 LANE

APPROXIMATE MEAN DECLINATION, 1946

Scale $\frac{1}{62500}$

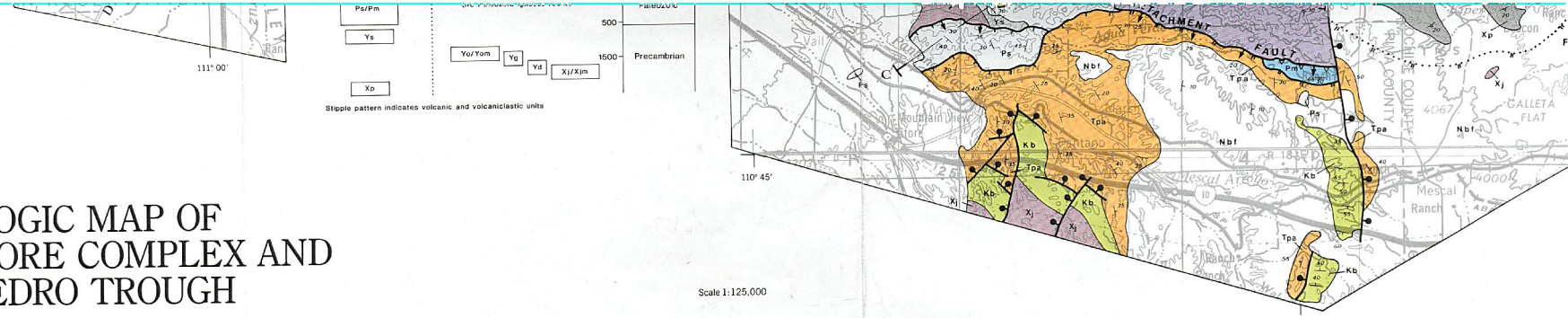
Contour interval 25 feet
Datum is mean sea level

Polyconic Projection. 1927 North American datum
10000 foot grid based on Arizona (Central) rectangular coordinate system

TUCSON, ARIZ.
Edition of 1948

N3200—W11045/15

43a



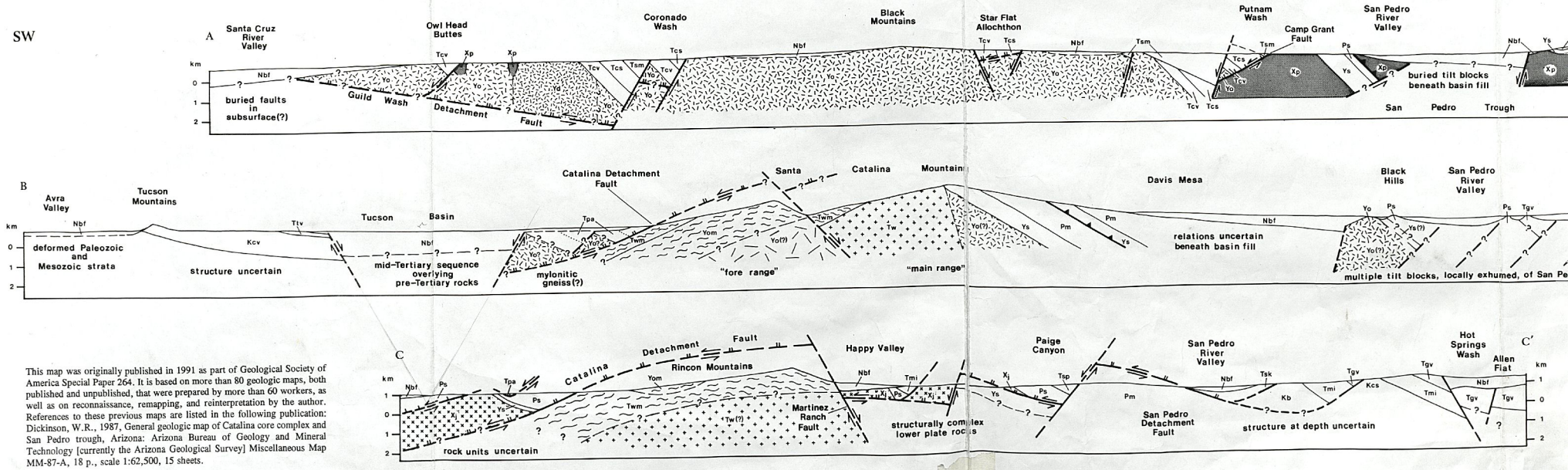
GEOLOGIC MAP OF CATALINA CORE COMPLEX AND SAN PEDRO TROUGH

Pima, Pinal, Gila, Graham and Cochise Counties, Arizona

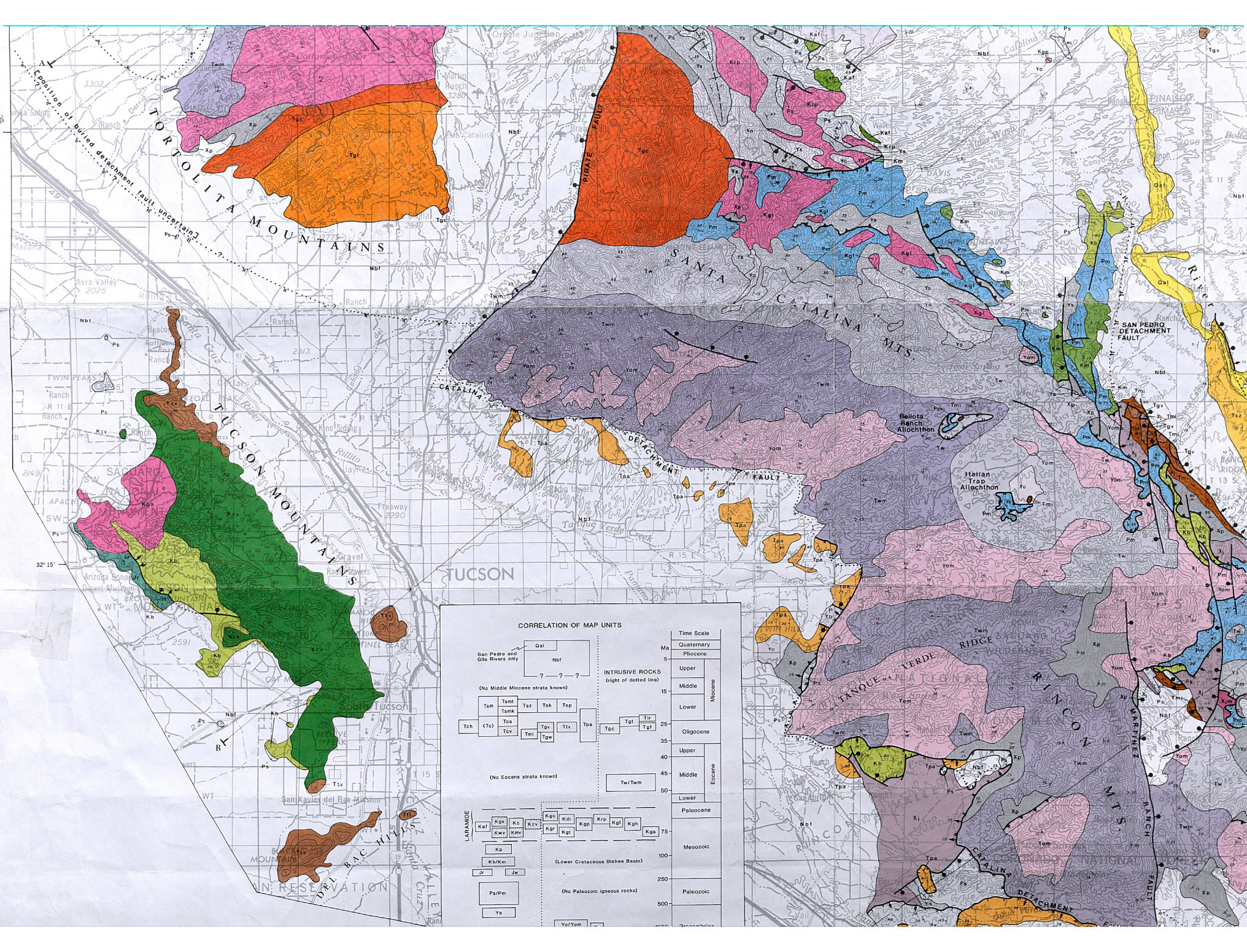
by
William R. Dickinson

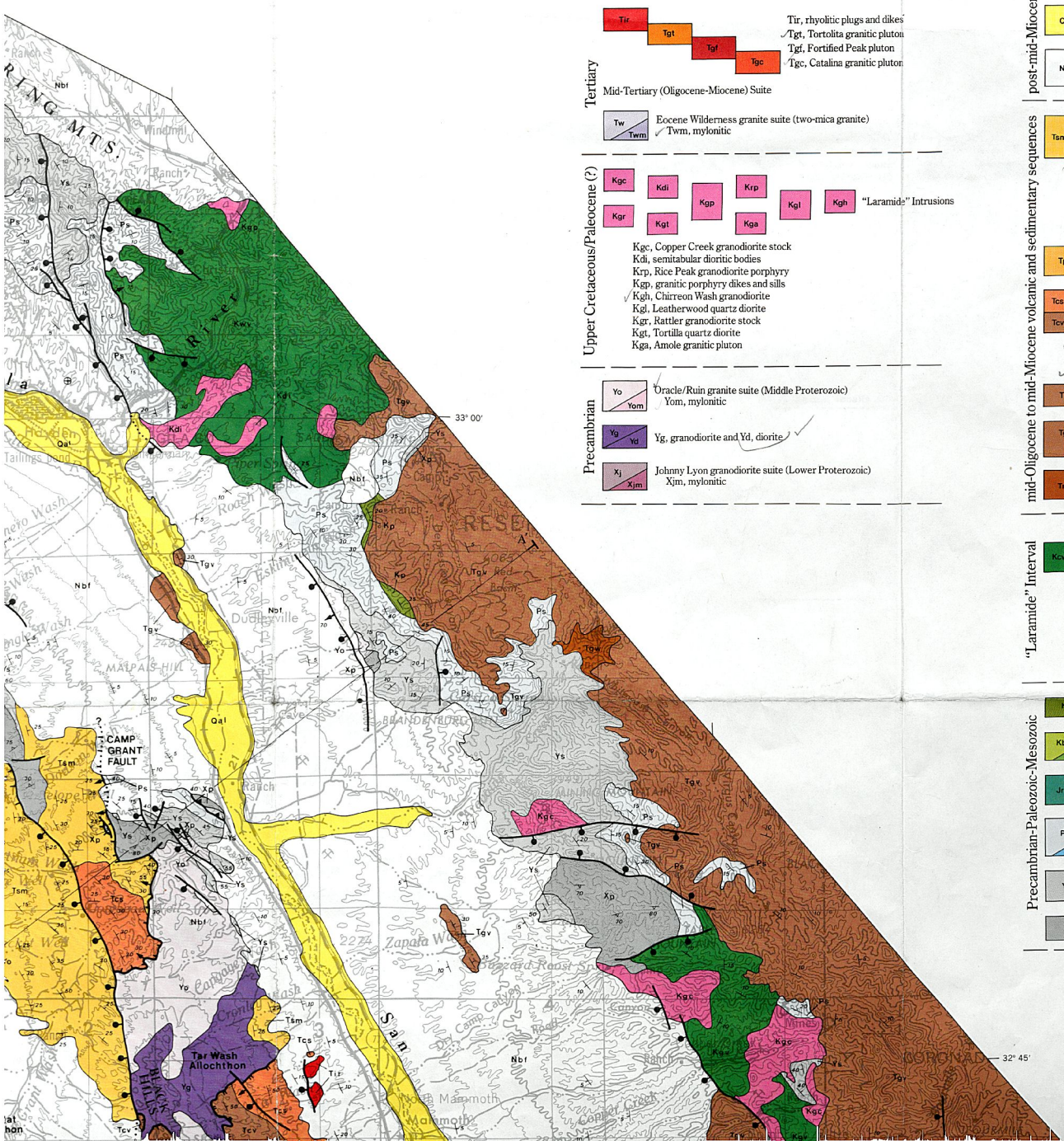
ARIZONA GEOLOGICAL SURVEY
Contributed Map CM-92-C
1992

(originally published as part of Geological Society of America Special Paper 264)



This map was originally published in 1991 as part of Geological Society of America Special Paper 264. It is based on more than 80 geologic maps, both published and unpublished, that were prepared by more than 60 workers, as well as on reconnaissance, remapping, and reinterpretation by the author. References to these previous maps are listed in the following publication: Dickinson, W.R., 1987, General geologic map of Catalina core complex and San Pedro trough, Arizona: Arizona Bureau of Geology and Mineral Technology [currently the Arizona Geological Survey] Miscellaneous Map MM-87-A, 18 p., scale 1:62,500, 15 sheets.


TORTOLITA MOUNTAINS
Position of buried detachment fault, uncertain
PIRATE FAULT
SANTA CATALINA MTS.
SAN PEDRO DETACHMENT FAULT
CATALINA DETACHMENT FAULT
Bellota Ranch Allochthon
Italian Trap Allochthon
TUCSON MOUNTAINS
TUCSON
DEL BAC HILLS
TANQUE VERDE RIDGE
RINCON MTS.
MARTINEZ RANCH
32° 15'
CORRELATION OF MAP UNITS
San Pedro and Gila Rivers only
Qal
Nbf
(No Middle Miocene strata known)
INTRUSIVE ROCKS
(right of dotted line)
Tsmt
Tsmk
Tsm
Tsz
Tsk
Tsp
Tch
(Tc)
Tcs
Tcv
Tml
Tgv
Ttv
Tpa
Tgc
Tgl
Tir
(No Eocene strata known)
Tw/Twm
LARAMIDE
Kaf
Kgv
Kc
Kcv
Kwv
Kmv
Kgc
Kdi
Kgp
Krp
Kgl
Kgr
Kgh
Kga
Kp
Kb/Km
Jr
Jw
(Lower Cretaceous Bisbee Basin)
Ps/Pm
Ys
(No Paleozoic igneous rocks)
Yo/Yom
Time Scale
Ma
Quaternary
Pliocene
5
Upper
Middle
15
Lower
Miocene
25
Oligocene
35
Upper
40
Middle
45
Eocene
50
Lower
Paleocene
75
Mesozoic
100
250
Paleozoic
500



INTRUSIVE ROCK UNITS

Tertiary

Tir, rhyolitic plugs and dikes
Tgt, Tortolita granitic pluton
Tgf, Fortified Peak pluton
Tgc, Catalina granitic pluton

Mid-Tertiary (Oligocene-Miocene) Suite

Tw / Twm — Eocene Wilderness granite suite (two-mica granite)
Twm, mylonitic

Upper Cretaceous/Paleocene (?)

Kgc, Kdi, Kgp, Krp, Kgl, Kgh — "Laramide" Intrusions
Kgr, Kgt, Kga

Kgc, Copper Creek granodiorite stock
Kdi, semitabular dioritic bodies
Krp, Rice Peak granodiorite porphyry
Kgp, granitic porphyry dikes and sills
Kgh, Chirreon Wash granodiorite
Kgl, Leatherwood quartz diorite
Kgr, Rattler granodiorite stock
Kgt, Tortilla quartz diorite
Kga, Amole granitic pluton

Precambrian

Yo / Yom — Oracle/Ruin granite suite (Middle Proterozoic)
Yom, mylonitic

Yg / Yd — Yg, granodiorite and Yd, diorite

Xj / Xjm — Johnny Lyon granodiorite suite (Lower Proterozoic)
Xjm, mylonitic

STRATIFIED ROCK UNITS

post-mid-Miocene

Qal — stream valley alluvium (shown along San Pedro and Gila Rivers only)

Nbf — dissected Neogene basin fill (Quiburis Formation and correlatives), together with overlying terrace and pediment gravel sheets and local alluvium

mid-Oligocene to mid-Miocene volcanic and sedimentary sequences

Tsm, Tsmt, Tsmk, Tsz, Tsk, Tsp — San Manuel Formation (Lower Miocene) of San Pedro Trough
Tsm, undifferentiated
Tsmk, Kannally Member
Tsmt, Tucson Wash Member
Tsz, Soza Canyon facies (volcanic clasts)
Tsk, Kelsey Canyon facies (granitic clasts)
Tsp, Paige Canyon facies (metamorphic clasts)

Tpa — Pantano Formation (Oligocene-Miocene) of Cienega Gap and Tucson Basin

Tcs, Tch, Tcv — Cloudburst Formation (Upper Oligocene to Lower Miocene) of San Pedro Trough
Tcs, sedimentary upper member
Tch, Hackberry Wash facies
Tcv, volcanic lower member

Ttv — Tertiary volcanics (Oligocene) of Tucson Mountains

Tgv / Tgw — Galiuro Volcanics (Upper Oligocene)
Tgw, basal "Whitetail Conglomerate" (shown locally only)

Tmi — Mineta Formation (Oligocene) of Cañada Atravesada and Teran Basin

"Laramide" Interval

Kcv, Kaf, Kcs, Kgv, Kmv, Kwv — Upper Cretaceous to Paleocene(?) volcanic and sedimentary units
Kcv, Cat Mountain Rhyolite
Kaf, American Flag Formation
Kcs, Cascabel Formation
Kmv, Muleshoe Volcanics
Kgv, Glory Hole Volcanics
Kwv, Williamson Canyon Volcanics

Precambrian-Paleozoic-Mesozoic

Kp — Pinkard Formation (basal Upper Cretaceous)

Kb / Km — Bisbee Group (Lower Cretaceous)
Km, metamorphosed

Jr, Jw — mid-Jurassic(?) redbed units
Jr, Recreation Redbeds; Jw, Walnut Gap Volcanics

Ps / Pm — Paleozoic (Cambrian to Permian) strata
Pm, metamorphosed

Ys — Proterozoic Apache Group and Troy Quartzite (including intrusive diabase sills and dikes)

Xp — Proterozoic Pinal Schist, dominantly metasedimentary

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