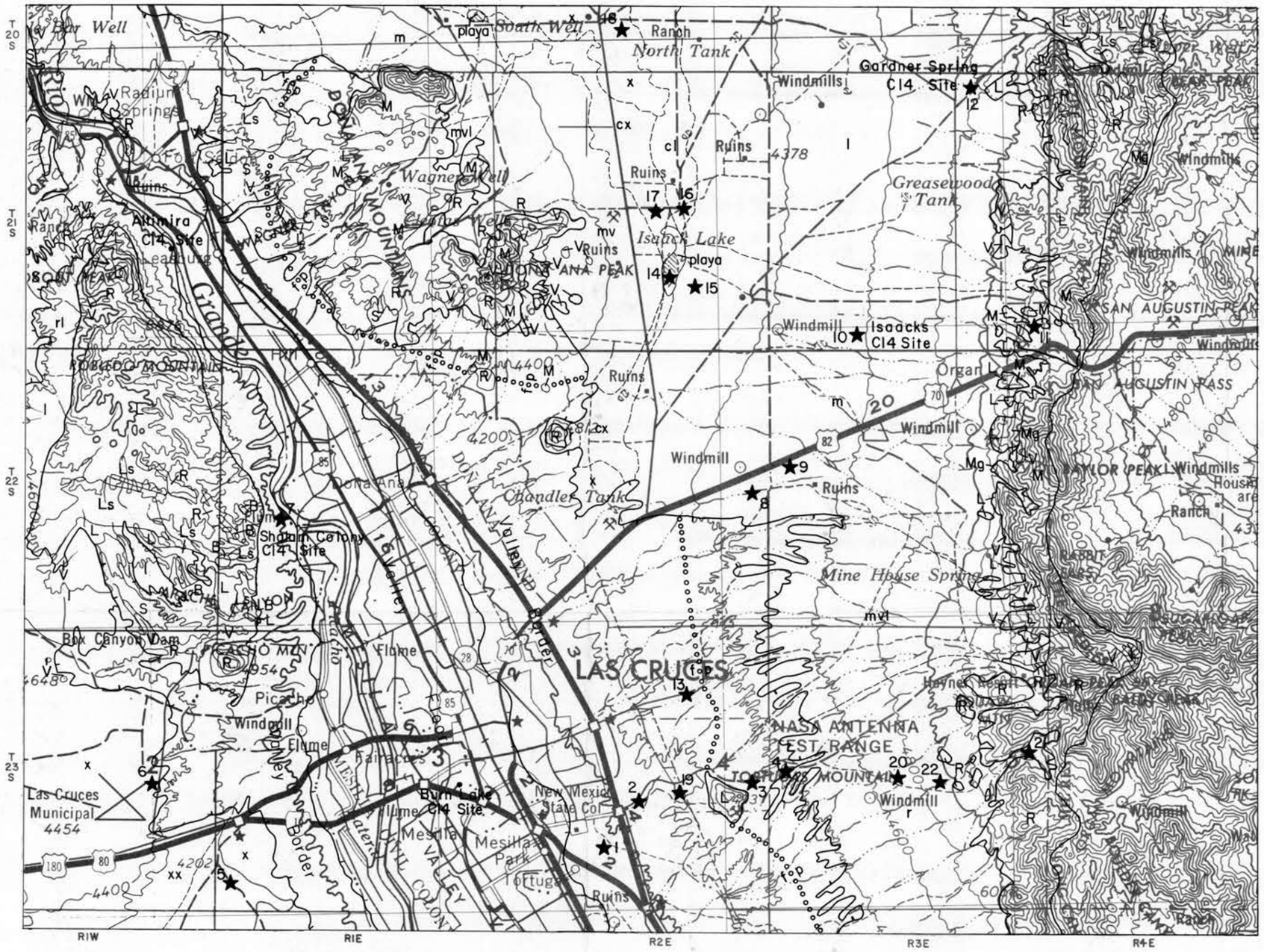

LITHOLOGIC COMPOSITION OF MAJOR BEDROCK, BASIN-FILL, AND VALLEY-FILL UNITS

compiled by J. W. Hawley, 1981

Scale 1:125,000

2.5 0 5 mi

2.5 0 5 km

DESCRIPTION OF MAP UNITS

Bedrock units

M, Mg — Igneous intrusive and metamorphic rocks, undifferentiated (M); *mainly monzonitic rocks (Oligocene) of the Organ and Doña Ana cauldrons; with local small areas of Precambrian granitic rocks* (Mg)

R — Rhyolite welded tuffs, tuff breccias, and flows (Oligocene) *in the Organ and Doña Ana Mountains and associated felsitic volcanics; intrusive rhyolites (sills and domes) in Robledo, San Andres, Picacho, and Goat Mountains*

V — Volcanic rocks of intermediate composition—undifferentiated, *including andesitic and latitic volcaniclastic rocks and lava flows (Eocene to Oligocene). Includes lower Tertiary sedimentary rocks on the west flank of the San Andres-Organ range and north of Picacho Mountain*

L, Ls — Sedimentary rocks of Paleozoic age—undifferentiated (L); *primarily marine carbonate rocks (limestones to dolomitic limestones) and some shales, siltstones, and sandstones; with minor Cretaceous sandstone and shales in the Bear Canyon area (northeast of Area 12). Major outcrops of red-bed sandstone, siltstone, and mudstone (interbedded with lower Permian limestones) mapped separately* (Ls)

B — Minor basalt flows and plugs in the southern Robledo Mountains

S — Conglomerates and conglomeratic sandstones of the Santa Fe Group

Basin fill—piedmont slope facies, mid-Pleistocene to Holocene

m — Alluvium mainly derived from M; *loamy to sandy, with low gravel content, except near mountain fronts*

r — Alluvium mainly derived from R; *very gravelly (pebble to small boulder size range), with interbedded low gravel loamy zones near toes of piedmont slopes*

v — Alluvium mainly derived from V; *wide range in texture, with gravel generally in pebble size range*

l — Alluvium mainly derived from L and Ls; *loamy to silty, with interbedded gravelly zones locally present, particularly in upper and middle piedmont slope positions*

rl — Alluvium derived from R, L, and V

mv — Alluvium derived from M, V, and R

mvl — Alluvium derived from M, V, R, and L

Basin fill—basin floor facies

x — Fluvial deposits (river sand, rounded pebble gravel, and minor silt-clay) *derived from mixed, local, and upstream ancestral Rio Grande basin sources. Camp Rice Formation—early ? to mid-Pleistocene. Minor inclusions of* cx

xx — Alluvium derived from x of upper La Mesa, *west of Area 5; sandy to loamy, generally with low gravel content. Younger basin fill—late Quaternary*

cx — Basin floor sediments (fine grained) grading down into x; *derived from mixed sources, including* m, l, mv, *and* x. *Camp Rice Formation and younger basin fill—mid-Pleistocene to Holocene*

cl — Basin floor sediments (fine grained) burying cx and grading laterally to l; *derived from* l *and ultimately* L. *Younger basin fill—late Quaternary*

SYMBOLS

Valley fill (mid-Pleistocene to Holocene) on: Santa Fe Group basin fill (Late Cenozoic) and older units

- Valley-rim scarp; *hachures point toward Rio Grande valley slopes, and away from basin surfaces*
- Inner-valley scarp; *hachures point toward Rio Grande flood plain, and away from valley slopes*
- Valley slope; *area between inner valley and valley-rim scarps is a complex of valley-border surfaces (erosional, transportational, depositional) graded to mid- to late Quaternary local base levels (ancestral Rio Grande flood plains). Relatively thin fills associated with these surfaces are unconformably on basin fill, older valley-fill, or bedrock units and reflect the lithologic composition of older fills and rocks of source watersheds. Santa Fe Group (mainly Camp Rice Formation) outcrops generally confined to upper valley-slope positions, with valley fill units forming an essentially continuous cover on lower valley slopes*
- Valley floor; *area between inner-valley scarps is occupied by the Rio Grande flood-plain and is underlain by 60–80 ft (18–24 m) of late Quaternary river alluvium; surficial deposits in sand to clay range*
- Approximate position of piedmont-slope (p)–*fluvial facies* (f)–*boundary in Camp Rice Formation basin-fill deposits*
- 5★ Study area

NOTE: Bedrock lithology from unpublished map (1:125,000) by Seager, Hawley, Kottlowski, and Alexander. Surficial basin-fill lithology from Ruhe (1967; plate 1), Gile and Grossman (1979), Hawley and Kottlowski (1969), Hawley and others (1969), and unpublished reports by Hawley and F. F. Peterson.