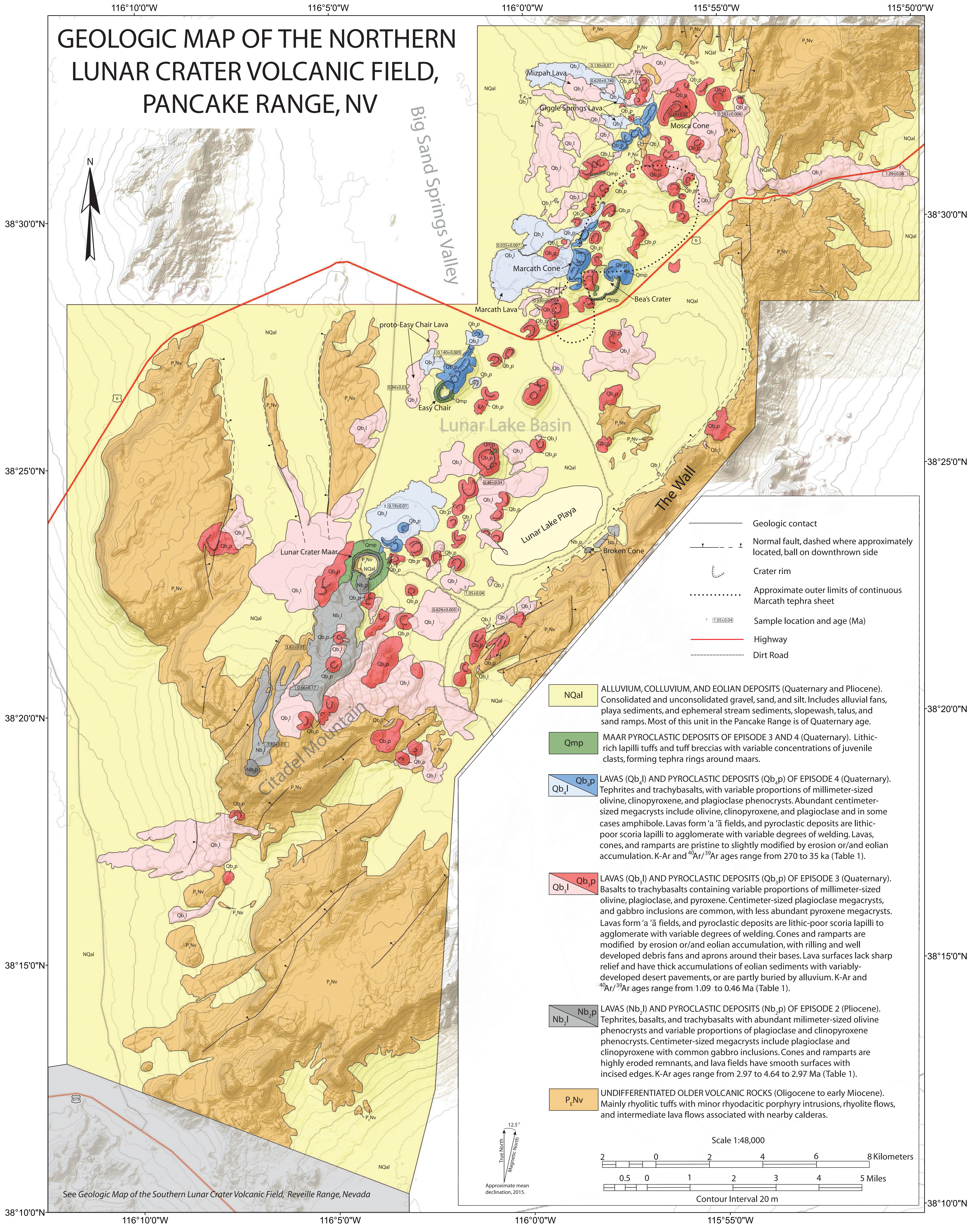
GEOLOGIC MAP OF THE NORTHERN LUNAR CRATER VOLCANIC FIELD, PANCAKE RANGE, NV


116°10'0"W
116°5'0"W
116°0'0"W
115°55'0"W
115°50'0"W
38°30'0"N
38°25'0"N
38°20'0"N
38°15'0"N
38°10'0"N
N
Big Sand Springs Valley
Mizpah Lava
Giggle Springs Lava
Mosca Cone
Marcath Cone
Marcath Lava
Bea's Crater
proto-Easy Chair Lava
Easy Chair
Lunar Lake Basin
Lunar Lake Playa
Lunar Crater Maar
Broken Cone
The Wall
Citadel Mountain
NQal
Qmp
P_ENv
Qb₁l
Qb₃p
Qb₄l
Qb₄p
Nb₂l
Nb₂p
0.130±0.07
0.620±0.740
0.583±0.006
0.035±0.007
0.930±0.070
1.09±0.08
0.140±0.005
0.84±0.03
0.46±0.04
0.19±0.01
1.05±0.04
0.624±0.005
3.82±0.03
0.66±0.17
6
375
12.5°
True North
Magnetic North

Geologic contact

Normal fault, dashed where approximately located, ball on downthrown side

Crater rim

Approximate outer limits of continuous Marcath tephra sheet

1.05±0.04 Sample location and age (Ma)

Highway

Dirt Road

NQal	ALLUVIUM, COLLUVIUM, AND EOLIAN DEPOSITS (Quaternary and Pliocene). Consolidated and unconsolidated gravel, sand, and silt. Includes alluvial fans, playa sediments, and ephemeral stream sediments, slopewash, talus, and sand ramps. Most of this unit in the Pancake Range is of Quaternary age.
Qmp	MAAR PYROCLASTIC DEPOSITS OF EPISODE 3 AND 4 (Quaternary). Lithic-rich lapilli tuffs and tuff breccias with variable concentrations of juvenile clasts, forming tephra rings around maars.
Qb_4p Qb_4l	LAVAS (Qb_4l) AND PYROCLASTIC DEPOSITS (Qb_4p) OF EPISODE 4 (Quaternary). Tephrites and trachybasalts, with variable proportions of millimeter-sized olivine, clinopyroxene, and plagioclase phenocrysts. Abundant centimeter-sized megacrysts include olivine, clinopyroxene, and plagioclase and in some cases amphibole. Lavas form ʻa ʻā fields, and pyroclastic deposits are lithic-poor scoria lapilli to agglomerate with variable degrees of welding. Lavas, cones, and ramparts are pristine to slightly modified by erosion or/and eolian accumulation. K-Ar and $^{40}Ar/^{39}Ar$ ages range from 270 to 35 ka (Table 1).
Qb_3p Qb_3l	LAVAS (Qb_3l) AND PYROCLASTIC DEPOSITS (Qb_3p) OF EPISODE 3 (Quaternary). Basalts to trachybasalts containing variable proportions of millimeter-sized olivine, plagioclase, and pyroxene. Centimeter-sized plagioclase megacrysts, and gabbro inclusions are common, with less abundant pyroxene megacrysts. Lavas form ʻa ʻā fields, and pyroclastic deposits are lithic-poor scoria lapilli to agglomerate with variable degrees of welding. Cones and ramparts are modified by erosion or/and eolian accumulation, with rilling and well developed debris fans and aprons around their bases. Lava surfaces lack sharp relief and have thick accumulations of eolian sediments with variably-developed desert pavements, or are partly buried by alluvium. K-Ar and $^{40}Ar/^{39}Ar$ ages range from 1.09 to 0.46 Ma (Table 1).
Nb_2p Nb_2l	LAVAS (Nb_2l) AND PYROCLASTIC DEPOSITS (Nb_2p) OF EPISODE 2 (Pliocene). Tephrites, basalts, and trachybasalts with abundant milimeter-sized olivine phenocrysts and variable proportions of plagioclase and clinopyroxene phenocrysts. Centimeter-sized megacrysts include plagioclase and clinopyroxene with common gabbro inclusions. Cones and ramparts are highly eroded remnants, and lava fields have smooth surfaces with incised edges. K-Ar ages range from 2.97 to 4.64 to 2.97 Ma (Table 1).
P_ENv	UNDIFFERENTIATED OLDER VOLCANIC ROCKS (Oligocene to early Miocene). Mainly rhyolitic tuffs with minor rhyodacitic porphyry intrusions, rhyolite flows, and intermediate lava flows associated with nearby calderas.

Approximate mean declination, 2015.

Scale 1:48,000

2 0 2 4 6 8 Kilometers

0.5 0 1 2 3 4 5 Miles

Contour Interval 20 m

See Geologic Map of the Southern Lunar Crater Volcanic Field, Reveille Range, Nevada