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Joint Orientations in the Red River Gorge Geological Area, East-Central Kentucky

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Kentucky Geological Survey
James C. Cobb, State Geologist and Director
University of Kentucky, Lexington

Joint Orientations in the Red River Gorge Geological Area, East-Central Kentucky

Steven L. Martin

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General Intermediate Technical

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Joint Orientation in the Red River Gorge Geological Area, East-Central Kentucky

Steven L. Martin

Abstract

The Red River Gorge Geological Area and Clifty Wilderness Area of Daniel Boone National Forest and Natural Bridge State Park in east-central Kentucky provide an excellent opportunity to observe and study differential weathering and erosion, mass wasting, and jointing in the development of cliffs, rock shelters, and natural arches. Joints in the study area have varying orientations, but dominant northeast- and northwest-striking orientations are prevalent. Jointing in the study area is related to unloading of overburden and regional tectonic stresses. Unloading joints result from removal of overburden from a rock mass, and orientations of joints are controlled by either residual or contemporary tectonic stresses. The effects of tectonic stresses are evident in joint orientations surrounding the Glencairn Fault.

Introduction

Joints are among the most ubiquitous structures in the earth's crust. They control the physiography of landforms and provide pathways for water, oil and gas, ore-forming fluids, and geothermal fluids. Joints also play an important role in geotechnical issues concerning transportation, the formation of landslides, occurrence of valuable mineral deposits, and the formation of natural arches. Fracture sequences help us understand the nature of brittle deformation and the relation of joints to faults.

This study focuses on the formation and orientation of joints in the Red River Gorge Geological Area, Clifty Wilderness, and Natural Bridge State Park, with emphasis on joint orientations near the Glencairn Fault (Fig. 1). Most of the joints measured in the study area occur in the cliff-forming Corbin Sandstone Member of the Grundy Formation, but joints were also measured in the underlying limestone of the Slade Formation and overlying shale of the Pikeville Formation. The orientations of these joints were measured along selected highways and at natural arch locations (Fig. 2). These data are currently available at the KGS online map service, kgs.uky.edu/kgsmap/kgsgeoserver/viewer.asp.

Joints are fractures in which there has been no appreciable movement parallel to the fracture and only slight movement normal to the fracture plane. Joints are generally planar structures and may be characterized as systematic or nonsystematic. Systematic joints have a nearly parallel orientation and a regular spacing, whereas nonsystematic joints do not share common orientations and the fracture surfaces may be curved and irregular. As a result, systematic joints provide information about the orientation of one or more principal stress directions involved in brittle deformation, whereas nonsystematic joints do not provide obvious evidence for a relationship with a recognizable stress or strain field.

The study of joints in an area can reveal the sequence and timing of deformation, and the study of joint orientations can provide information about the orientation of one or more principal stress directions involved in brittle deformation. Joint orientation data may be plotted using an equal-area net or rose diagram. Rose diagrams show the strike and frequency of joint orientations and are useful

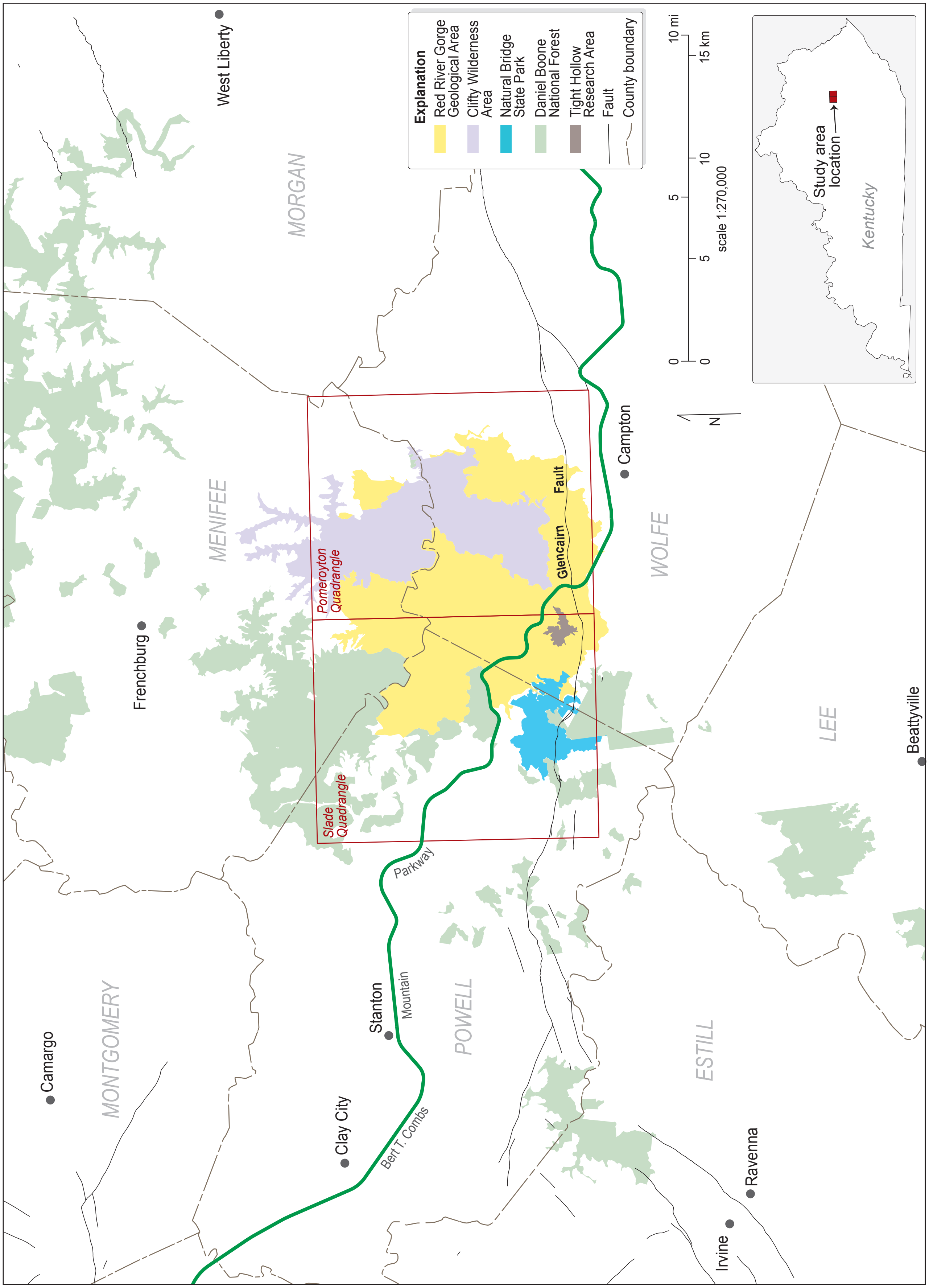

Figure 1. Location of Daniel Boone National Forest, Red River Gorge Geological Area, Clifty Wilderness Area, and Natural Bridge State Park in east-central Kentucky.

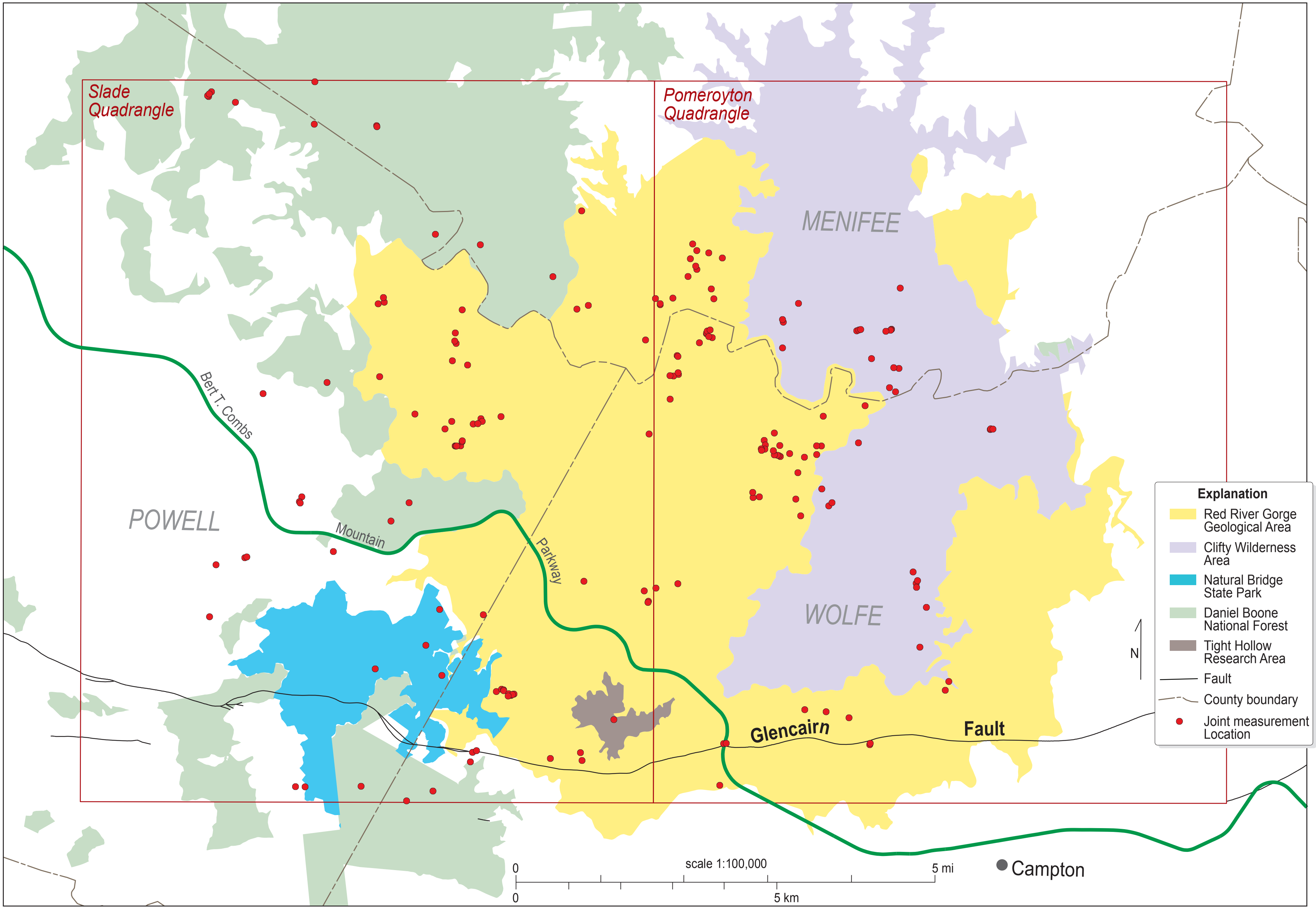

Figure 2. Locations of joint measurements in Daniel Boone National Forest, Red River Gorge Geological Area, Clifty Wilderness Area, and Natural Bridge State Park. Pomeroyton and Slade 7.5-minute quadrangles are outlined.

for steeply dipping joints. Shallow-dipping joints are better displayed using equal-area plots.

Joints frequently form adjacent to brittle faults. Movement along faults commonly produces a series of systematic fractures. Much of the evidence for joint formation favors origin by extension, because many joints display no offset, except normal to the fracture surface. Jointing may also be geometrically related to shear fractures, particularly in folds and near fault surfaces, indicating that extensional strain may be present in rock masses undergoing simultaneous compression and shear.

Engelder (1985) characterized both the environment and mechanism of joint formation and described four categories of joints as end-member paths for increased stress: tectonic, hydraulic, unloading, and release joints. Tectonic and hydraulic joints form at depth in response to tectonic stresses and abnormal fluid pressures, respectively. Unloading and release joints form near the surface as erosion removes overburden and thermoelastic contraction occurs. Unloading joints begin to form when more than half of the original overburden has been removed from a rock mass, and the orientations of these joints are controlled by contemporary tectonic stresses during erosion or residual stresses, rather than ancient stresses at depth. The orientation of release joints is fabric-controlled, whereas the other three joint types are stress-controlled. In the case of release joints, the orientation of the incipient future joint plane is parallel to the tectonic compression.

Previous Work

The geology of the Red River Gorge Geological Area and Clifty Wilderness Area of Daniel Boone National Forest and the adjoining Natural Bridge State Park has been described by McFarlan (1954) and Dever and Barron (1986). Detailed geologic mapping of this area was conducted by Weir (1974) and Weir and Richards (1974) (Fig. 3). The Kentucky Geological Survey digitized the published geologic maps of Weir (1974) and Weir and Richards (1974), and adopted the nomenclature of Chesnut (1992) for the geologic map units (Nelson, 2005; Nelson and Lambert, 2005) (Fig. 4).

Other geologic investigations relating to joint orientations on stress fields in eastern Kentucky include Kipp and Dinger (1991), which discusses how stress-release fractures provide a secondary permeability that is responsible for increased hydraulic conductivity along hillsides and valley bottoms, and control groundwater movement in eastern Kentucky. Andrews and others (2004) used Landsat and side-looking airborne radar imagery to identify map-scale lineaments in east-central and eastern Kentucky. These lineaments correlate to straight-line topographic features such as stream valleys. Hurd and Zoback (2012) reported on the regional stress orientations in the central and eastern United States, and concluded there is a highly consistent, compressive, northeast–southwest-trending horizontal stress across much of intraplate North America.

Geologic Setting

The Red River Gorge Geological Area and Clifty Wilderness Area of Daniel Boone National Forest, and the adjoining Natural Bridge State Park, are located approximately 32 and 40 mi, respectively, southeast of Interstate 64 on the Bert T. Combs Mountain Parkway and Ky. 11 and Ky. 715 in Menifee, Powell, and Wolfe Counties in east-central Kentucky (Fig. 1). The concentration of natural arches makes the Red River Gorge and Natural Bridge State Park area unique, because more than 250 natural rock openings have been documented by me, the U.S. Forest Service, and private citizens.

The geological area, wilderness area, and state park are located along the Pottsville Escarpment, which forms the western boundary of the Cumberland Plateau (Eastern Kentucky Coal Field) in east-central Kentucky (Lobeck, 1928; McFarlan, 1950). The Pottsville Escarpment is capped by cliff-forming sandstone underlain by less-resistant shale, limestone, and siltstone. The study area provides an excellent opportunity to observe and study the effects of differential weathering and erosion, mass wasting, and jointing in the development of cliffs, rock shelters, and natural arches.

Mississippian and Pennsylvanian sedimentary rocks are exposed in the study area (Fig. 3). The Pennsylvanian strata cap the uplands and underlie the upper slopes of the hillsides, and the Mississippian strata underlie the lower slopes and valleys. The Pennsylvanian Pikeville Formation consists of predominantly less-resistant slope-forming shale with minor sandstone and coal. The Corbin Sand-

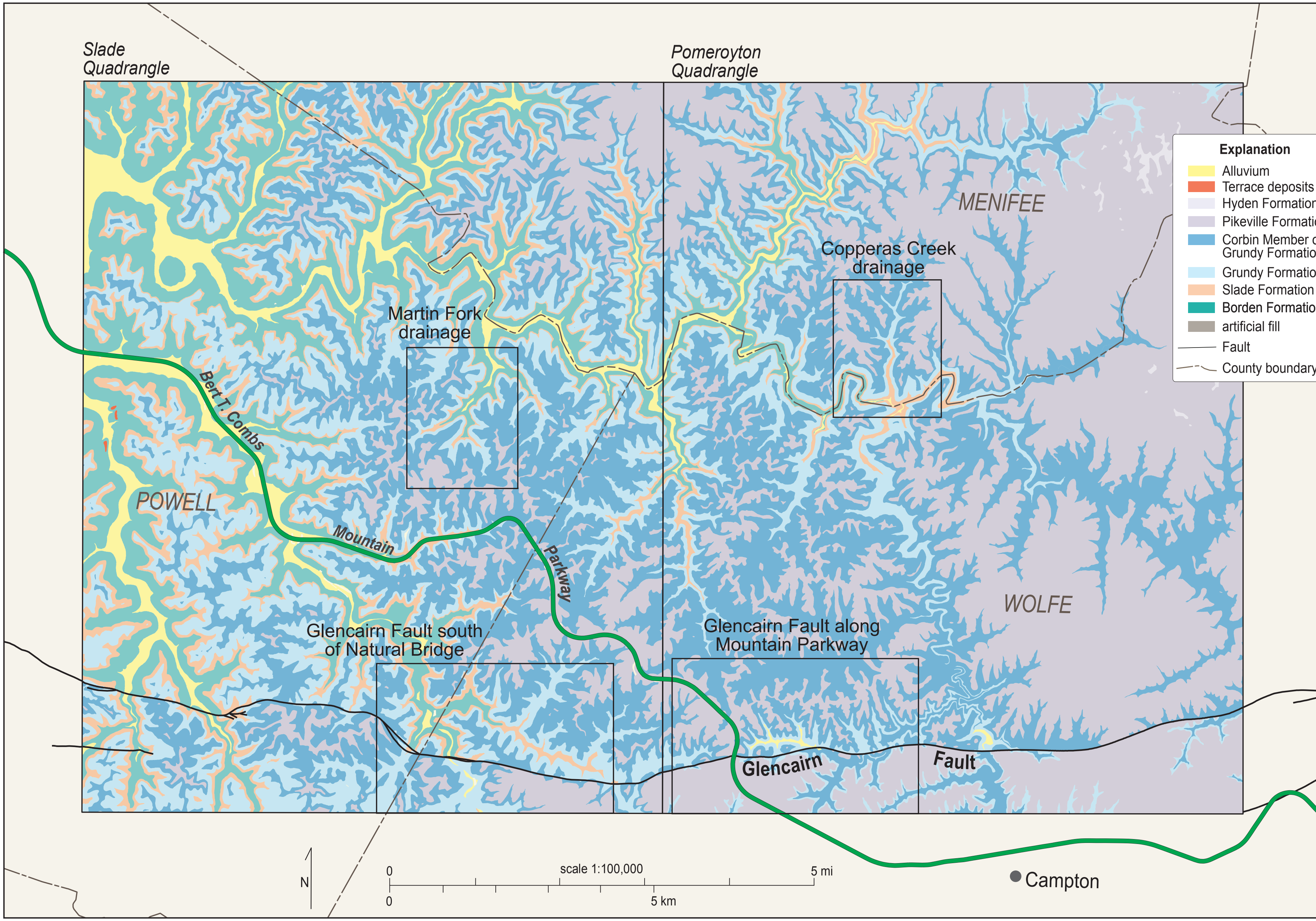

Figure 3. Geology of the Slade and Pomeroyton 7.5-minute quadrangles by Weir (1974) and Weir and Richards (1974), and modified by Nelson (2005) and Nelson and Lambert (2005).

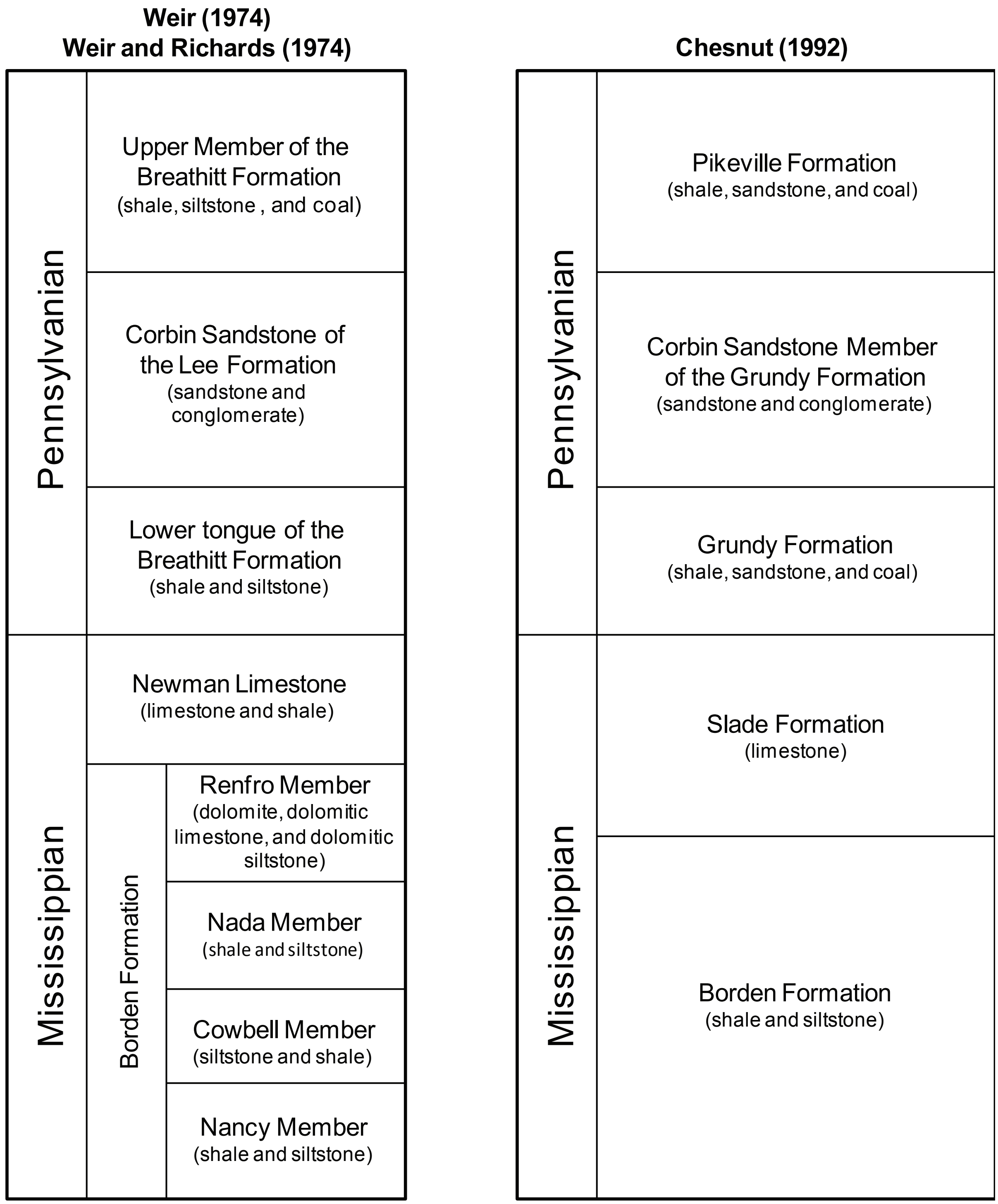

Figure 4. Generalized stratigraphy for the study area.

stone Member of the Grundy Formation consists of resistant, cliff-forming sandstone and conglomerate sandstone; the remaining stratigraphically lower parts of the Grundy Formation are less-resistant, slope-forming shale. The Mississippian Slade Formation consists of resistant, cliff-forming limestone, and the underlying Borden Formation consists of less-resistant, slope-forming shale and siltstone.

Structurally, the geological area and state park are located above the Cambrian Rome Trough, a northeast-trending graben that underlies the Appalachian Plateau. The Irvine−Paint Creek Fault System is the surface expression of one of many fault systems associated with the Rome Trough, and consists of an east−west-oriented set of faults in which downthrown blocks are displaced to the south (Fig. 3). The Glencairn Fault is the only fault exposed in the study area, and is part of the much larger Irvine−Paint Creek Fault System (Weir, 1974; Weir and Richards, 1974). Strata south of the Glencairn Fault are downdropped to the south; displacement ranges from 40 ft in the western part of the study area to 140 ft in the eastern part. A fault splay related to the Glencairn Fault is exposed along Ky. 11 just south of Natural Bridge State Park (Fig. 5). The bounding and internal faults of the Rome Trough were active intermittently and affected sedimentation from the Early Cambrian through Pennsylvanian time.

Methodology

Where Joints Are Measured

The Kentucky Geological Survey joint database was created in response to letters of inquiry from the Kentucky Transportation Cabinet about possible road improvements throughout the state. For this study area, joints were measured along the Bert T. Combs Mountain Parkway, Ky. 11, and Ky. 715; the majority of joints measured in the study area were at natural arch locations, however. Joints and joint sets along roadways can sometimes be difficult to determine and measure because of blasting for road construction, and thus the orientation measurements may vary and be inconsistent. Joints and joint sets in natural rock exposures are often easier to identify and measure, resulting in more consistent and reliable orientations.

Originally, only the natural arch locations listed on the topographic maps of the Slade and Pomeroyton quadrangles were to be visited to measure joints along natural rock exposures. The

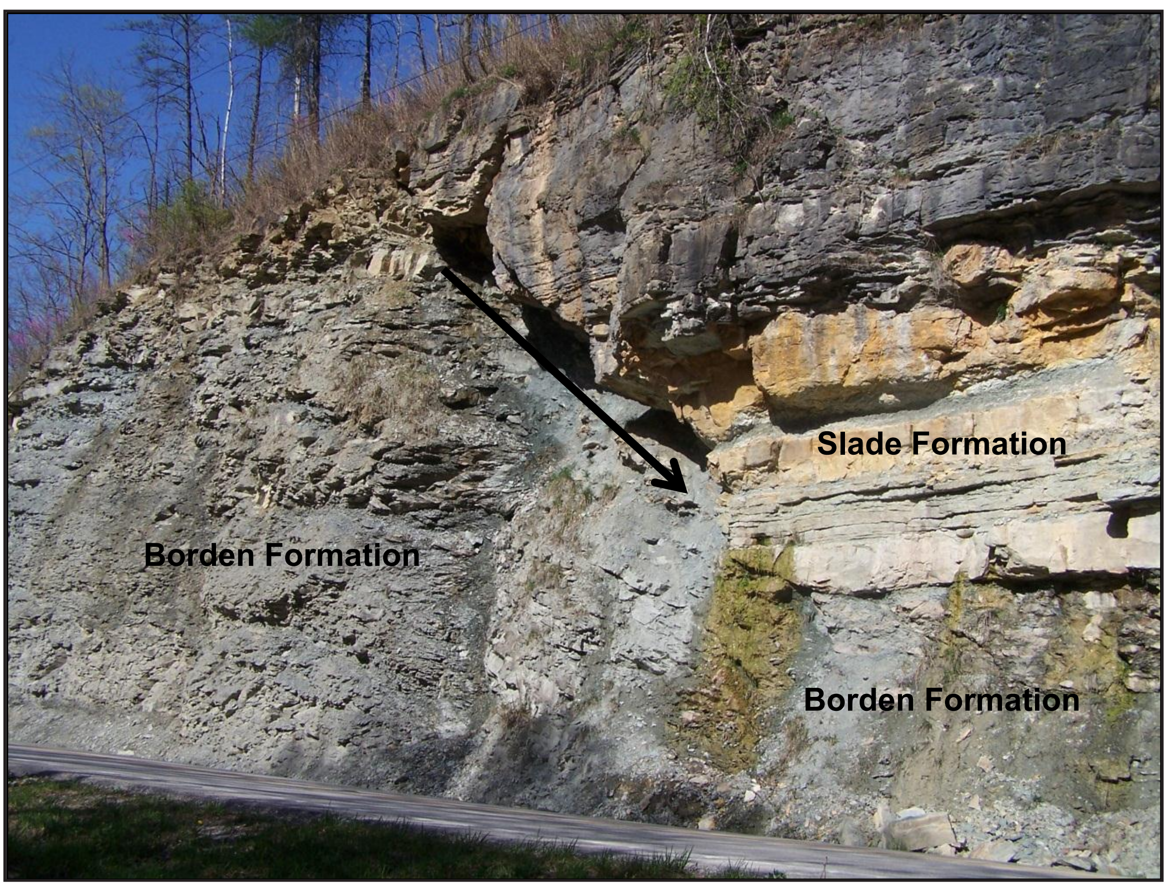

Figure 5. Exposure of splay fault related to the Glencairn Fault along Ky. 11 south of Natural Bridge State Park. Arrow indicates the direction of fault movement. Photo by Richard Smath.

geological area has numerous natural arches, so a natural arch database was created in addition to a joint database. Joints were also measured along the trace of the Glencairn Fault in order to compare orientations of joints along faults to other joint orientations in the area.

How Joints Are Measured

Joint surfaces were identified by visually inspecting prominent, vertical planar discontinuities in a rock exposure, and measured in the field using a Brunton compass. Joints were measured at limestone arches in the Slade Formation, along roadways and natural arches in the Corbin Sandstone, and along roadways in shale lithologies of the Pikeville Formation. These joint strike and dip measurements were recorded in a field book, then transferred to an Excel spreadsheet to create rose diagrams, before being entered into the KGS database (Appendices A−B).

Displaying Joint Measurements

Rose diagrams were chosen to display the joint data because most of the dips of the joints in this project are nearly vertical. Thus, the rose diagrams show frequency and orientation of joints. Grouping joint orientations in 10° increments for rose diagrams should negate much of any measurement inconsistencies. Rose diagrams were created using GEOrient 9.4.0 software. These rose diagram images were copied to an ArcMap format then exported to Paintshop Pro, where they were saved as jpeg files. The jpeg images were downloaded to the KGS database and accompany the strike and dip measurements in the KGS map service.

Results

Four hundred twenty-seven joints were measured at 86 field locations in the Slade quadrangle and 520 joints were measured at 95 field locations in the Pomeroyton quadrangle (Fig. 2, Appendices A–B). The orientations of joint surfaces north of and a considerable distance away from the Glencairn Fault were examined along the Martin Fork and Copperas Creek drainages. Joint orientations near the Glencairn Fault were also examined to determine if and how the joint orientations are affected by faulting.

Martin Fork Drainage

Joints were measured at natural arch locations along and near the Martin Fork drainage in the Slade quadrangle (Fig. 6). The drainage is approximately 4 mi north of the Glencairn Fault. The Martin Fork drainage, like all drainages in the study area, is classified as dendritic, where many contributing streams join together at tributaries of the main drainage and have V-shaped valleys. Joints at this location reveal varying orientations, with sets of dominant joints striking approximately 40, 60, and 80°NW and 10 and 40°NE (Fig. 7). These joint surfaces are often curved and irregular, and are considered to be nonsystematic joints because they do not always share common orientations (Fig. 8). These joint orientations are also parallel to subparallel to drainage orientations in the area (Figs. 6–7) and are consistent with the regional principal stress directions of Hurd and Zoback (2012). Because of the similar orientations of joints and drainages, and because the joint orientations are controlled by contemporary tectonic stresses, these joints are interpreted to have formed due to stresses from the unloading of overburden.

Copperas Creek Drainage

The Copperas Creek drainage is approximately 5 mi east of the Martin Fork drainage and 4 mi north of the Glencairn Fault in the Pomeroyton quadrangle. This drainage is also dendritic. Joints measured along the Copperas Creek drainage have varying orientations (Fig. 9). As was the case with the Martin Fork drainage, the dominant orientation is between 40 and 50°NW and 10, 50, and 80°NE (Fig. 10). The joint surfaces are often curved and irregular, and the joints are nonsystematic because they do not always share common orientations (Fig. 11). As with the Martin Fork drainage, the joint orientations can be compared to the orientation of drainages (Fig. 9). The joint orientations along the Copperas Creek drainage are parallel to subparallel to the drainage orientations (Figs. 9–10). These orientations are consistent with the regional principal stress directions of Hurd and Zoback (2012). For the same reasons discussed for the Martin Fork drainage, these joints are interpreted to have formed due to stress from the unloading of overburden.

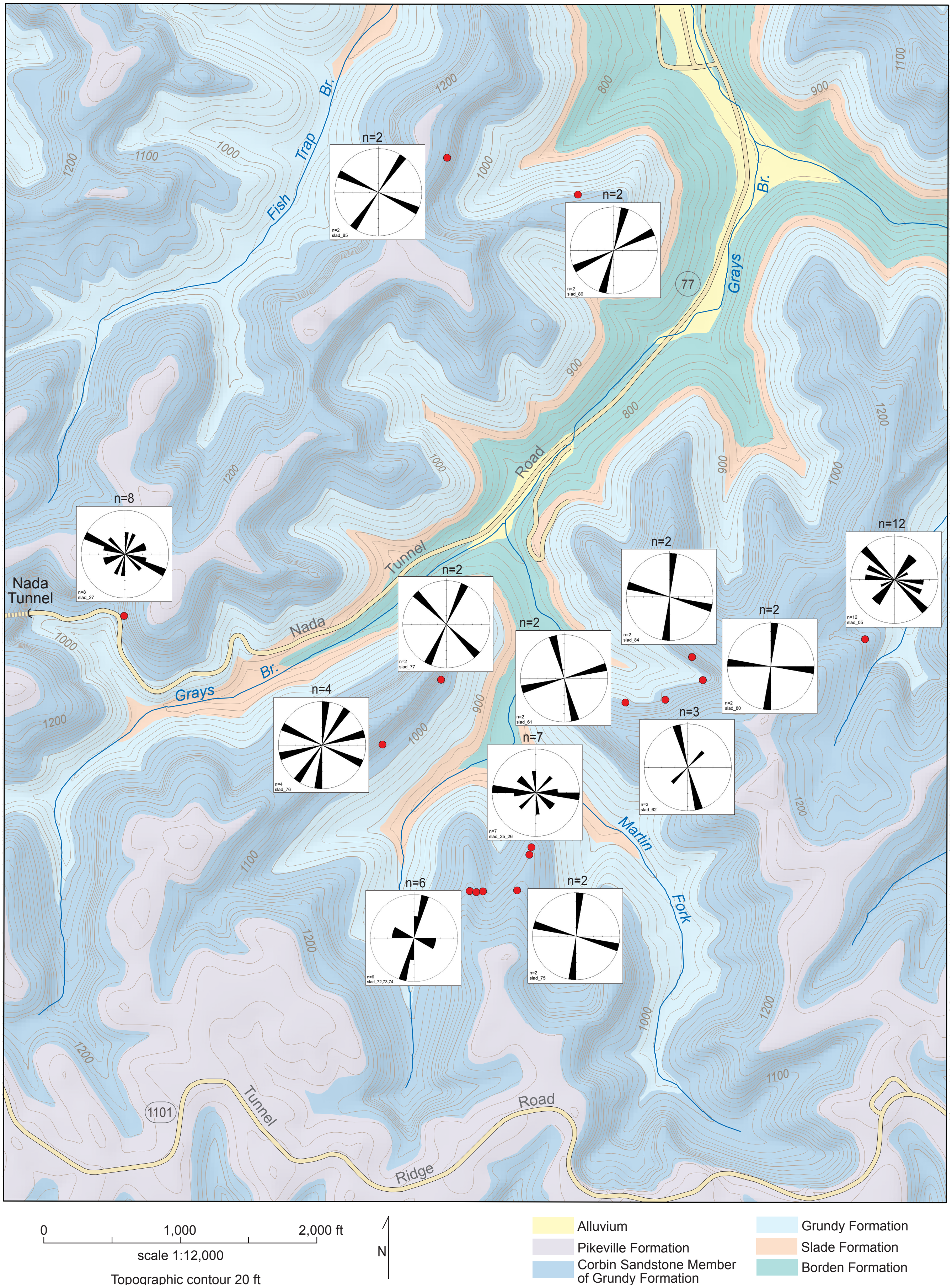

Figure 6. Rose diagrams showing joint orientations along Martin Fork drainage in Red River Gorge Geological Area. Red circles indicate joint measurement localities.

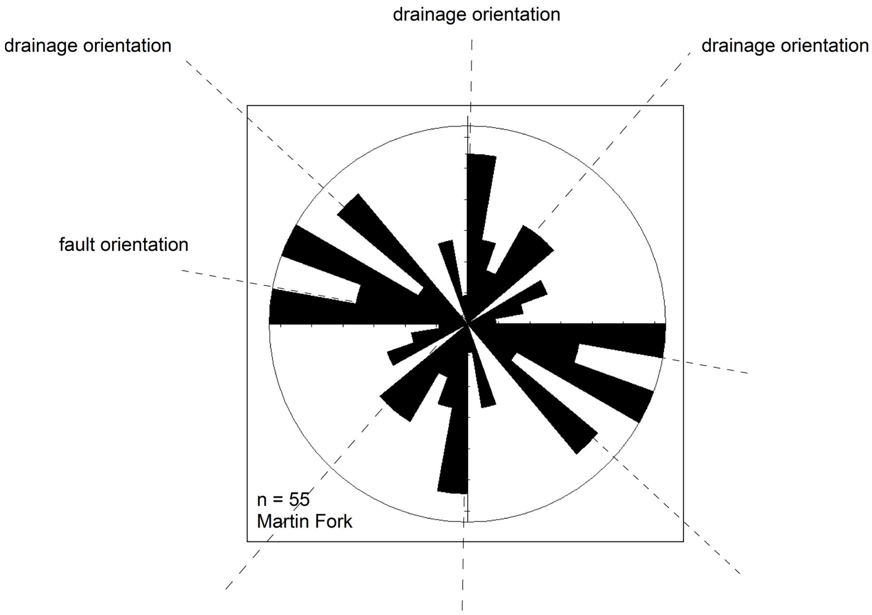

Figure 7. Rose diagram showing joint orientations along the Martin Fork drainage. Joints at this location have varying orientations, with dominant joint sets striking approximately 40, 60, and 80°NW and 10 and 40°NE. The dashed lines represent the general orientations associated with the Martin Fork drainage and the Glencairn Fault to the south.

Glencairn Fault—Slade Quadrangle

A splay fault of the Glencairn Fault is exposed 0.5 mi south of Mill Creek Lake in the Slade quadrangle, along the east side of Ky. 11 (Fig. 5). Joints were measured at natural arch locations along the Glencairn Fault trace in order to determine if joint orientations are parallel to and therefore related to the emplacement of the Glencairn Fault (Fig. 12). Joints approximately 0.5 mi north of the Glencairn Fault near Mill Creek Lake have varying orientations, with a dominant orientation between 20 and 40°NW and 40°NE (Fig. 13). Joint orientations along the Glencairn Fault also vary, with dominant orientations 80°NE and NW, 10°NE, and 30°NE (Fig. 14). Joints approximately 0.5 mi south of the Glencairn Fault have orientations 30°NW and 60°NE (Fig. 15). Figures 13 through 15 reveal that most of the joint orientations become parallel to subparallel to the Glencairn Faults closer to the fault. The joints near the Glencairn Fault are interpreted to have formed, or at least been affected, by tectonic stresses related to movement along the fault.

Glencairn Fault—Pomeroyton Quadrangle

The trace of the Glencairn Fault crosses the Bert T. Combs Mountain Parkway at Pine Ridge, and roughly follows Rockbridge Creek in the Pomeroyton quadrangle (Fig. 16). Joints were measured along two roadcuts along the parkway, an exposure along Ky. 715, and at natural arch locations near and along Rockbridge Creek. Joints measured 0.3 mi north of the Glencairn Fault, near Rockbridge Creek, have varying orientations, with a dominant orientation between 50 and 70°NE (Fig. 17). Joints measured along the Glencairn Fault on the parkway and near Rockbridge Creek have dominant orientations between 40 and 80°NE and 30°NW (Fig. 18). Joints measured 0.4 mi south of the Glencairn Fault along Ky. 715 have varying orientations, with dominant orientations between 40 and 60°NE, 10°NE, and 40°NW (Fig. 19). When comparing the joint orientations with the fault orientations (Figs. 17–19) along this part of the Glencairn Fault, most joint orientations become parallel or subparallel to the fault closer to the fault. Therefore, the joints near the Glencairn Fault are interpreted to have formed, or at least been affected, by tectonic stresses related to movement along the fault.

Summary

Most of the joint measurements in the study area were from natural arch locations in the Corbin Sandstone, north of the Glencairn Fault. The Corbin Sandstone is exposed at the surface at the top of ridgelines, where arches can form north of the fault. South of the fault, the Corbin Sandstone has been downdropped by 40 to 140 ft and is exposed mostly in valley bottoms or in the subsurface.

Joint orientations away from the Glencairn Fault, along the Martin Fork and Copperas Creek drainages, are interpreted to have formed from unloading mechanisms, but a preexisting fabric or orientation is evidence of the consistent northeast, due north, and northwest joint orientations (Figs. 7, 10). Although the joint orientations vary and joint surfaces are curved, there is a dominant northeast and northwest strike that is parallel and

Figure 8. Example of a joint set along the Martin Fork drainage at the Left Flank climbing area. The red lines represent the two joint surfaces of the joint set.

perpendicular, respectively, to the Pine Mountain thrust and coincides with the present-day stress field (Heidbach and others, 2008; Hurd and Zoback, 2012). Joints within 0.5 mi of the Glencairn Fault have orientations subparallel to parallel to the fault orientation and are affected by tectonic mechanisms (Figs. 13–15, 17–19).

Acknowledgments

I would like to thank James Cobb, director of the Kentucky Geological Survey, and William Andrews of the KGS Geologic Mapping Section for permission and support to pursue this research. I also would like to thank Stephen Greb and John Hickman of the KGS Energy and Minerals Section for their technical review, Meg Smath for the edi-

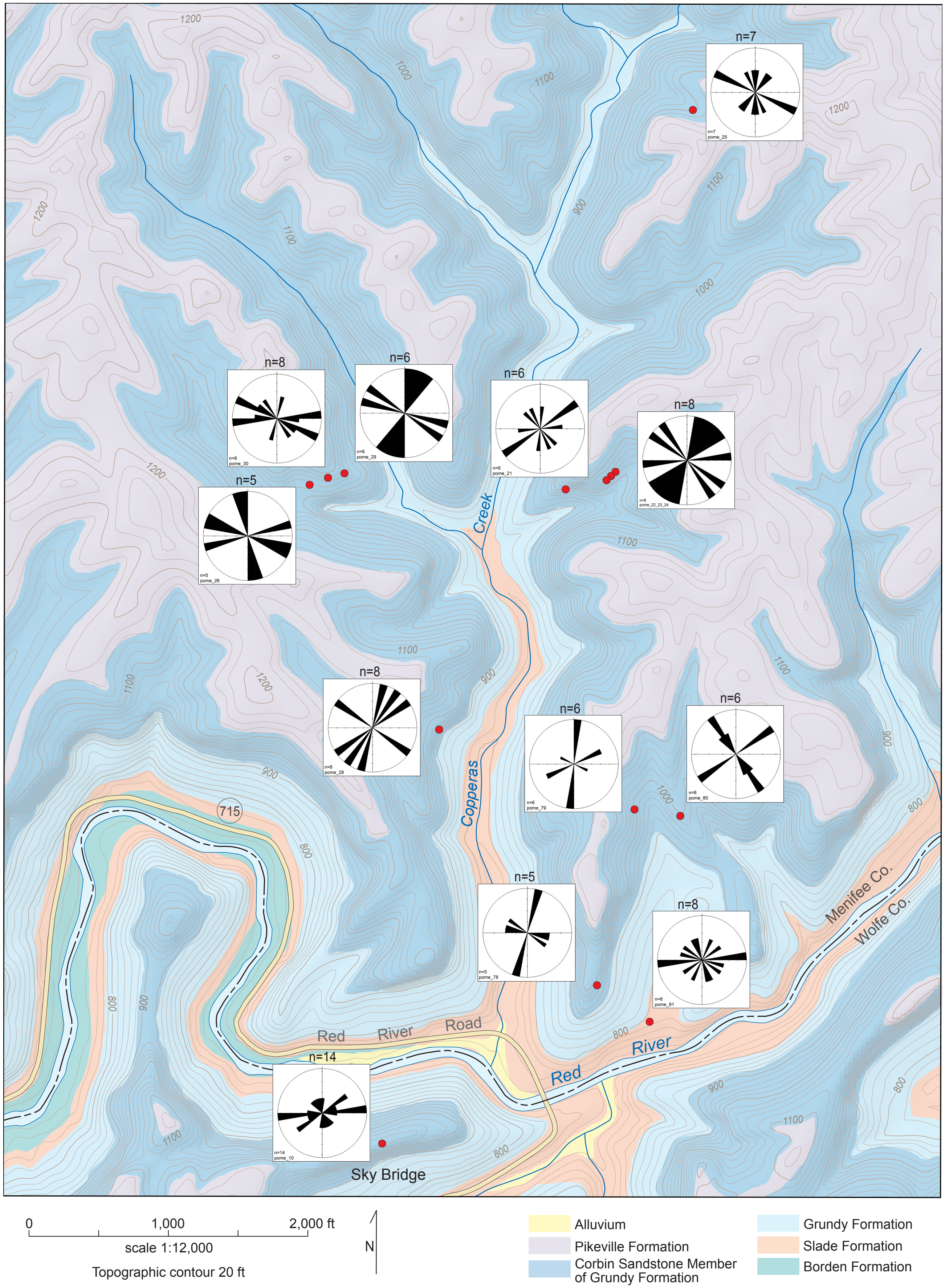

Figure 9. Rose diagrams showing joint orientations along Copperas Creek drainage in the Clifty Wilderness Area. Red circles indicate joint measurement localities.

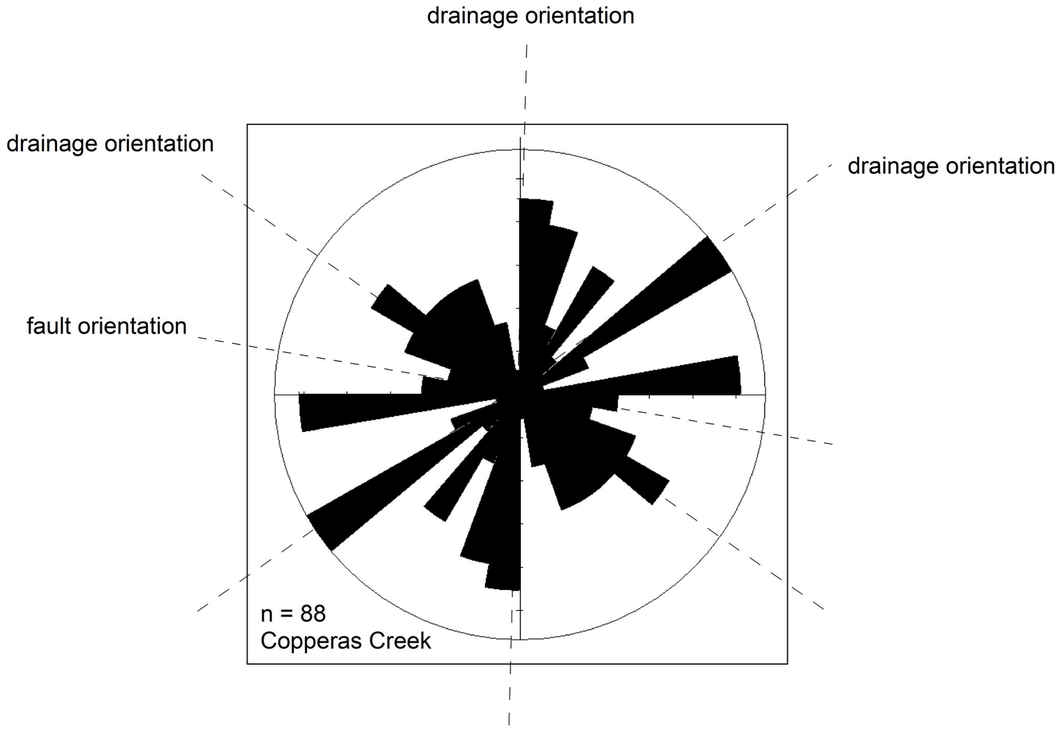

Figure 10. Rose diagram showing joint orientations along the Copperas Creek drainage. Joints in this location have varying orientations, with dominant joint sets striking approximately 40 and 50°NW and 10, 50, and 80°NE. The dashed lines represent the general orientations associated with the Copperas Creek drainage and the Glencairn Fault to the south.

Figure 11. Example of a joint set at Sky Bridge near the Copperas Creek drainage. The red lines represent the two joint surfaces of the joint set.

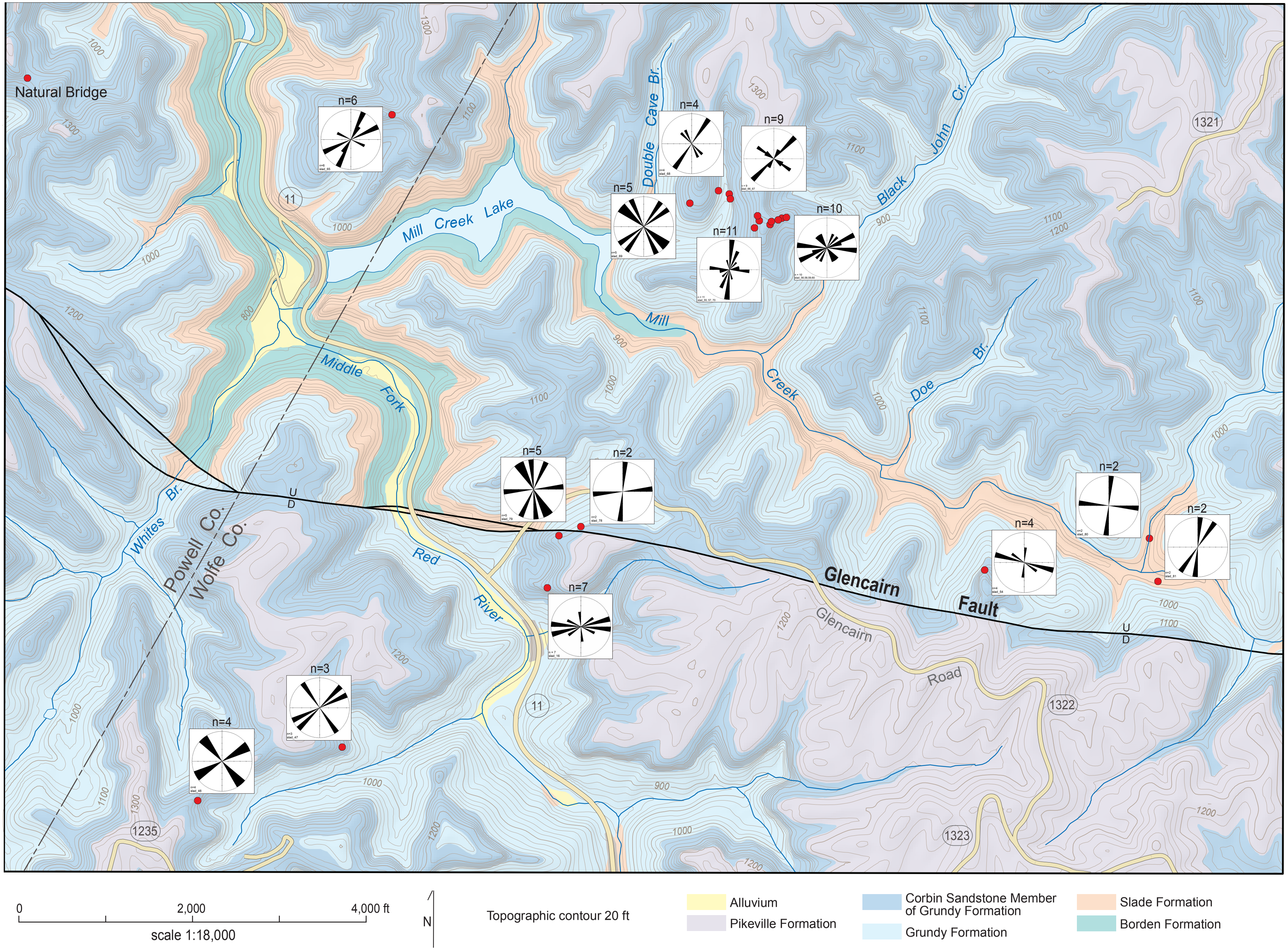

Figure 12. Rose diagrams showing joint orientations along the Glencairn Fault south of Natural Bridge State Park. Red circles represent joint measurement localities. Map scale is 1:18,000.

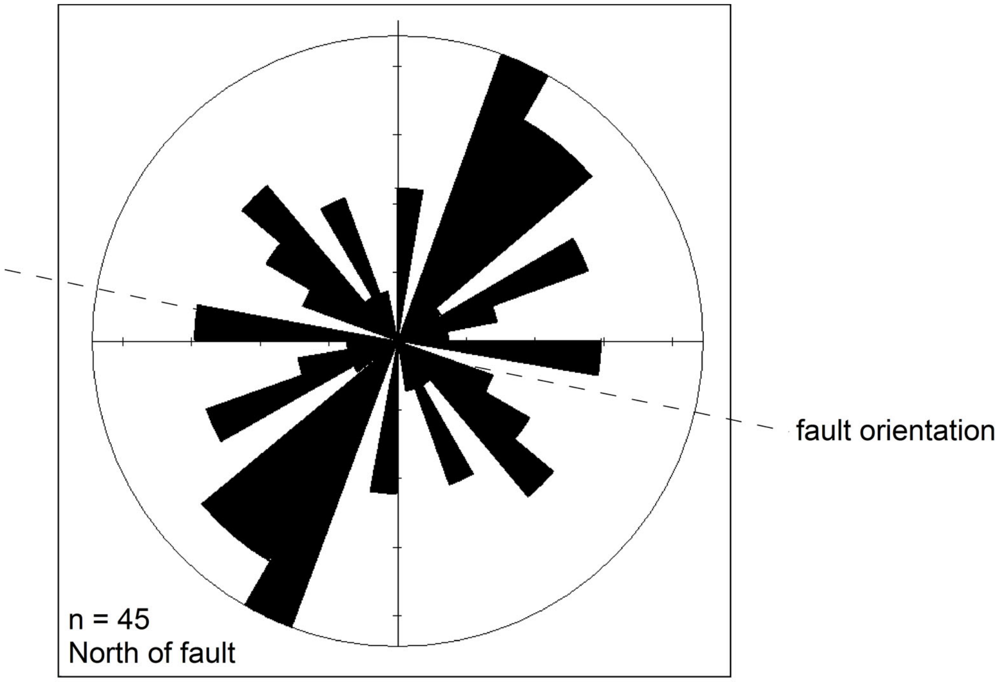

Figure 13. Rose diagram showing joint orientations north of the Glencairn Fault near Mill Creek Lake. Joints at this location have dominant orientations between 20 and 40°NE and 40°NW. The dashed line represents the general orientation of the Glencairn Fault.

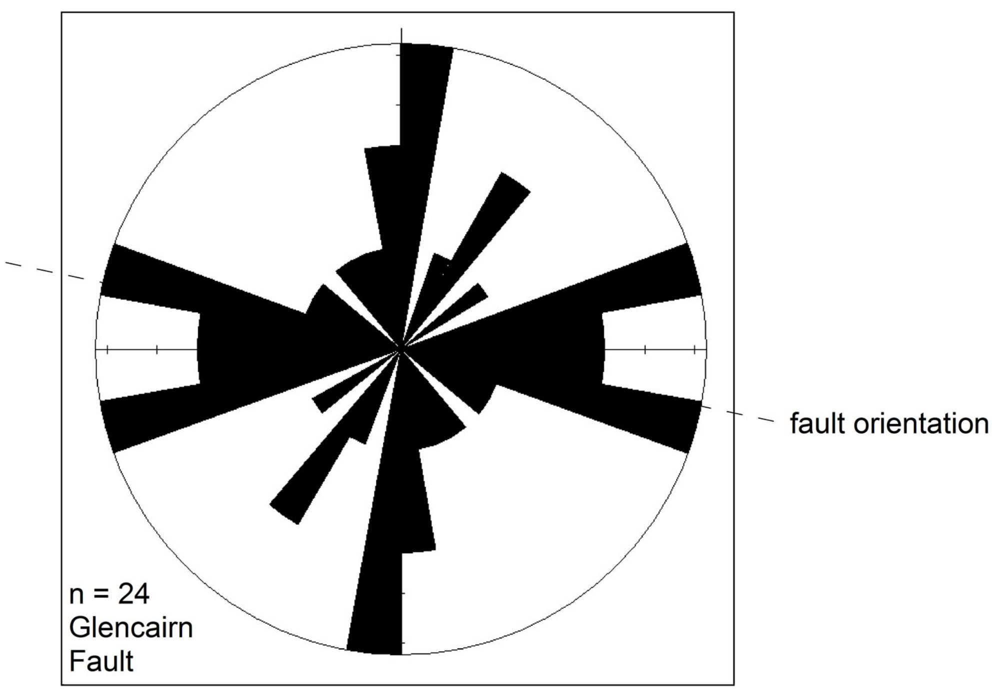

Figure 14. Rose diagram showing joint orientations along the Glencairn Fault south of Natural Bridge State Park. Joints at this location have dominant orientations of 80°NE and NW, 10°NE, and 30°NE. The dashed line represents the general orientation of the Glencairn Fault.

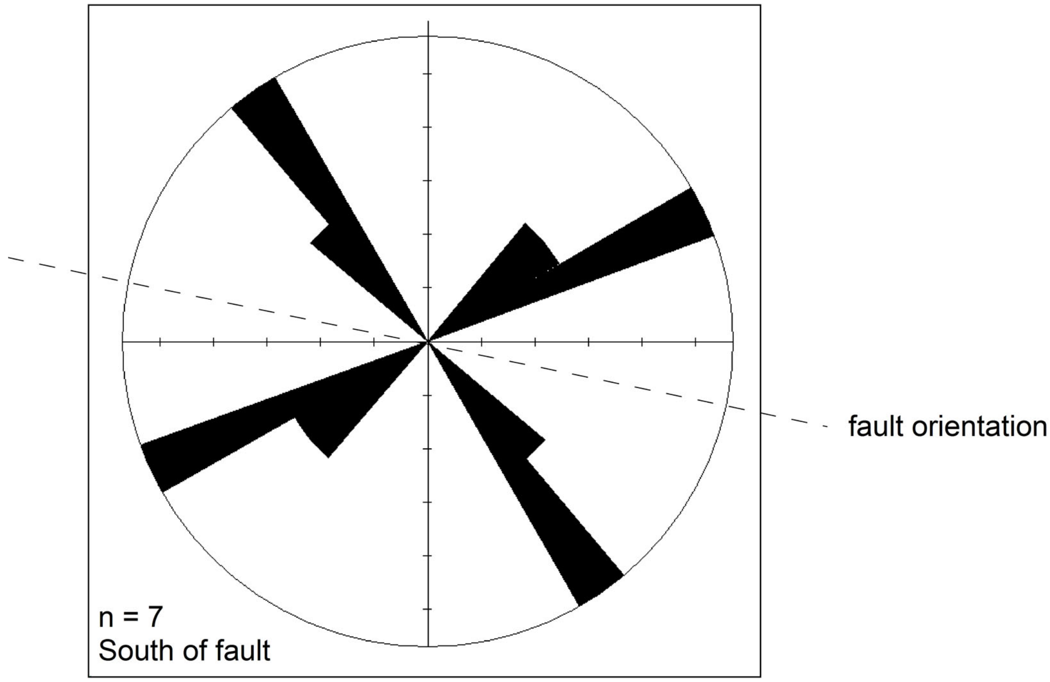

Figure 15. Rose diagram showing joint orientations south of the Glencairn Fault. Joints at this location have orientations of approximately 30°NW and 60°NE. The dashed line represents the general orientation of the Glencairn Fault.

torial review of this manuscript, and Terry Hounshell for cartography and creation of figures.

References Cited

Andrews, R.E., Dunno, G.A., Wunsch, D.R., Dinger, J.S., and Drahovzal, J.A., 2004, Selected lineaments for eastern Kentucky: Kentucky Geological Survey, ser. 11, Digital Publication 6, 19 p.

Chesnut, D.R., Jr., 1992, Stratigraphic and structural framework of the Carboniferous rocks of the central Appalachian Basin in Kentucky: Kentucky Geological Survey, ser. 11, Bulletin 3, 42 p.

Dever, G.R., Jr., and Barron, L.S., 1986, Red River Gorge Geological Area (Daniel Boone National Forest) and Natural Bridge State Park, east-central Kentucky, *in* Neathery, T.L., ed., Centennial field guide: Southeastern Section of the Geological Society of America, v. 6, p. 43–46.

Engelder, T., 1985, Loading paths to joint propagation during a tectonic cycle: An example from the Appalachian Plateau, USA: Journal of Structural Geology, v. 7, p. 459–476.

Heidback, O., Tingay, M., Barth, A., Reinecker, J., Kurfeβ, D., and Müller, B., 2008, The world stress map: Commission de la Carte Gėologique du Monde/Commission for the Geological Map of the World, 1 sheet.

Hurd, O., and Zoback, M.D., 2012, Intraplate earthquakes, regional stress and fault mechanics in the central and eastern U.S. and southeastern Canada: Tectonophysics, v. 581, p. 182–192.

Kipp, J.A., and Dinger, J.S., 1991, Stress-relief fracture control of ground-water movement in the Appalachian Plateaus: Kentucky Geological Survey, ser. 10, Reprint 30, 11 p.

Lobeck, A.K., 1929, Physiographic diagram of Kentucky: New York, Geographical Press, Columbia University, scale .

McFarlan, A.C., 1950, Geology of Kentucky: Lexington, University of Kentucky, 531 p.

McFarlan, A.C., 1954, Geology of the Natural Bridge State Park area: Kentucky Geological Survey, ser. 9, Special Publication 4, 31 p.

Nelson, H.L., Jr., 2005, Spatial database of the Slade quadrangle, east-central Kentucky: Kentucky Geological Survey, ser. 12, Digitally Vectorized Geologic Quadrangle Data DVGQ-1183. Adapted from Weir, G.W., 1974, Geologic

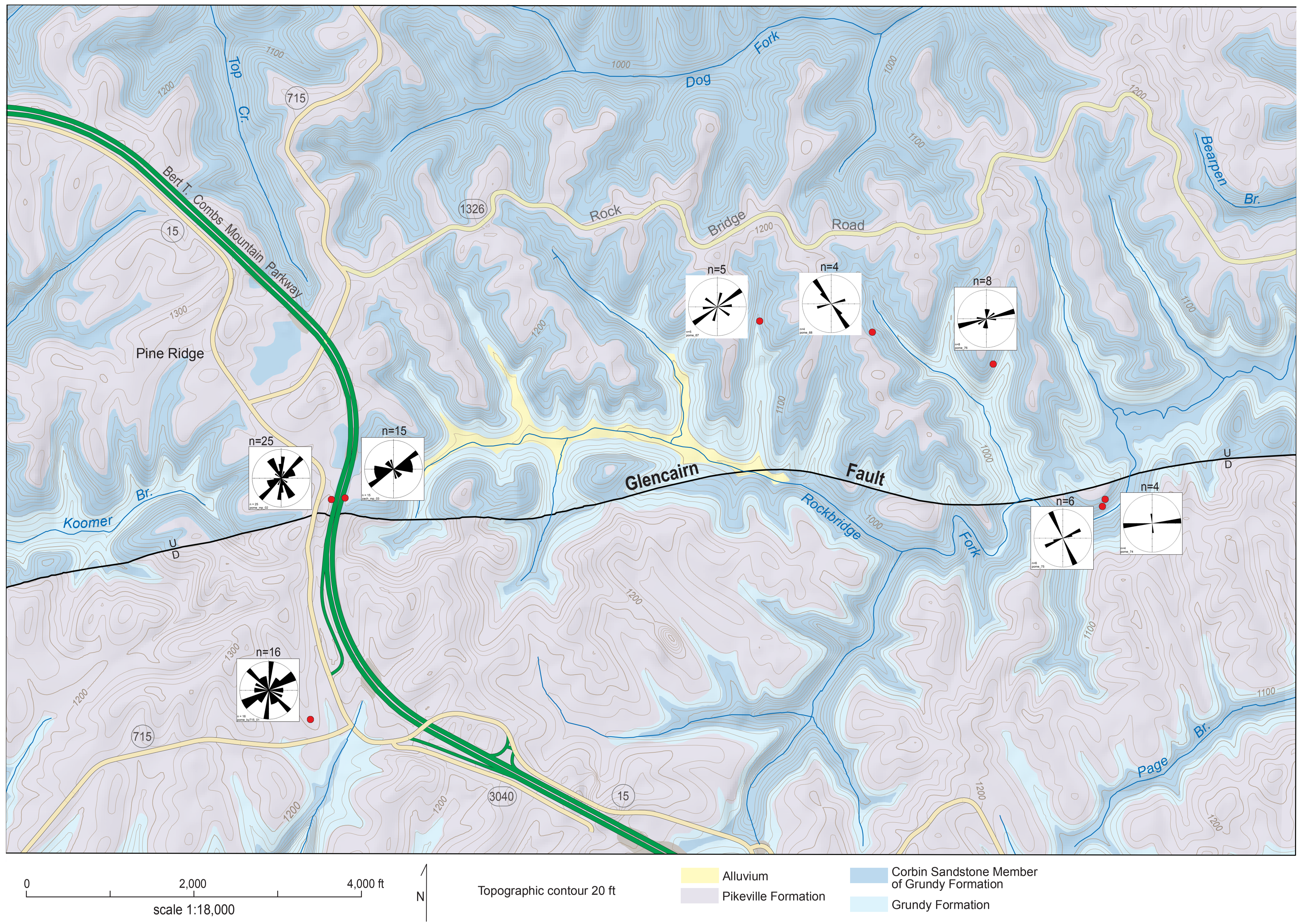

Figure 16. Rose diagrams showing joint orientations along the Glencairn Fault along the Bert T. Combs Mountain Parkway and Rockbridge Creek. Red circles represent joint measurement localities. Scale is 1:18,000.

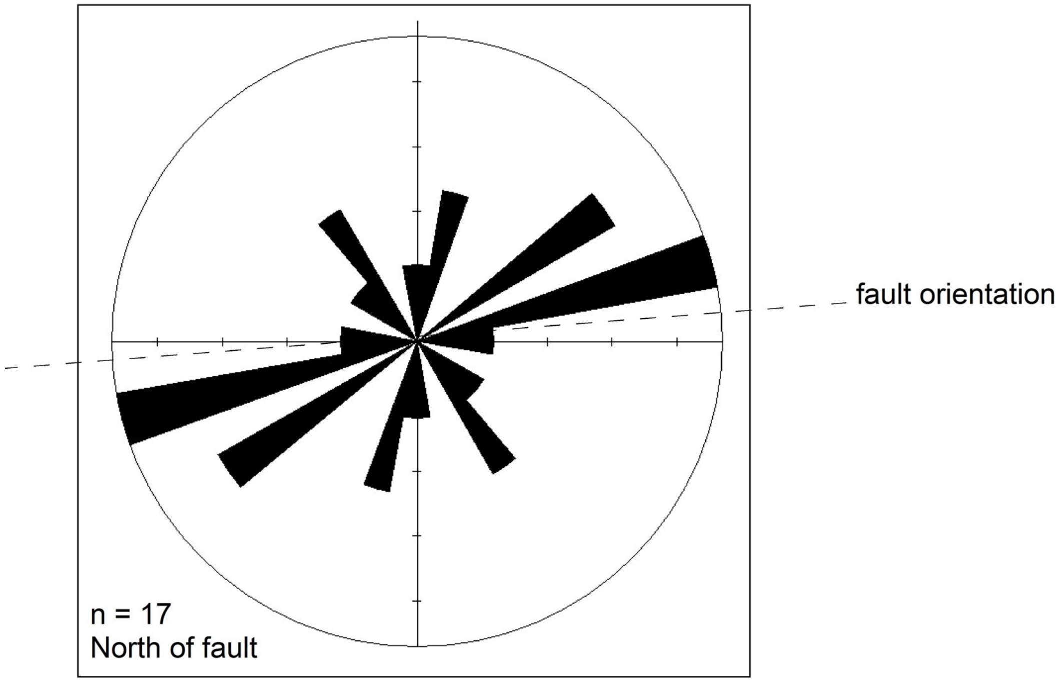

Figure 17. Rose diagram showing joint orientations north of the Glencairn Fault along Rockbridge Creek. Joints at this location have dominant orientations between 50 and 70°NE. The dashed line represents the general orientation of the Glencairn Fault.

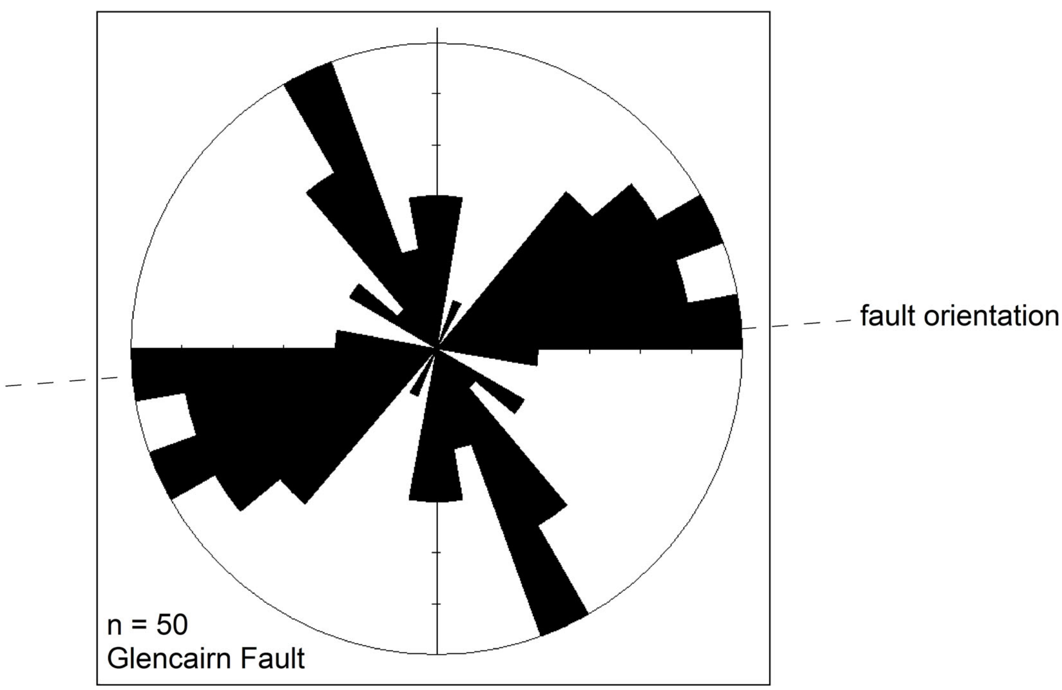

Figure 18. Rose diagram showing joint orientations along the Glencairn Fault on the Bert T. Combs Mountain Parkway. Joints at the location have dominant orientations between 40 and 80°NE and 30°NW. The dashed line represents the general orientation of the Glencairn Fault.

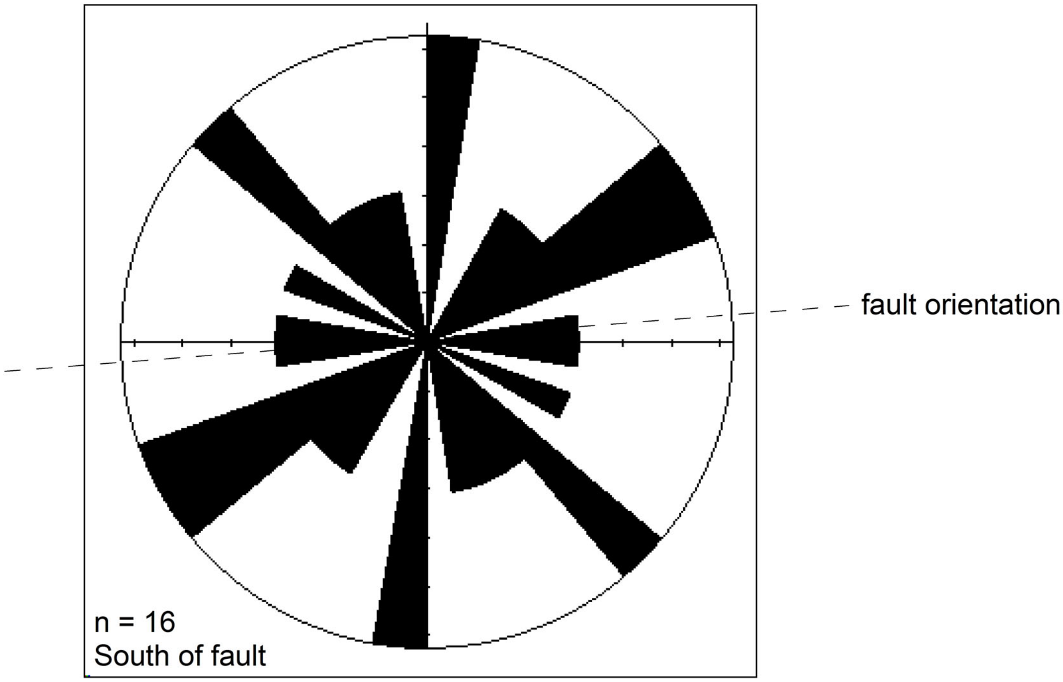

Figure 19. Rose diagram showing joint orientations south of the Glencairn Fault on Ky. 715. Joints at this location have dominant orientations between 40 and 60°NE, 10°NE, and 40°NW. The dashed line represents the general orientation of the Glencairn Fault.

map of the Slade quadrangle, east-central Kentucky: U.S. Geological Survey Geologic Quadrangle Map GQ-1183, scale 1:24,000.

Nelson, H.L., Jr., and Lambert, J.R., 2005, Spatial database of the Pomeroyton quadrangle, east-central Kentucky: Kentucky Geological Survey, ser. 12, Digitally Vectorized Geologic Quadrangle Data DVGQ-1184. Adapted from Weir, G.W., and Richards, P.W., 1974, Geologic map of the Pomeroyton quadrangle, east-central Kentucky: U.S. Geological Survey Geologic Quadrangle Map GQ-1184, scale 1:24,000.

Weir, G.W., 1974, Geologic map of the Slade quadrangle, east-central Kentucky: U.S. Geological Survey Geologic Quadrangle Map GQ-1183, scale 1:24,000.

Weir, G.W., and Richards, P.W., 1974, Geologic map of the Pomeroyton quadrangle, east-central Kentucky: U.S. Geological Survey Geologic Quadrangle Map GQ-1184, scale 1:24,000.

Appendix A: Joint Strike and Dip Measurements of Joints from the Pomeroyton 7.5-Minute Quadrangle

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
Pome_ky715_01	37.752981	–83.610121	N40W	320	90		Pikeville Formation
			N82E	82	60	SE	Pikeville Formation
			N42W	138	85	NE	Pikeville Formation
			N64E	64	75	SE	Pikeville Formation
			N5E	185	62	NW	Pikeville Formation
			N64W	116	77	SW	Pikeville Formation
			N57E	57	75	SE	Pikeville Formation
			N29W	331	90		Pikeville Formation
			N80W	280	90		Pikeville Formation
			N49E	49	74	SE	Pikeville Formation
			N7E	7	85	SE	Pikeville Formation
			N16W	164	74	SW	Pikeville Formation
			N54E	234	70	NW	Pikeville Formation
			N32W	328	90		Pikeville Formation
			N65E	65	73	SE	Pikeville Formation
			N40E	220	80	NW	Pikeville Formation
Pome_mp_02	37.760587	–83.609329	N64E	64	84	SE	Corbin Sandstone
			N48E	48	85	SE	Corbin Sandstone
			N21E	21	81	SE	Corbin Sandstone
			N27W	153	81	SW	Corbin Sandstone
			N74E	74	64	SE	Corbin Sandstone
			N47E	227	85	NW	Corbin Sandstone
			N53E	233	76	NW	Corbin Sandstone
			N31W	329	88	NE	Corbin Sandstone
			N35W	325	75	NE	Corbin Sandstone
			N57W	123	46	SW	Corbin Sandstone
			N9W	351	90		Corbin Sandstone
			N62E	242	77	NW	Corbin Sandstone
			N82E	82	90		Corbin Sandstone
			N19W	341	72	NE	Corbin Sandstone
			N5E	5	90		Corbin Sandstone
			N21W	339	90		Corbin Sandstone
			N76E	76	84	SE	Corbin Sandstone
			N4W	176	86	SW	Corbin Sandstone
			N49E	49	90		Corbin Sandstone
			N2E	2	90		Corbin Sandstone
			N46E	46	84	SE	Corbin Sandstone
			N53E	53	87	SE	Corbin Sandstone
			N27W	333	75	NE	Corbin Sandstone
			N5E	185	83	NW	Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N30W	330	90		Corbin Sandstone
Pome_mp_03	37.760604	–83.608681	N82E	262	58	NW	Corbin Sandstone
			N86W	94	66	SW	Corbin Sandstone
			N16W	344	90		Corbin Sandstone
			N50W	310	58	NE	Corbin Sandstone
			N58E	58	90		Corbin Sandstone
			N36W	324	82	NE	Corbin Sandstone
			N82E	82	66	SE	Corbin Sandstone
			N65E	245	82	NW	Corbin Sandstone
			N84W	276	58	NE	Corbin Sandstone
			N80E	260	56	NW	Corbin Sandstone
			N60E	240	71	NW	Corbin Sandstone
			N56E	56	90		Corbin Sandstone
			N46W	134	80	SW	Corbin Sandstone
			N70E	70	68	SE	Corbin Sandstone
			N75E	75	90		Corbin Sandstone
Pome_04	37.787271	–83.624431	N49E	49	90		Corbin Sandstone
			N28E	28	90		Corbin Sandstone
			N38E	38	90		Corbin Sandstone
			N80W	280	70	NE	Corbin Sandstone
			N15E	195	82	NW	Corbin Sandstone
			N50W	310	90		Corbin Sandstone
			N26E	26	90		Corbin Sandstone
			N41W	139	83	SW	Corbin Sandstone
Pome_05	37.809973	–83.592061	N20W	340	90		Corbin Sandstone
			N76W	284	90		Corbin Sandstone
			N35W	325	90		Corbin Sandstone
			N36W	324	90		Corbin Sandstone
			N5W	355	90		Corbin Sandstone
			N20E	20	70	SE	Corbin Sandstone
			N71W	289	90		Corbin Sandstone
			N44W	316	90		Corbin Sandstone
			N26E	26	85	SE	Corbin Sandstone
			N40E	40	75		Corbin Sandstone
			N55E	55	75	SE	Corbin Sandstone
Pome_06	37.827392	–83.619709	N47W	313	90		Corbin Sandstone
			N77E	77	90		Corbin Sandstone
			N55W	305	90		Corbin Sandstone
			N75E	75	90		Corbin Sandstone
			N3W	357	90		Corbin Sandstone
			N46W	314	90		Corbin Sandstone
			N40W	140	67	SW	Corbin Sandstone
			N63E	63	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N44W	316	78	NE	Corbin Sandstone
Pome_07	37.830847	–83.612971	N82E	82	90		Corbin Sandstone
			N5W	355	90		Corbin Sandstone
			N70E	70	90		Corbin Sandstone
			N12W	168	82	SW	Corbin Sandstone
			N55E	55	86	SE	Corbin Sandstone
			N75E	75	90		Corbin Sandstone
			N77E	77	90		Corbin Sandstone
			N25W	335	90		Corbin Sandstone
			N10W	350	90		Corbin Sandstone
			N5E	5	90		Corbin Sandstone
Pome_08	37.829768	–83.615023	N11E	191	63	NW	Corbin Sandstone
			N30E	30	90		Corbin Sandstone
			N63W	297	90		Corbin Sandstone
			N39E	39	90		Corbin Sandstone
			N45W	315	90		Corbin Sandstone
			N65W	295	90		Corbin Sandstone
			N83W	97	83	SW	Corbin Sandstone
			N58W	122	71	SW	Corbin Sandstone
			N7E	7	80	SE	Corbin Sandstone
			N0E	0	70	E	Corbin Sandstone
			N78W	282	82	NE	Corbin Sandstone
			N79E	259	55	NW	Corbin Sandstone
			N65W	295	90		Corbin Sandstone
			N66W	114	74	SW	Corbin Sandstone
Pome_09	37.843040	–83.615857	N85E	265	74	NW	Corbin Sandstone
			N3E	3	90		Corbin Sandstone
			N85W	275	90		Corbin Sandstone
			N87E	87	90		Corbin Sandstone
			N85W	275	90		Corbin Sandstone
			N50W	130	40	SW	Corbin Sandstone
			N65E	65	90		Corbin Sandstone
			N4E	4	80	SE	Corbin Sandstone
			N55E	55	90		Corbin Sandstone
Pome_10	37.818902	–83.578827	N73E	73	90		Corbin Sandstone
			N55E	55	90		Corbin Sandstone
			N80W	280	72	NE	Corbin Sandstone
			N88E	88	90		Corbin Sandstone
			N69E	69	90		Corbin Sandstone
			N35W	325	90		Corbin Sandstone
			N40W	140	82	SW	Corbin Sandstone
			N5E	5	90		Corbin Sandstone
			N86E	86	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N58E	58	90		Corbin Sandstone
			N11W	349	90		Corbin Sandstone
			N8W	352	90		Corbin Sandstone
			N20W	340	90		Corbin Sandstone
			N84E	84	90		Corbin Sandstone
Pome_11	37.799821	–83.592860	N76W	284	76	NE	Corbin Sandstone
			N71E	71	90		Corbin Sandstone
			N90E	90	90		Corbin Sandstone
			N3W	357	90		Corbin Sandstone
			N20E	20	90		Corbin Sandstone
			N58E	58	90		Corbin Sandstone
			N18W	342	90		Corbin Sandstone
			N58E	58	90		Corbin Sandstone
Pome_12	37.819995	–83.621397	N65W	295	90		Corbin Sandstone
			N20E	20	90		Corbin Sandstone
			N65W	295	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
			N33E	33	90		Corbin Sandstone
			N74E	74	90		Corbin Sandstone
			N56W	304	90		Corbin Sandstone
			N5W	355	90		Corbin Sandstone
Pome_13	37.769643	–83.561273	N45E	45	90		Corbin Sandstone
			N50W	310	90		Corbin Sandstone
			N59W	301	90		Corbin Sandstone
			N41E	41	90		Corbin Sandstone
Pome_14	37.777101	–83.566821	N31E	31	90		Corbin Sandstone
			N55W	125	73	SW	Corbin Sandstone
			N85W	95	48	SW	Corbin Sandstone
			N55W	305	90		Corbin Sandstone
			N58W	302	90		Corbin Sandstone
			N63W	297	90		Corbin Sandstone
			N20E	20	90		Corbin Sandstone
			N53E	53	90		Corbin Sandstone
Pome_15	37.812471	–83.580273	N90E	90	90		Corbin Sandstone
			N79W	281	80	NE	Corbin Sandstone
			N51E	51	90		Corbin Sandstone
			N20W	340	90		Corbin Sandstone
			N60E	60	90		Corbin Sandstone
			N29E	29	90		Corbin Sandstone
			N28W	332	90		Corbin Sandstone
			N20E	20	90		Corbin Sandstone
			N16E	16	76	SE	Corbin Sandstone
			N62W	298	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N57W	303	90		Corbin Sandstone
			N26E	26	90		Corbin Sandstone
			N54W	306	90		Corbin Sandstone
			N74W	106	80	SW	Corbin Sandstone
Pome_16	37.830662	–83.612219	N84W	276	90		Corbin Sandstone
			N5E	5	90		Corbin Sandstone
			N60W	300	90		Corbin Sandstone
			N9E	9	90		Corbin Sandstone
			N55W	305	90		Corbin Sandstone
			N9E	9	90		Corbin Sandstone
Pome_17	37.831986	–83.612686	N10W	350	90		Corbin Sandstone
			N50E	50	90		Corbin Sandstone
			N63E	63	90		Corbin Sandstone
			N35W	325	90		Corbin Sandstone
			N15W	345	90		Corbin Sandstone
			N85E	85	90		Corbin Sandstone
Pome_18	37.831797	–83.613304	N15W	345	90		Corbin Sandstone
			N85W	275	75	NE	Corbin Sandstone
			N25E	25	81	SE	Corbin Sandstone
			N55W	305	90		Corbin Sandstone
			N45W	315	90		Corbin Sandstone
			N35E	325	90		Corbin Sandstone
Pome_19	37.831485	–83.613458	N50E	50	90		Corbin Sandstone
			N25E	25	90		Corbin Sandstone
			N65W	295	90		Corbin Sandstone
			N65W	295	90		Corbin Sandstone
			N50W	310	90		Corbin Sandstone
			N5E	5	90		Corbin Sandstone
Pome_21	37.831796	–83.574312	N47W	313	90		Corbin Sandstone
			N85E	85	90		Corbin Sandstone
			N20W	340	90		Corbin Sandstone
			N51E	51	90		Corbin Sandstone
			N9E	9	90		Corbin Sandstone
			N55E	55	90		Corbin Sandstone
Pome_22	37.831977	–83.573297	N15E	15	90		Corbin Sandstone
			N37W	323	90		Corbin Sandstone
			N53E	53	90		Corbin Sandstone
			N26E	26	90		Corbin Sandstone
			N37E	37	90		Corbin Sandstone
			N88E	88	90		Corbin Sandstone
			N50E	50	90		Corbin Sandstone
			N56W	304	90		Corbin Sandstone
Pome_25	37.839275	–83.571177	N43E	43	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N65W	295	90		Corbin Sandstone
			N0E	0	90		Corbin Sandstone
			N5E	5	90		Corbin Sandstone
			N29W	331	90		Corbin Sandstone
			N39E	39	90		Corbin Sandstone
			N60W	300	90		Corbin Sandstone
Pome_26	37.844455	–83.610036	N67W	293	60	SW	Corbin Sandstone
			N15W	345	90		Corbin Sandstone
			N76W	284	90		Corbin Sandstone
			N6W	354	90		Corbin Sandstone
			N73E	73	90		Corbin Sandstone
Pome_27	37.845333	–83.613010	N34W	326	90		Corbin Sandstone
			N60W	300	69	SW	Corbin Sandstone
			N36W	324	90		Corbin Sandstone
			N19W	341	90		Corbin Sandstone
			N49W	311	90		Corbin Sandstone
			N52E	52	90		Corbin Sandstone
Pome_28	37.827059	–83.577437	N58E	58	90		Corbin Sandstone
			N52E	52	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone
			N36E	36	90		Corbin Sandstone
			N51W	309	90		Corbin Sandstone
			N50W	310	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
Pome_29	37.832100	–83.579807	N37E	37	90		Corbin Sandstone
			N4E	4	90		Corbin Sandstone
			N11E	11	90		Corbin Sandstone
			N30E	30	90		Corbin Sandstone
			N75W	285	90		Corbin Sandstone
			N56W	304	90		Corbin Sandstone
Pome_30	37.832011	–83.580217	N85W	275	90		Corbin Sandstone
			N84E	264	65	NW	Corbin Sandstone
			N35W	325	90		Corbin Sandstone
			N60W	300	90		Corbin Sandstone
			N85E	85	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone
			N51W	309	90		Corbin Sandstone
			N63W	297	90		Corbin Sandstone
Pome_31	37.831872	–83.580672	N40E	40	90		Corbin Sandstone
			N15W	345	90		Corbin Sandstone
			N85W	275	90		Corbin Sandstone
			N40W	320	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N2E	2	90		Corbin Sandstone
			N42W	318	90		Corbin Sandstone
Pome_33	37.811408	–83.601485	N17E	17	67	SE	Corbin Sandstone
			N64W	296	90		Corbin Sandstone
			N77E	77	90		Corbin Sandstone
			N10E	10	90		Corbin Sandstone
			N54W	306	90		Corbin Sandstone
			N24E	24	90		Corbin Sandstone
Pome_34	37.811363	–83.600702	N80E	80	90		Corbin Sandstone
			N22E	22	90		Corbin Sandstone
			N42E	42	90		Corbin Sandstone
			N22E	22	90		Corbin Sandstone
Pome_35	37.812082	–83.600598	N55W	305	90		Corbin Sandstone
			N31W	329	90		Corbin Sandstone
			N26E	26	90		Corbin Sandstone
			N20E	20	90		Corbin Sandstone
Pome_36	37.812879	–83.600848	N39W	321	90		Corbin Sandstone
			N36W	324	90		Corbin Sandstone
			N85E	85	90		Corbin Sandstone
			N62E	62	90		Corbin Sandstone
Pome_37	37.814157	–83.598635	N85E	85	90		Corbin Sandstone
			N45E	45	90		Corbin Sandstone
			N60W	300	90		Corbin Sandstone
			N12E	12	90		Corbin Sandstone
			N45E	45	90		Corbin Sandstone
			N65W	295	90		Corbin Sandstone
Pome_38	37.783994	–83.565406	N34E	34	90		Corbin Sandstone
			N30W	330	90		Corbin Sandstone
			N40E	40	90		Corbin Sandstone
			N75E	75	90		Corbin Sandstone
			N60E	60	90		Corbin Sandstone
Pome_39	37.836527	–83.623601	N55W	305	90		Corbin Sandstone
			N62W	298	90		Corbin Sandstone
			N20W	340	90		Corbin Sandstone
			N42E	42	90		Corbin Sandstone
			N17E	17	90		Corbin Sandstone
			N59W	301	90		Corbin Sandstone
			N57W	303	90		Corbin Sandstone
Pome_42	37.837498	–83.620832	N37W	323	90		Corbin Sandstone
			N10E	10	90		Corbin Sandstone
			N40W	320	90		Corbin Sandstone
			N10E	10	90		Corbin Sandstone
			N85W	275	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N52W	308	90		Corbin Sandstone
Pome_43	37.841244	–83.617527	N30E	30	90		Corbin Sandstone
			N35W	325	90		Corbin Sandstone
			N45W	315	90		Corbin Sandstone
			N55E	55	90		Corbin Sandstone
			N33W	327	90		Corbin Sandstone
			N40E	40	90		Corbin Sandstone
Pome_44	37.845729	–83.615612	N80W	280	90		Corbin Sandstone
			N84W	276	90		Corbin Sandstone
			N33E	33	90		Corbin Sandstone
			N6W	354	90		Corbin Sandstone
			N88W	272	90		Corbin Sandstone
			N9W	351	90		Corbin Sandstone
Pome_45	37.846872	–83.616520	N55W	305	90		Corbin Sandstone
			N88W	272	90		Corbin Sandstone
			N30W	330	90		Corbin Sandstone
			N59W	301	56	SW	Corbin Sandstone
			N79W	281	90		Corbin Sandstone
Pome_47	37.839091	–83.612437	N35E	35	90		Corbin Sandstone
			N37E	37	90		Corbin Sandstone
			N80W	280	90		Corbin Sandstone
			N65W	295	90		Corbin Sandstone
Pome_48	37.814870	–83.550915	N21W	339	90		Corbin Sandstone
			N21W	339	90		Corbin Sandstone
			N80E	80	90		Corbin Sandstone
			N14W	346	90		Corbin Sandstone
			N79E	79	90		Corbin Sandstone
			N41W	319	76	NE	Corbin Sandstone
			N35W	325	90		Corbin Sandstone
			N35W	325	90		Corbin Sandstone
Pome_51	37.844312	–83.617018	N70E	70	90		Corbin Sandstone
			N22W	338	90		Corbin Sandstone
			N22W	338	90		Corbin Sandstone
			N70E	70	90		Corbin Sandstone
			N20W	340	90		Corbin Sandstone
			N10W	350	77	NE	Corbin Sandstone
Pome_52	37.837388	–83.611887	N52W	308	90		Corbin Sandstone
			N47W	313	90		Corbin Sandstone
			N25E	25	90		Corbin Sandstone
			N48E	48	90		Corbin Sandstone
			N75W	285	90		Corbin Sandstone
			N14W	346	90		Corbin Sandstone
			N73W	287	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
Pome_53	37.824070	–83.621430	N9W	351	90		Corbin Sandstone
			N6W	354	90		Corbin Sandstone
			N38E	38	90		Corbin Sandstone
			N80W	280	90		Corbin Sandstone
			N45W	315	90		Corbin Sandstone
			N90W	270	85	N	Corbin Sandstone
			N20E	20	90		Corbin Sandstone
Pome_54	37.824572	–83.619660	N33E	33	90		Corbin Sandstone
			N14W	346	90		Corbin Sandstone
			N38W	322	90		Corbin Sandstone
			N25W	335	90		Corbin Sandstone
Pome_56	37.802107	–83.586029	N40E	40	90		Corbin Sandstone
			N44W	316	90		Corbin Sandstone
			N44E	44	90		Corbin Sandstone
			N40W	320	90		Corbin Sandstone
			N2E	2	90		Corbin Sandstone
Pome_57	37.801548	–83.586741	N10W	350	90		Corbin Sandstone
			N20E	20	90		Corbin Sandstone
			N57E	57	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
			N20W	340	90		Corbin Sandstone
Pome_60	37.803100	–83.601885	N13E	13	90		Corbin Sandstone
			N13E	13	90		Corbin Sandstone
			N88W	272	90		Corbin Sandstone
			N84W	276	90		Corbin Sandstone
			N62W	298	90		Corbin Sandstone
Pome_61	37.803871	–83.603341	N2E	2	90		Corbin Sandstone
			N65E	65	90		Corbin Sandstone
			N2E	2	90		Corbin Sandstone
			N85E	85	90		Corbin Sandstone
			N5E	5	90		Corbin Sandstone
Pome_63	37.790121	–83.568320	N53E	53	90		Corbin Sandstone
			N5W	355	90		Corbin Sandstone
			N80E	80	90		Corbin Sandstone
			N55E	55	90		Corbin Sandstone
			N85W	275	90		Corbin Sandstone
			N80E	260	75	NW	Corbin Sandstone
			N65E	65	90		Corbin Sandstone
			N7E	7	90		Corbin Sandstone
Pome_64	37.787461	–83.567570	N18W	342	90		Corbin Sandstone
			N52E	52	90		Corbin Sandstone
			N54E	54	90		Corbin Sandstone
			N22E	22	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N85E	85	90		Corbin Sandstone
			N76E	76	90		Corbin Sandstone
			N4E	4	90		Corbin Sandstone
			N27W	333	90		Corbin Sandstone
Pome_65	37.788621	–83.567350	N81E	81	90		Corbin Sandstone
			N32W	328	90		Corbin Sandstone
			N25W	335	90		Corbin Sandstone
			N69E	69	90		Corbin Sandstone
			N60E	60	90		Corbin Sandstone
Pome_66	37.788153	–83.567643	N64W	296	90		Corbin Sandstone
			N70W	290	90		Corbin Sandstone
			N20E	20	90		Corbin Sandstone
			N46E	46	90		Corbin Sandstone
			N51E	51	90		Corbin Sandstone
Pome_67	37.766255	–83.591926	N20E	20	90		Corbin Sandstone
			N52E	52	90		Corbin Sandstone
			N85E	85	90		Corbin Sandstone
			N52W	308	90		Corbin Sandstone
			N53E	53	90		Corbin Sandstone
Pome_68	37.765901	–83.587267	N31W	329	90		Corbin Sandstone
			N74E	74	90		Corbin Sandstone
			N33W	327	90		Corbin Sandstone
			N45W	315	90		Corbin Sandstone
Pome_69	37.804485	–83.588262	N40E	40	90		Corbin Sandstone
			N48W	312	80	NE	Corbin Sandstone
			N55W	305	90		Corbin Sandstone
			N56E	56	90		Corbin Sandstone
			N40W	320	90		Corbin Sandstone
			N75E	75	90		Corbin Sandstone
			N33W	327	90		Corbin Sandstone
Pome_70	37.817076	–83.587964	N42E	42	90		Corbin Sandstone
			N44E	44	90		Corbin Sandstone
			N1E	1	90		Corbin Sandstone
			N41W	319	90		Corbin Sandstone
			N59W	301	90		Corbin Sandstone
			N3W	357	90		Corbin Sandstone
			N65W	295	90		Corbin Sandstone
Pome_72	37.811948	–83.589401	N22W	338	90		Corbin Sandstone
			N79E	79	90		Corbin Sandstone
			N84E	84	90		Corbin Sandstone
			N89W	271	90		Corbin Sandstone
			N33E	33	90		Corbin Sandstone
			N49W	311	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N84E	84	90		Corbin Sandstone
Pome_73	37.811922	–83.588354	N90E	90	90		Corbin Sandstone
			N80E	80	90		Corbin Sandstone
			N69E	69	90		Corbin Sandstone
			N30E	30	90		Corbin Sandstone
			N88E	88	90		Corbin Sandstone
Pome_75	37.760205	–83.577738	N70E	70	90		Corbin Sandstone
			N65E	65	78	SE	Corbin Sandstone
			N28W	332	90		Corbin Sandstone
			N26W	334	90		Corbin Sandstone
			N24W	336	90		Corbin Sandstone
			N76E	76	62	SE	Corbin Sandstone
Pome_76	37.764865	–83.582268	N9E	9	68	SE	Corbin Sandstone
			N72E	72	90		Corbin Sandstone
			N79E	79	83	SE	Corbin Sandstone
			N17E	17	90		Corbin Sandstone
			N88W	272	72	SW	Corbin Sandstone
			N60E	60	61	SE	Corbin Sandstone
			N79E	79	77	SE	Corbin Sandstone
			N8W	352	90		Corbin Sandstone
Pome_77	37.771161	–83.560504	N25E	25	90		Corbin Sandstone
			N65W	295	77	NE	Corbin Sandstone
			N35W	325	90		Corbin Sandstone
			N36E	36	90		Corbin Sandstone
			N50W	310	90		Corbin Sandstone
			N48W	312	90		Corbin Sandstone
Pome_79	37.825495	–83.572581	N5E	5	90		Corbin Sandstone
			N4E	4	90		Corbin Sandstone
			N63E	63	90		Corbin Sandstone
			N4E	4	90		Corbin Sandstone
			N65E	65	90		Corbin Sandstone
			N64W	296	90		Corbin Sandstone
Pome_80	37.825370	–83.571443	N42W	318	90		Corbin Sandstone
			N34W	326	90		Corbin Sandstone
			N27W	333	90		Corbin Sandstone
			N52E	52	90		Corbin Sandstone
			N33W	327	90		Corbin Sandstone
			N55E	55	90		Corbin Sandstone
Pome_81	37.821314	–83.572191	N58W	302	90		Slade Formation
			N56E	56	90		Slade Formation
			N15W	345	90		Slade Formation
			N85E	85	90		Slade Formation
			N27E	27	90		Slade Formation

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N85E	85	90		Slade Formation
			N73W	283	90		Slade Formation
			N25W	335	90		Slade Formation
Pome_82	37.788041	–83.619653	N75W	285	90		Corbin Sandstone
			N39W	321	90		Corbin Sandstone
			N50E	50	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone
			N46W	314	90		Corbin Sandstone
Pome_74			N83E	83	90		Corbin Sandstone
			N6W	354	90		Corbin Sandstone
			N84E	84	90		Corbin Sandstone
			N83E	83	90		Corbin Sandstone
Pome_78	37.822031	–83.573502	N54W	306	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone
			N11E	11	90		Corbin Sandstone
			N74W	286	90		Corbin Sandstone
			N80W	280	90		Corbin Sandstone
Pome_83	37.828897	–83.596869	N85W	275	90		Corbin Sandstone
			N2E	2	90		Corbin Sandstone
Pome_84	37.833809	–83.596877	N37E	37	90		Corbin Sandstone
			N55W	305	90		Corbin Sandstone
			N60W	300	90		Corbin Sandstone
			N33W	327	90		Corbin Sandstone
Pome_85	37.833353	–83.596709	N59W	301	90		Corbin Sandstone
			N25E	25	90		Corbin Sandstone
Pome_86	37.836607	–83.593398	N44W	316	90		Corbin Sandstone
			N70E	70	90		Corbin Sandstone
Pome_87	37.810596	–83.595285	N55E	55	90		Slade Formation
			N33E	33	90		Slade Formation
			N15W	345	90		Slade Formation
			N15E	15	90		Slade Formation
			N47W	313	90		Slade Formation
			N41E	41	90		Slade Formation
Pome_88	37.811995	–83.597439	N75E	75	90		Corbin Sandstone
			N60E	60	90		Corbin Sandstone
			N55W	305	90		Corbin Sandstone
Pome_89	37.811091	–83.598848	N65W	295	90		Corbin Sandstone
			N30W	330	90		Corbin Sandstone
Pome_90	37.810371	–83.598628	N27W	333	90		Corbin Sandstone
			N62E	62	90		Corbin Sandstone
Pome_91	37.810312	–83.597969	N85E	85	90		Corbin Sandstone
			N75E	75	90		Corbin Sandstone
Pome_92	37.810234	–83.597640	N62E	62	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N80E	80	90		Corbin Sandstone
			N57W	303	90		Corbin Sandstone
Pome_93	37.807294	–83.593489	N56W	304	90		Corbin Sandstone
			N2E	2	90		Corbin Sandstone
			N42E	42	90		Corbin Sandstone
			N65E	65	90		Corbin Sandstone
			N56W	304	90		Corbin Sandstone

Appendix B: Joint Strike and Dip Measurements of Joints from the Slade 7.5-Minute Quadrangle

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
Slad_01	37.783606	–83.671147	N70E	70	90		Borden Formation
			N46W	314	90		Borden Formation
			N38E	38	90		Borden Formation
Slad_02	37.782611	–83.662093	N45E	45	90		Corbin Sandstone
			N50W	310	90		Corbin Sandstone
			N40E	40	70	SE	Corbin Sandstone
			N0E	0	75	W	Corbin Sandstone
			N29W	151	51	SW	Corbin Sandstone
			N47E	47	82	SE	Corbin Sandstone
			N74E	254	60	NW	Corbin Sandstone
			N31E	31	90		Corbin Sandstone
			N30E	30	75	SE	Corbin Sandstone
			N61E	61	76	SE	Corbin Sandstone
			N35E	35	73	SE	Corbin Sandstone
			N35W	325	90		Corbin Sandstone
			N44E	44	90		Corbin Sandstone
Slad_03	37.837505	–83.684035	N34E	34	90		Corbin Sandstone
			N71E	71	90		Corbin Sandstone
			N83E	83	90		Corbin Sandstone
			N70W	290	90		Corbin Sandstone
			N75W	285	90		Corbin Sandstone
			N11W	349	90		Corbin Sandstone
			N34E	34	90		Corbin Sandstone
			N5W	5	90		Corbin Sandstone
			N80E	80	90		Corbin Sandstone
			N61W	299	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone
			N25E	25	90		Corbin Sandstone
			N3W	357	90		Corbin Sandstone
			N29W	331	90		Corbin Sandstone
Slad_04	37.822776	–83.696308	N40W	320	75	NE	Corbin Sandstone
			N45W	135	68	SW	Corbin Sandstone
			N23W	337	90		Corbin Sandstone
			N29W	331	90		Corbin Sandstone
			N7W	353	90		Corbin Sandstone
			N79E	79	90		Corbin Sandstone
			N3W	357	84	NE	Corbin Sandstone
			N57E	57	90		Corbin Sandstone
			N77E	77	74	SE	Corbin Sandstone
			N5W	355	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N19W	341	90		Corbin Sandstone
			N24E	204	67	NW	Corbin Sandstone
Slad_05	37.816928	–83.658307	N45W	135	78	SW	Corbin Sandstone
			N47W	133	74	SW	Corbin Sandstone
			N45W	315	74	NE	Corbin Sandstone
			N87W	273	90		Corbin Sandstone
			N39E	219	64	NW	Corbin Sandstone
			N60W	120	73	SW	Corbin Sandstone
			N65E	65	90		Corbin Sandstone
			N63W	297	58	NE	Corbin Sandstone
			N44E	44	90		Corbin Sandstone
			N46E	46	90		Corbin Sandstone
			N85W	275	90		Corbin Sandstone
			N39E	39	76	SE	Corbin Sandstone
Slad_06	37.788440	–83.640148	N30E	30	90		Corbin Sandstone
			N71W	289	90		Corbin Sandstone
			N87E	87	75	SE	Corbin Sandstone
			N5W	355	90		Corbin Sandstone
			N47E	47	90		Corbin Sandstone
			N47E	227	69	NW	Corbin Sandstone
			N45E	225	69	NW	Corbin Sandstone
			N20W	340	90		Corbin Sandstone
			N52E	52	90		Corbin Sandstone
			N41E	41	75	SE	Corbin Sandstone
			N75E	75	90		Corbin Sandstone
			N85W	275	66	NE	Corbin Sandstone
			N35E	215	72	NW	Corbin Sandstone
			N35E	35	90		Corbin Sandstone
			N85E	85	90		Corbin Sandstone
Slad_07	37.792533	–83.713732	N45E	45	90		Corbin Sandstone
			N55E	55	90		Corbin Sandstone
			N47E	47	90		Corbin Sandstone
			N90E	90	82	N	Corbin Sandstone
			N55E	55	90		Corbin Sandstone
			N50W	310	90		Corbin Sandstone
			N85E	85	90		Corbin Sandstone
			N51E	51	90		Corbin Sandstone
Slad_08	37.792396	–83.714169	N66E	246	50	NW	Corbin Sandstone
			N64E	64	90		Corbin Sandstone
			N90E	90	90		Corbin Sandstone
			N49W	311	90		Corbin Sandstone
			N15W	165	50	SW	Corbin Sandstone
			N58E	58	70	SE	Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N22W	338	90		Corbin Sandstone
			N67E	247	79	NW	Corbin Sandstone
			N11W	169	79	SW	Corbin Sandstone
Slad_09	37.791160	–83.720441	N20E	20	90		Corbin Sandstone
			N51W	309	59	NE	Corbin Sandstone
			N33E	33	90		Corbin Sandstone
			N7W	353	90		Corbin Sandstone
			N60W	120	84	SW	Corbin Sandstone
			N63W	297	90		Corbin Sandstone
			N25E	25	50	SE	Corbin Sandstone
			N66E	66	90		Corbin Sandstone
			N15E	15	58	SE	Corbin Sandstone
Slad_10	37.782157	–83.721825	N25W	115	72	SW	Corbin Sandstone
			N37W	323	90		Corbin Sandstone
			N20E	20	90		Corbin Sandstone
			N63E	243	71	NW	Corbin Sandstone
			N55W	305	90		Corbin Sandstone
			N31E	31	90		Corbin Sandstone
			N75E	75	90		Corbin Sandstone
			N89W	91	83	SW	Corbin Sandstone
			N35E	215	76	NW	Corbin Sandstone
			N61E	61	90		Corbin Sandstone
			N55E	235	83	NW	Corbin Sandstone
			N35W	35	90		Corbin Sandstone
Slad_11	37.777297	–83.674618	N36W	324	90		Slade Formation
			N53E	53	90		Slade Formation
			N35W	325	90		Slade Formation
			N50W	310	90		Slade Formation
			N30W	330	90		Slade Formation
			N5W	355	90		Slade Formation
			N85E	85	90		Slade Formation
			N85W	275	90		Slade Formation
Slad_12	37.820819	–83.710269	N10E	10	90		Corbin Sandstone
			N10E	10	90		Corbin Sandstone
			N10E	10	90		Corbin Sandstone
			N30W	330	90		Corbin Sandstone
			N37E	37	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone
			N53W	307	90		Corbin Sandstone
			N47W	313	90		Corbin Sandstone
Slad_13	37.872692	–83.722186	N67E	67	90		Corbin Sandstone
			N45W	135	77	SW	Corbin Sandstone
			N10W	350	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N27W	333	90		Corbin Sandstone
			N40E	220	74	NW	Corbin Sandstone
			N55E	55	90		Corbin Sandstone
			N40E	40	90		Corbin Sandstone
			N45W	315	90		Corbin Sandstone
			N33W	327	90		Corbin Sandstone
			N40E	40	90		Corbin Sandstone
Slad_14	37.752773	–83.702985	N34E	34	90		Corbin Sandstone
			N14E	14	90		Corbin Sandstone
			N44W	316	90		Corbin Sandstone
			N36E	36	90		Corbin Sandstone
			N33E	33	90		Corbin Sandstone
			N53W	307	90		Corbin Sandstone
			N64W	296	90		Corbin Sandstone
			N80W	280	90		Corbin Sandstone
Slad_15	37.773200	–83.685656	N55W	305	90		Corbin Sandstone
			N23W	337	90		Corbin Sandstone
			N56W	304	90		Corbin Sandstone
			N15W	345	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
			N5W	175	68	SW	Corbin Sandstone
			N30E	30	90		Corbin Sandstone
			N56W	304	90		Corbin Sandstone
			N33W	147	82	SW	Corbin Sandstone
Slad_16	37.757129	–83.664847	N5W	355	65	NE	Corbin Sandstone
			N80E	260	70	NW	Corbin Sandstone
			N60E	60	90		Corbin Sandstone
			N85W	275	68	NE	Corbin Sandstone
			N72E	72	90		Corbin Sandstone
			N63W	297	50	NE	Corbin Sandstone
			N85W	275	90		Corbin Sandstone
Slad_17	37.813957	–83.625977	N75W	285	90		Corbin Sandstone
			N10E	10	61	SE	Corbin Sandstone
			N42E	42	90		Corbin Sandstone
			N40W	320	90		Corbin Sandstone
			N45E	45	90		Corbin Sandstone
			N80E	80	90		Corbin Sandstone
			N45W	315	90		Corbin Sandstone
			N52E	52	90		Corbin Sandstone
Slad_18	37.752750	–83.700898	N50W	310	59	NE	Corbin Sandstone
			N15E	15	90		Corbin Sandstone
			N82W	98	47	SW	Corbin Sandstone
			N15W	345	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N6W	354	84	NE	Corbin Sandstone
			N85E	85	64	SE	Corbin Sandstone
			N67E	67	90		Corbin Sandstone
			N5W	355	90		Corbin Sandstone
Slad_19	37.786785	–83.626984	N23W	337	66	NE	Corbin Sandstone
			N40E	40	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
			N70E	70	90		Corbin Sandstone
			N36E	36	90		Corbin Sandstone
			N55W	305	90		Corbin Sandstone
Slad_26	37.812564	–83.666801	N3W	357	90		Corbin Sandstone
			N84E	84	90		Corbin Sandstone
			N55W	305	90		Corbin Sandstone
			N85W	275	90		Corbin Sandstone
			N86W	274	90		Corbin Sandstone
			N45W	315	90		Corbin Sandstone
			N45E	45	90		Corbin Sandstone
Slad_27	37.817340	–83.677103	N60W	300	90		Corbin Sandstone
			N74E	74	90		Corbin Sandstone
			N76W	284	90		Corbin Sandstone
			N26E	26	90		Corbin Sandstone
			N65E	65	90		Corbin Sandstone
			N62W	298	59	NE	Corbin Sandstone
			N45W	315	90		Corbin Sandstone
			N10E	10	90		Corbin Sandstone
Slad_28	37.848472	–83.672715	N42W	318	90		Slade Formation
			N38E	38	90		Slade Formation
			N25W	335	90		Slade Formation
			N23W	337	90		Slade Formation
			N36W	324	90		Slade Formation
			N20E	20	90		Slade Formation
			N37E	37	90		Slade Formation
			N69W	291	90		Slade Formation
Slad_29	37.867088	–83.685531	N45E	45	90		Slade Formation
			N15W	345	90		Slade Formation
			N24W	336	90		Slade Formation
			N77W	283	90		Slade Formation
			N21W	339	90		Slade Formation
			N64E	64	90		Slade Formation
Slad_31	37.867492	–83.699223	N27E	27	90		Corbin Sandstone
			N65W	295	90		Corbin Sandstone
			N24E	24	90		Corbin Sandstone
			N86E	86	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N12W	348	90		Corbin Sandstone
			N25W	335	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
Slad_33	37.830238	–83.626782	N27E	27	90		Corbin Sandstone
			N74W	286	90		Corbin Sandstone
			N86W	274	90		Corbin Sandstone
			N83E	83	90		Corbin Sandstone
			N27E	27	90		Corbin Sandstone
			N90W	270	90		Corbin Sandstone
			N9W	351	90		Corbin Sandstone
			N7W	353	90		Corbin Sandstone
			N39W	321	90		Corbin Sandstone
Slad_34	37.836212	–83.639286	N49W	311	90		Corbin Sandstone
			N50W	310	90		Corbin Sandstone
			N37E	37	90		Corbin Sandstone
			N55E	55	90		Corbin Sandstone
			N75W	285	90		Corbin Sandstone
			N75E	75	90		Corbin Sandstone
			N54E	54	77	NW	Corbin Sandstone
Slad_35	37.835563	–83.641784	N77E	77	90		Corbin Sandstone
			N60E	60	90		Corbin Sandstone
			N15W	345	90		Corbin Sandstone
			N14W	346	90		Corbin Sandstone
			N10W	350	90		Corbin Sandstone
			N80E	80	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone
			N80E	80	90		Corbin Sandstone
Slad_36	37.852577	–83.640777	N75W	285	90		Corbin Sandstone
			N13W	347	90		Corbin Sandstone
			N17W	343	84	NE	Corbin Sandstone
			N60E	60	90		Corbin Sandstone
			N70W	290	90		Corbin Sandstone
			N20W	340	90		Corbin Sandstone
			N13W	347	90		Corbin Sandstone
			N76E	76	90		Corbin Sandstone
Slad_37	37.793498	–83.694843	N35W	325	90		Corbin Sandstone
			N46W	314	90		Corbin Sandstone
			N13W	347	90		Corbin Sandstone
			N85W	275	90		Corbin Sandstone
			N12W	348	90		Corbin Sandstone
			N85W	275	90		Corbin Sandstone
			N56W	304	90		Corbin Sandstone
Slad_39	37.798797	–83.682284	N28E	28	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N13E	13	90		Corbin Sandstone
			N6W	354	51	NE	Corbin Sandstone
			N25W	155	71	SW	Corbin Sandstone
			N77W	283	90		Corbin Sandstone
			N84E	84	65	SE	Corbin Sandstone
			N80W	280	90		Corbin Sandstone
			N36W	324	90		Corbin Sandstone
Slad_40	37.823802	–83.684825	N42W	318	90		Corbin Sandstone
			N85W	275	90		Corbin Sandstone
			N15W	345	90		Corbin Sandstone
			N10W	350	60	SW	Corbin Sandstone
			N70W	290	90		Corbin Sandstone
			N14W	346	90		Corbin Sandstone
			N66E	66	73	SE	Corbin Sandstone
			N32E	32	64	SE	Corbin Sandstone
Slad_20	37.784793	–83.626166	N10E	10	75	SE	Corbin Sandstone
			N75W	285	90		Corbin Sandstone
			N41E	41	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
			N5W	355	90		Corbin Sandstone
			N58E	58	90		Corbin Sandstone
Slad_24	37.871253	–83.716460	N20E	20	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone
			N88W	272	90		Corbin Sandstone
			N88E	88	90		Corbin Sandstone
			N88W	272	90		Corbin Sandstone
Slad_42	37.846679	–83.662891	N5W	355	90		Corbin Sandstone
			N30W	330	90		Corbin Sandstone
			N89W	271	90		Corbin Sandstone
			N30W	330	90		Corbin Sandstone
			N80W	280	90		Corbin Sandstone
			N40E	40	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
			N60E	60	90		Corbin Sandstone
			N55W	305	90		Corbin Sandstone
Slad_43	37.801891	–83.702105	N65W	295	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
			N65W	295	90		Corbin Sandstone
			N32E	32	90		Corbin Sandstone
			N63W	297	90		Corbin Sandstone
			N90E	90	90		Corbin Sandstone
Slad_45	37.802963	–83.701759	N30E	30	90		Corbin Sandstone
			N5E	5	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N40E	40	90		Corbin Sandstone
			N37E	37	90		Corbin Sandstone
			N75W	285	90		Corbin Sandstone
			N57W	303	90		Corbin Sandstone
Slad_46	37.841178	–83.647035	N50E	50	90		Corbin Sandstone
			N69E	69	90		Corbin Sandstone
			N29E	29	90		Corbin Sandstone
			N0E	0	90		Corbin Sandstone
			N30E	30	90		Corbin Sandstone
Slad_47	37.752063	–83.673002	N44E	44	90		Corbin Sandstone
			N34W	326	90		Corbin Sandstone
			N62E	62	90		Corbin Sandstone
Slad_48	37.750354	–83.678757	N60E	60	90		Corbin Sandstone
			N38W	322	90		Corbin Sandstone
			N66E	66	90		Corbin Sandstone
			N40W	320	90		Corbin Sandstone
Slad_49	37.752864	–83.688687	N40E	40	90		Corbin Sandstone
			N45E	45	90		Corbin Sandstone
Slad_50	37.835403	–83.666827	N80E	80	90		Corbin Sandstone
			N47E	47	90		Corbin Sandstone
			N3E	3	90		Corbin Sandstone
			N45E	45	90		Corbin Sandstone
Slad_51	37.829994	–83.668452	N14E	14	90		Corbin Sandstone
			N4E	4	90		Corbin Sandstone
			N72W	288	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone
Slad_52	37.829582	–83.668133	N80E	80	90		Corbin Sandstone
			N35W	325	90		Corbin Sandstone
			N63W	297	90		Corbin Sandstone
Slad_53	37.831398	–83.668322	N14E	14	90		Corbin Sandstone
			N59W	301	90		Corbin Sandstone
Slad_54	37.757743	–83.647409	N73W	287	90		Corbin Sandstone
			N7E	7	90		Corbin Sandstone
			N53W	307	90		Corbin Sandstone
			N74W	286	90		Corbin Sandstone
Slad_55	37.768547	–83.656637	N2E	2	90		Corbin Sandstone
			N82E	82	90		Corbin Sandstone
Slad_56	37.768802	–83.655692	N25W	335	90		Corbin Sandstone
			N62E	62	90		Corbin Sandstone
			N82W	278	90		Corbin Sandstone
			N63E	63	90		Corbin Sandstone
Slad_57	37.768932	–83.656518	N10W	350	90		Corbin Sandstone
			N26E	26	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N26E	23	90		Corbin Sandstone
			N45E	45	90		Corbin Sandstone
			N88W	272	90		Corbin Sandstone
Slad_58	37.768882	–83.655365	N22E	22	90		Corbin Sandstone
			N35W	325	90		Corbin Sandstone
Slad_59	37.768856	–83.655546	N81W	279	90		Corbin Sandstone
			N48E	48	90		Corbin Sandstone
Slad_60	37.768749	–83.655964	N45W	315	90		Corbin Sandstone
			N73E	73	90		Corbin Sandstone
Slad_61	37.836696	–83.683847	N75E	255	66	NW	Corbin Sandstone
			N12W	348	83	NE	Corbin Sandstone
Slad_62	37.815692	–83.663368	N17W	343	90		Corbin Sandstone
			N50E	50	90		Corbin Sandstone
			N15W	345	90		Corbin Sandstone
Slad_63	37.815635	–83.664380	N14W	346	90		Corbin Sandstone
			N84W	276	90		Corbin Sandstone
			N55W	305	90		Corbin Sandstone
Slad_64	37.836414	–83.685178	N80E	80	90		Corbin Sandstone
			N83W	277	90		Corbin Sandstone
			N2W	358	90		Corbin Sandstone
			N60E	60	90		Corbin Sandstone
Slad_65	37.772087	–83.671109	N27E	27	90		Corbin Sandstone
			N25E	25	90		Corbin Sandstone
			N65E	65	90		Corbin Sandstone
			N67E	67	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
			N62W	298	90		Corbin Sandstone
Slad_66	37.769462	–83.657605	N54W	126	65	SW	Corbin Sandstone
			N40E	40	90		Corbin Sandstone
			N23E	23	90		Corbin Sandstone
			N44E	44	90		Corbin Sandstone
			N66W	294	90		Corbin Sandstone
			N51W	129	64	SW	Corbin Sandstone
Slad_67	37.769615	–83.657649	N41E	41	90		Corbin Sandstone
			N48W	312	90		Corbin Sandstone
			N48E	228	68	NW	Corbin Sandstone
Slad_68	37.769718	–83.658078	N37E	37	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
			N47W	313	90		Corbin Sandstone
			N25W	335	90		Corbin Sandstone
Slad_69	37.769321	–83.659219	N26W	334	90		Corbin Sandstone
			N41W	319	90		Corbin Sandstone
			N37E	37	90		Corbin Sandstone

Field ID	Latitude	Longitude	Strike	Azimuth	Dip	Direction	Map Unit
			N52E	52	90		Corbin Sandstone
			N52W	308	90		Corbin Sandstone
Slad_70	37.768775	–83.656447	N80W	280	90		Corbin Sandstone
			N10E	10	90		Corbin Sandstone
			N80E	80	90		Corbin Sandstone
			N10E	10	90		Corbin Sandstone
Slad_72	37.811824	–83.667974	N77W	283	90		Corbin Sandstone
			N12E	12	90		Corbin Sandstone
Slad_73	37.811809	–83.668142	N20E	20	90		Corbin Sandstone
			N66W	294	90		Corbin Sandstone
Slad_74	37.811832	–83.668310	N10E	10	90		Corbin Sandstone
			N87W	273	90		Corbin Sandstone
Slad_75	37.811847	–83.667107	N75W	285	90		Corbin Sandstone
			N2E	2	90		Corbin Sandstone
Slad_76	37.814769	–83.670536	N35E	35	90		Corbin Sandstone
			N69W	291	90		Corbin Sandstone
			N80E	80	90		Corbin Sandstone
			N10E	10	90		Corbin Sandstone
Slad_77	37.816082	–83.669056	N45W	315	90		Corbin Sandstone
			N25E	25	90		Corbin Sandstone
Slad_78	37.759071	–83.663519	N85E	85	90		Corbin Sandstone
			N7E	7	90		Corbin Sandstone
Slad_79	37.758781	–83.664393	N25E	25	90		Corbin Sandstone
			N90E	90	90		Corbin Sandstone
			N5W	355	90		Corbin Sandstone
			N35W	325	90		Corbin Sandstone
			N28W	332	90		Corbin Sandstone
Slad_80	37.816093	–83.662417	N5E	5	90		Corbin Sandstone
			N80W	280	90		Corbin Sandstone
Slad_81	37.757400	–83.640499	N7E	7	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
Slad_82	37.758762	–83.640845	N70W	290	90		Slade Formation
			N33E	33	90		Slade Formation
			N80E	80	90		Slade Formation
			N14W	346	90		Slade Formation
Slad_83	37.764488	–83.633569	N70E	70	90		Corbin Sandstone
			N76W	284	90		Corbin Sandstone
Slad_84	37.816555	–83.662693	N74W	286	90		Corbin Sandstone
			N5E	5	90		Corbin Sandstone
Slad_85	37.826580	–83.668952	N60W	300	90		Corbin Sandstone
			N35E	35	90		Corbin Sandstone
Slad_86	37.825984	–83.665457	N66E	66	90		Corbin Sandstone
			N15E	15	90		Corbin Sandstone