

MS-380

Museum of Northern Arizona
Easton Collection Center
3101 N. Fort Valley Road
Flagstaff, AZ 86001
(928)774-5211 ext. 256 or 269
library@musnaz.org

Title

J. Dale Nations collection

Dates

1955-2019, predominant 1970-2000

Extent

4,435 35mm slides, 572 photographic prints, 215 negatives, 5.9 linear feet textual material, 2 5.25" floppy disks, 1 3.5" floppy disk, 3 CDs, 1 field notebook

Name of Creator(s)

Nations, Dale
Elliot, David K.
Haven, Henry W. Jr.
Kirschbaum, Mark A.
Swift, Robert L.

Biographical History

Jack Dale Nations was born in Prairie Grove, Arkansas on October 18, 1934 and moved to Mesa, Arizona in 1945. He married Audrey Rose Viliborghi on October 26, 1957 and they had four children.

Nations received a BS in Geology from Arizona State University in 1956, then served as a pilot and civil engineer in the US Air Force stationed in Texas, Colorado, Utah, and England from 1956 to 1959. After discharge from the Air Force he continued to fly civilian aircraft, and retired from flying in 2000 after conducting numerous flights with students and colleagues on geological aerial reconnaissance and travel missions.

After his service in the Air Force Nations and his family returned to Arizona, and he took graduate courses at Arizona State University before earning an MS in Geology from the University of Arizona in 1962. He then attended the University of Missouri from 1964-1965, ultimately graduating from the University of California, Berkeley with a PhD in Paleontology in 1969.

Nations began his extensive career at Northern Arizona University (NAU) in 1969 as Assistant Professor of Geology, teaching and conducting research until 2000 when he retired as Regents Professor of Geology. He also taught as Visiting Professor at the University of Arizona, University of Colorado, Boulder, and University of Tubingen, Germany. During his tenure at NAU, Nations directed and participated in numerous projects for the Museum of Northern

Arizona, Bureau of Land Management, Bureau of Reclamation, and multiple mining, oil, and environmental consulting companies. A large number of specimens representing turtles, fish, and dinosaurs were collected and added to MNA collections during his work on the projects for MNA on Black Mesa in Arizona and in the San Juan Basin of New Mexico, including the collection of a *Pentaceratops* in 1977. He also was Principal Investigator and director on two National Science Foundation grants between 1989 and 1997. Nations has registered as a Professional Geologist in Arizona, Arkansas, and California, and certified as a Professional Geologist by the American Institute of Professional Geologists. He has participated in at least 60 publications and been awarded 38 grants and scholarships during his career.

Nations was appointed by Governor Raul Castro to the Arizona Oil and Gas Conservation Commission in 1976 and was a Commissioner until 2017, serving as Chair from 1986 to 2015. Nations also was appointed and reappointed to represent several Arizona governors as the official Arizona Representative to the Interstate Oil & Gas Compact Commission between 1979 and 2017. He was the NAU representative to the Governor's Strategic Partnership for Economic Development, Mining Cluster, from 1989 to 1998.

In addition to his professional activities, Nations was involved in local politics. He was elected to the Flagstaff City Council in 1972 and served as Mayor of Flagstaff from 1972 to 1976.

Dale Nations currently lives in Tucson, Arizona.

Scope and Content

Collection documents the professional research and teaching activities of Dr. Dale Nations over the course of his career as a geologist and professor at Northern Arizona University. Photographic images depicting field work, specimens, and stratigraphy in northern Arizona and throughout the Southwest, particularly on the Colorado Plateau, comprise the first two series. Documents pertaining to numerous projects which Nations directed or contributed to include field notes, data logs, manuscripts, maps, and illustrations for publications. Collection also contains biographical information and documentation of personal interests and political activities. Publications by Nations as sole author and coauthor, as well as professional literature collected in the course of research, are also part of this collection.

System of Arrangement

Arranged in four series: 1. Slides; 2. Photographs; 3. Documents; 4. Publications.

Conditions Governing Access

This collection contains no restrictions.

Technical Access

Files contained on floppy disks are inaccessible due to lack of required hardware.

Conditions Governing Reproduction and Use

Unpublished and published manuscripts are protected by copyright. Permission to publish, quote, or reproduce must be secured from the repository and the copyright holder.

Languages and Scripts of the Materials

English, Spanish

Immediate Source of Acquisition

Dr. J. Dale Nations offered materials to MNA in 2016 and they were initially received by Dr. David Gillette, Colbert Curator of Vertebrate Paleontology, who began rehousing slides and inventorying papers (accession 4634). In June 2017, Gillette contacted the MNA Archivist and it was determined that they should be transferred to the MNA Archives. Nations contacted the Archivist about additional material in May 2018 and two accruals were added in 2019.

Accruals

No further accruals are expected.

Related Archival Materials

IR-015 Geology, MNA Institutional Records

N-7 Staff and Associates, MNA Photo Archives

Northern Arizona University Cline Library, Special Collections & Archives

Publication Note

Most material in Series 1-3 was used in publication. See Series 4: Publications for a bibliographic list of publications by Nations as a single author and with others.

StoryMaps for the Arizona Geological Survey, 2017:

[Geologic tour of Grand Canyon's South Kaibab Trail with Dr. Dale Nations.](#)

[Ascending Grand Canyon's Bright Angel Trail with Dr. Dale Nations.](#)

[Virtual Geologic Tour from Gray Mountain to Black Mesa, Northern Arizona: A virtual geologic tour through northern Arizona's Dinosaur Country.](#)

Description Control

Finding aid drafted by Suzie Fusaro using *DACS*, 28 September 2017, and completed by Melissa Lawton, 21 June 2021.

Title

Slides

Dates

Undated, 1969-2017

Extent

4,411 35 mm slides (color and black & white), 6 photographic prints, 1.7 in. textual material

Scope and Content

Series contains images of numerous aerial views obtained by Nations, who often used his experience as a pilot to document geological landscapes on the Colorado Plateau and the greater

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Southwest region. Images of student field trips, field work, specimen collection, river trips in the Grand Canyon, and reference specimens in museum collections are also represented. Some images are arranged according to their use in lectures and talks, while most are organized by subject, project, geologic time period, and/or date.

Series 1: Slides				
File Number	File Description	Date(s)	Extent	Box/Folder
MS-380-1-1	Image of Removed Slide Box + Label	undated	.1 in. textual	1.1
MS-380-1-2	Chinle Valley Canyon de Chelly/ Aerial and Surface Defiance Plateau	1974-1995	57 slides	1.2
MS-380-1-3	Petrified Forest National Park	1973-1985	23 slides	1.3
MS-380-1-4	Painted Desert	1983-1985	35 slides	1.4
MS-380-1-5	Moenkopi Formation	1971-1991	33 slides	1.5
MS-380-1-6	Chinle Formation	1971-1988	34 slides	1.6
MS-380-1-7	Triassic Fossils	1971-1995	14 slides	1.7
MS-380-1-8	Paria Plateau, Marble Platform, Echo Cliffs Monocline	1981-1988	16 slides	1.8
MS-380-1-9	Black Point Monocline	1981-1984	3 slides	1.9
MS-380-1-10	Monoclines and Anticlines	1972-1983	12 slides	1.10
MS-380-1-11	East Kaibab Monocline/Organ Rock Monocline/Black Point Monocline	1980-1985	6 slides	1.11
MS-380-1-12	Laramide Structures and Maps	undated	13 slides	1.12
MS-380-1-13	Comb Ridge Monocline/East Kaibab Monocline/Chuar Basin Aerials/San Carlos Anticline	1972-1988	23 slides	1.13
MS-380-1-14	Image of Removed Slide Box + Label	undated	.1 in. textual	1.14
MS-380-1-15	Blue Point on Hopi Reservation	1978-1983	26 slides	1.15
MS-380-1-16	Cretaceous Stratigraphy & Paleontology Black Mesa to San Juan Basins	1983-1990	29 slides	1.16
MS-380-1-17	Coalbed Methane	undated	9 slides	1.17
MS-380-1-18	Cholla Power Plant Aerials	1983	4 slides	1.18
MS-380-1-19	Hopi Mesas	1979-1988	10 slides	1.19
MS-380-1-20	Black Mesa Aerials	1972-1994	61 slides	1.20
MS-380-1-21	Echo Cliff Monocline Aerials	1981-1988	8 slides	1.21
MS-380-1-22	Peabody Coal Mines and Navajo Power Plant	1974-1998	38 slides	1.22
MS-380-1-23	Kayenta Coal Mine on Black Mesa	1978-1988	19 slides	1.23
MS-380-1-24	Weavers Needle in Superstition Mountains	1990	5 slides	1.24
MS-380-1-25	Shiprock in New Mexico/Mt. Rainier	1986-1987	8 slides	1.25
MS-380-1-26	Cretaceous Fossils	1972-1995	35 slides	1.26
MS-380-1-27	Dakota Formation Coalmine Canyon	1972-1990	40 slides	1.27

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MS-380-1-28	Image of Removed Slide Box + Label	undated	.1 in. textual	1.28
MS-380-1-29	Grand Falls	1971-1993	52 slides	1.29
MS-380-1-30	White Mountains/Shadow Mountain/Red Mountain/O'Leary Peak	1979-1981	4 slides	1.30
MS-380-1-31	Grand Falls/Early Pleistocene Gravels + Equus Tooth	1971-1991	17 slides	1.31
MS-380-1-32	S.P. Crater & flow/Other volcanoes in area, San Francisco Peaks in distance	1975-1994	30 slides	1.32
MS-380-1-33	San Francisco Peaks/S.P. Crater & flow	1970-1990	27 slides	1.33
MS-380-1-34	San Francisco Volcanic Field	1991-1992	5 slides	1.34
MS-380-1-35	Meteor Crater	1973-1997	19 slides	1.35
MS-380-1-36	Gray Mountain/Blackpoint Monocline/Blackpoint Flow	1975-1990	28 slides	1.36
MS-380-1-37	Volcan's Throne and flows/vents in Uinkaret Volcanic Field	1971-1985	40 slides	1.37
MS-380-1-38	Hopi Buttes	1992-1993	8 slides	1.38
MS-380-1-39	Sunset Crater	1973-1981	9 slides	1.39
MS-380-1-40	Superstition Mountains	1980	3 slides	1.40
MS-380-1-41	San Francisco Volcanic Field - Broad View	1972-1990	12 slides	1.41
MS-380-1-42	Merriam Crater	1971-1983	11 slides	1.42
MS-380-1-43	Mount Elden	1973-1990	7 slides	1.43
MS-380-1-44	Crater 160	1972-1983	3 slides	1.44
MS-380-1-45	San Francisco Volcanic Field/Mount Elden/S.P. Crater/Sunset Crater/Grand Falls/O'Leary Peak	1975-1990	30 slides	1.45
MS-380-1-46	Image of Removed Slide Box + Label	undated	.1 in. textual	1.46
MS-380-1-47	Upper & Lower Paleozoic Formations in the Grand Canyon	undated, 1972-1973	13 slides	1.47
MS-380-1-48	Redwall Limestone/Muav Limestone/Spring - Grand Canyon?	undated	20 slides	1.48
MS-380-1-49	Scenic on Ground [Grand Canyon]	1970-1986	69 slides	1.49
MS-380-1-50	Redwall Limestone to Tapeats Sandstone/ Temple Butte Limestone	undated, 1978	26 slides	1.50
MS-380-1-51	Scenic [Grand Canyon]	1974-1986	5 slides	1.51
MS-380-1-52	Paleozoic on Unkar Group and Chuar GP/ Paleozoic on Vishnu	1970-1987	15 slides	1.52
MS-380-1-53	Hakatai Shale & Shinumo Quartzite	undated, 1971-1972	6 slides	1.53
MS-380-1-54	Precambrian Rocks [Grand Canyon]	undated	18 slides	1.54
MS-380-1-55	Unkar/Vishnu	1972-1987	9 slides	1.55

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MS-380-1-56	Bass Limestone	undated, 1971-1974	24 slides	1.56
MS-380-1-57	Chuar Basin Aerials	1973-1990	27 slides	1.57
MS-380-1-58	Dox Sandstone & Cardenas Basalt	1971-1989	15 slides	1.58
MS-380-1-59	Zoroaster & Vishnu	1970-1986	30 slides	1.59
MS-380-1-60	Image of Removed Slide Box + Label	undated	.1 in. textual	1.60
MS-380-1-61	Colorado River Trip	1971	41 slides	1.61
MS-380-1-62	Little Colorado River (Turquoise)	1971	18 slides	1.62
MS-380-1-63	Aerials of Grand Canyon	1975-1990	24 slides	1.63
MS-380-1-64	Coconino Sandstone to Hermit Shale/Redwall Limestone to Temple Butte Limestone	1971	19 slides	1.64
MS-380-1-65	Navajo Sandstone to Toroweap	1971	12 slides	1.65
MS-380-1-66	Aerials of Grand Canyon	1973-1990	40 slides	1.66
MS-380-1-67	Little Colorado River Aerial	1970, 1988	3 slides	1.67
MS-380-1-68	Colorado River Trip with David & Monty	1971, June 1972	50 slides	1.68
MS-380-1-69	Structure [Grand Canyon]	1975, 1987	4 slides	1.69
MS-380-1-70	Whole Stratigraphic Section	1972-1985	4 slides	1.70
MS-380-1-71	River Trip, Groups of people and boats	undated	32 slides	1.71
MS-380-1-72	Colorado River Trip	1971-1986	11 slides	1.72
MS-380-1-73	[Colorado] River	1970-1989	16 slides	1.73
MS-380-1-74	Grand Canyon River trip & hike out on Bright Angel Trail	1971	15 slides	1.74
MS-380-1-75	Image of Removed Slide Box + Label	undated	.1 in. textual	1.75
MS-380-1-76	Surprise Canyon Formation from Beus	1973, 1990	32 slides	1.76
MS-380-1-77	Monument Valley/Shiprock	1972-1987	24 slides	1.77
MS-380-1-78	Hopi Buttes	1972-1987	16 slides	1.78
MS-380-1-79	Kayenta Formation	1972-1982	5 slides	1.79
MS-380-1-80	Moenave Formation	1972-1983	7 slides	1.80
MS-380-1-81	Navajo Sandstone	undated, 1972-1988	13 slides	1.81
MS-380-1-82	Monument Valley 2/Goosenecks of San Juan [River]/Hunter's Point Monocline	1970-1988	26 slides	1.82
MS-380-1-83	Kaibab Formation	1979-1994	49 slides	1.83
MS-380-1-84	Entrada Formation	1973-1986	8 slides	1.84
MS-380-1-85	Devonian Becker's Butte Member of Martin Formation	undated, 1978, 2001	12 slides	1.85

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MS-380-1-86	Carmel Formation & Entrada Coal Mine Canyon/Coal Mine Canyon/Dolph Seilacher	1971-1983	18 slides	1.86
MS-380-1-87	Jurassic Fossils/Dolph Seilacher, Ned Colbert	undated, 1971-1995	24 slides	1.87
MS-380-1-88	Cameron & Little Colorado River Aerials	1987, 1989	8 slides	1.88
MS-380-1-89	Geologic Maps/Cross-sections of Plateau/Stratigraphic Columns	undated, 1975-1990	31 slides	1.89
MS-380-1-90	Lake Powell & Navajo Mountain/Aerials Rainbow Bridge	1981-1988	25 slides	1.90
MS-380-1-91	Image of Removed Slide Box + Label	undated	.1 in. textual	1.91
MS-380-1-92	Hermit Trail Grand Canyon	1978, 1992	7 slides	1.92
MS-380-1-93	St. Johns Travertine Mounds & Cienegas from Air	1983	30 slides	1.93
MS-380-1-94	Meteor Crater from Air	1992	17 slides	1.94
MS-380-1-95	Western Grand Canyon & Lake Mead	undated, 1969-1990	41 slides	1.95
MS-380-1-96	Keet Seel/Navajo Ponies	1971-1972	18 slides	1.96
MS-380-1-97	Coalmine Canyon Aerials	1991	25 slides	1.97
MS-380-1-98	Hopi Villages from Air	1991-1992	8 slides	1.98
MS-380-1-99	Canyon de Chelly Aerials	1991-1993	19 slides	1.99
MS-380-1-100	Tsegi Canyon/ Naha & Tsegi Formations/ Keet Seel Ruin & Navajo Ponies	1971-1972	27 slides	1.100
MS-380-1-101	Fort Defiance & Dam	1992	11 slides	1.101
MS-380-1-102	Dinnehotso Tracksite	undated	65 slides	1.102
MS-380-1-103	Image of Removed Slide Box + Label	undated	.1 in. textual	1.103
MS-380-1-104	Moenave dino track site east of Cameron	1995	75 slides	1.104
MS-380-1-105	Grand Canyon Surface and Air	1970-1999	44 slides	1.105
MS-380-1-106	Dinosaur Ridge field trip near Morrison CO, Dakota Sandstone tracks and bones	1994	26 slides	1.106
MS-380-1-107	Dinamation dig in Wyoming with Baccar	1992	18 slides	1.107
MS-380-1-108	Kayenta dino tracksite above Moenkopi Wash, near Tuba City	1995, 1997	18 slides	1.108
MS-380-1-109	Verde Fault/Cheirotherium track at Cameron Trading Post entrance	1995	12 slides	1.109
MS-380-1-110	Chinle petrified logs between Cameron and Tuba City/Petrified Forest National Park	undated, 1993-1999	15 slides	1.110
MS-380-1-111	Image of Removed Slide Box + Label	undated	.1 in. textual	1.111
MS-380-1-112	Stoneman Lake from air	1982, 1988	7 slides	1.112
MS-380-1-113	Grand Falls	1994	15 slides	1.113

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MS-380-1-114	Crack-in-Rock at Wupatki National Monument	1996	7 slides	1.114
MS-380-1-115	San Francisco Volcanic Field, Flagstaff & Mormon Lake (Aerial)	undated, 1981-1995	17 slides	1.115
MS-380-1-116	Gray Mountain, Blackpoint Monocline Aerials	1981, 1995	8 slides	1.116
MS-380-1-117	Canyon de Chelly and Window Rock	undated, 1973, 1995	48 slides	1.117
MS-380-1-118	Newspaper Rock	1995	15 slides	1.118
MS-380-1-119	Meteor Crater	undated, 1983-1995	44 slides	1.119
MS-380-1-120	Monument Valley	1973, 1984	10 slides	1.120
MS-380-1-121	Modern dunes near Chinle	undated	32 slides	1.121
MS-380-1-122	Keet Seel hike	1973	10 slides	1.122
MS-380-1-123	Hubbell Trading Post (Skeleton of Placerias)	1995	11 slides	1.123
MS-380-1-124	Window Rock	1974, 1992	5 slides	1.124
MS-380-1-125	Image of Removed Slide Box + Label	undated	.1 in. textual	1.125
MS-380-1-126	Coal and Coalbed Methane Resources Cretaceous Black Mesa Basin	undated, 1971-1994	46 slides	1.126
MS-380-1-127	Collecting a Pentaceratops	undated, 1977, 1983	70 slides	1.127
MS-380-1-128	Image of Removed Slide Box + Label	undated	.1 in. textual	2.1
MS-380-1-129	Safford Basin	1978-1982	20 slides	2.2
MS-380-1-130	I-17 Tertiary Sediments	1971-1990	18 slides	2.3
MS-380-1-131	St. Johns Spring Deposits	1995	4 slides	2.4
MS-380-1-132	Pierce Cross-sections Rim to Defiance	undated	5 slides	2.5
MS-380-1-133	Coconino Flagstone at Ash Fork for shipment	1989	2 slides	2.6
MS-380-1-134	North Rim of Grand Canyon/East Kaibab Monocline	1975, 1989	5 slides	2.7
MS-380-1-135	Paria Plateau from ground	1989	6 slides	2.8
MS-380-1-136	Sinkholes in Kaibab Formation south of Winslow/Chevelon Canyon from air	1978-1980	4 slides	2.9
MS-380-1-137	Cenozoic Evolution of Arizona	undated, 1982, 1985	19 slides	2.10
MS-380-1-138	Tertiary Tectonostratigraphic Units of Arizona [presentation]	probably 1998	53 slides	2.11
MS-380-1-139	Miscellaneous Tertiary Sediments	undated, 1972-1990	39 slides	2.12

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MS-380-1-140	Pre-Verde Formation Sediments, Verde Basin	1978-1990	34 slides	2.13
MS-380-1-141	Box List	undated, 2017	.1 in. textual	2.14
MS-380-1-142	Maps and cross-sections of Black Mesa Cretaceous	undated, 1980	22 slides	2.15
MS-380-1-143	Aerials of Comb Ridge Monument Valley	1990	9 slides	2.16
MS-380-1-144	Colorado River Trip	1972	12 slides	2.17
MS-380-1-145	Cameron Aerials & Little Colorado River	1989, 2000	4 slides	2.18
MS-380-1-146	Oak Creek Canyon Aerials	1981, 1993	3 slides	2.19
MS-380-1-147	San Francisco Volcanic Field from air	undated, 1993	28 slides	2.20
MS-380-1-148	Little Colorado River & Grand Falls aerials	undated	7 slides	2.21
MS-380-1-149	Mogollon Rim, Plateau, San Francisco Peaks from air	undated, 1985	11 slides	2.22
MS-380-1-150	Clarkdale aerials	undated	10 slides	2.23
MS-380-1-151	Jerome aerials	undated	10 slides	2.24
MS-380-1-152	Verde Camel Tracks Site	1993	7 slides	2.25
MS-380-1-153	Barnhardt Canyon/new bridge at Roosevelt Lake	1989, 2000	5 slides	2.26
MS-380-1-154	Crack-in-Rock Site	undated	24 slides	2.27
MS-380-1-155	Sunset Crater & San Francisco Peaks from ground views	1980-1996	13 slides	2.28
MS-380-1-156	Cow Springs Mine area	undated	21 slides	2.29
MS-380-1-157	Henry Haven slides/Coal Resources of Black Mesa	undated	37 slides	2.30
MS-380-1-158	Coal Resources of Black Mesa talk by Dale Nations	undated	20 slides	2.31
MS-380-1-159	Pentaceratops Excavation Burnham, NM	1977	121 slides	2.32
MS-380-1-160	Verde Basin Slides [1 of 3] - Inventory & Documents	undated, 2015	.25 in. textual	2.33
MS-380-1-161	Verde Basin Slides [2 of 3]	undated, 1970-1991	179 slides	2.34
MS-380-1-162	Verde Basin Slides [3 of 3]	undated, 1970-1992	185 slides	2.35
MS-380-1-163	Gray Mountain to Black Mesa Story Map	undated, 1978-1994	.25 in. textual, 45 slides, 6 photographs	2.36
MS-380-1-164	Plateau to Tonto Basin Story Map [1 of 2]	undated, 1978-1999	186 slides	2.37

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MS-380-1-165	Plateau to Tonto Basin Story Map [2 of 2]	undated, 1979-1996	118 slides	2.38
MS-380-1-166	NSF Coal Resources of Black Mesa Project [1 of 4] - Documents	2016	.2 in. textual	2.39
MS-380-1-167	NSF Coal Resources of Black Mesa Project [2 of 4]	1994-1999	204 slides	2.40
MS-380-1-168	NSF Coal Resources of Black Mesa Project [3 of 4]	undated, 1994	192 slides	2.41
MS-380-1-169	NSF Coal Resources of Black Mesa Project [4 of 4]	1994-1995	178 slides	2.42

Title

Photographs

Dates

Undated, 1977-1995

Extent

543 photographic prints (black & white and color, including 6 contact sheets), 215 negatives (black & white and color), .1 in. textual material

Scope and Content

Most photographs are black & white prints made from color negatives in this series and slides from Series 1. Aerial views, specimen collection, reference photos of specimens in various institutions' collections, scenic views, and publication figures are included.

Series 2: Photographs				
File Number	File Description	Date(s)	Extent	Box/Folder
MS-380-2-1	Grand Canyon	undated	9 prints, 2 negatives	2.43
MS-380-2-2	Dam photos	undated	15 prints	2.44
MS-380-2-3	Stegomastodon collection	undated	.1 in. textual, 16 prints	2.45
MS-380-2-4	Paleozoic fossils	undated	14 prints	2.46
MS-380-2-5	Black Mesa	undated	47 prints	2.47
MS-380-2-6	S.P., Meteor, & Sunset Craters (aerial photos); Vulcan's Throne Flows	undated	14 prints	2.48
MS-380-2-7	Montezuma's Well	undated	18 prints	2.49
MS-380-2-8	Cretaceous Ammonites in U.S.G.S. Denver Collection	undated	62 prints	2.50
MS-380-2-9	Paleozoic rocks	undated	12 prints	2.51

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MS-380-2-10	Grand Falls	undated	10 prints	2.52
MS-380-2-11	Precambrian rocks	undated	5 prints	2.53
MS-380-2-12	Gravels	undated	13 prints	2.54
MS-380-2-13	Verde Formation	undated	33 prints	2.55
MS-380-2-14	Volcanic features	undated	17 prints	2.56
MS-380-2-15	Mesozoic northern Arizona	undated	2 prints	2.57
MS-380-2-16	Aerial photos of geologic features	undated	17 prints	2.58
MS-380-2-17	NSF Black Mesa field team at Navajo Generating Station	circa 1994-1995	34 prints	2.59
MS-380-2-18	Dinnehotso track site	May 1992	26 prints, 24 negatives	2.60
MS-380-2-19	Cameron dinosaur tracks	undated	51 prints, 60 negatives	2.61
MS-380-2-20	Mazatzal Mountains	undated	3 prints, 1 negative	3.1
MS-380-2-21	Tonto Basin	undated	9 prints, 54 negatives, 2 contact sheets	3.2
MS-380-2-22	Roosevelt Damsite	undated	2 prints, 7 negatives	3.3
MS-380-2-23	Collecting of Pentaceratops in MNA collections by Dale Nations and field team	1977	7 prints	3.4
MS-380-2-24	Aerial views of eastern escarpment of Black Mesa, Cretaceous stratigraphic section	undated	15 negatives	3.5
MS-380-2-25	Meteor Crater	undated	2 prints, 10 negatives, 1 contact sheet	3.6
MS-380-2-26	East Verde River near Payson	undated	2 prints	3.7
MS-380-2-27	Pinacate volcanic field	undated	1 print, 1 negative	3.8
MS-380-2-28	San Francisco volcanic field	undated	3 prints, 10 negatives, 1 contact sheet	3.9
MS-380-2-29	Verde Valley	undated	3 prints, 10 negatives, 1 contact sheet	3.10
MS-380-2-30	Four Peaks	undated	2 prints, 4 negatives	3.11

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MS-380-2-31	Salt River Canyon	undated	5 prints, 17 negatives, 1 contact sheet	3.12
MS-380-2-32	Geology of Arizona Illustrations	1996	89 prints	3.13

Title

Documents

Dates

undated, 1955-2019

Extent

58.7 in. textual material and maps, 29 photographic prints, 24 35mm slides, 2 5.25" floppy disks, 1 3.5" floppy disk, 1 CD, 1 field notebook

Scope and Content

Series consists of documentation pertaining to projects Nations directed or participated in, including data logs, field notes, maps, and publications. Also contains files and lecture notes compiled for teaching various geology courses at NAU and other universities, presentations for professional organizations, and talks for the general public. Correspondence regarding consulting work, teaching opportunities, and public service, as well as biographical information and documents and newspaper clippings related to political activities are included in this series.

Series 3: Documents				
File Number	File Description	Date(s)	Extent	Box/Folder
MS-380-3-1	CBM Measured Sections of Cretaceous Strata on Black Mesa, Arizona [1 of 2]	undated, 1994-1997	.75 in. textual	3.14
MS-380-3-2	CBM Measured Sections of Cretaceous Strata on Black Mesa, Arizona [2 of 2]	undated, 1994-1997	.5 in. textual	3.15
MS-380-3-3	Measured Sections of Cenezoic Stratigraphic Units in Verde Basin and Mogollon Rim (From NAU-M.S. Theses) [1 of 2]	undated, 2016	1 in. textual, 1 5.25" floppy disk	3.16
MS-380-3-4	Measured Sections of Cenezoic Stratigraphic Units in Verde Basin and Mogollon Rim (From NAU-M.S. Theses) [2 of 2]	undated, 1991	1 in. textual	3.17
MS-380-3-5	Dennehotso Dinosaur Tracks Locality	undated, 1995-1996	.5 in. textual, 19 prints	3.18
MS-380-3-6	MNA Dino Track Talk	1996	.1 in. textual	3.19
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MS-380-3-8	Cenozoic Unit Files [1 of 2]	1981-2016	1 in. textual	3.21
MS-380-3-9	Cenozoic Unit Files [2 of 2]	1975-1986	.25 in. textual	3.22

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MS-380-3-10	Cretaceous Unit Files [1 of 3]	1999-2006	.5 in. textual	3.23
MS-380-3-11	Cretaceous Unit Files [2 of 3] Henry W. Haven Jr. Thesis pt. 1	1997	1 in. textual	3.24
MS-380-3-12	Cretaceous Unit Files [3 of 3] Henry W. Haven Jr. Thesis pt. 2	1997	.5 in. textual	3.25
MS-380-3-13	Preliminary Figures for Nations, et al, 2000 USGS Professional Paper 1625-H	2000-2002	.25 in. textual	3.26
MS-380-3-14	Summaries of Cretaceous Theses & Method of Point Locations	1996	.1 in. textual	3.27
MS-380-3-15	Figures Submitted of USGS for Prof. Paper 1625-B	circa 2000	.25 in. textual, 1 print	3.28
MS-380-3-16	Hopi-Navajo Dispute Area Road Map	undated	3 maps	3.29
MS-380-3-17	National Coal Quality Inventory (NaCQI) - Arizona Coal Quality Pre-Proposal	undated	.1 in. textual	3.30
MS-380-3-18	National Coal Quality Inventory (NaCQI) - Arizona Coal Quality Proposal	1997	.25 in. textual	3.31
MS-380-3-19	Coal Resource Assessment of Black Mesa Basin, Northeastern Arizona + NAU Proposal Approval Form	1997	.1 in. textual	3.32
MS-380-3-20	Research proposal to Peabody Coal Company	undated	.1 in. textual	3.33
MS-380-3-21	USGS Proposal (Mark A. Kirschbaum)	1997	.25 in. textual	3.34
MS-380-3-22	Larry Fellows draft [Black Mesa Basin]	1997	.1 in. textual	3.35
MS-380-3-23	DOE, BDM, & EPA Black Mesa Project	1997	.25 in. textual	3.36
MS-380-3-24	Carbon Energy Ltd.	2010-2011	.25 in. textual	3.37
MS-380-3-25	NSF Coalbed Methane Proposal + Findings	circa 1992-1994	.5 in. textual	3.38
MS-380-3-26	Paleo fossils of K. [Kirkland]	undated, 1990-1997	.25 in. textual, 1 3.5" floppy disk	3.39
MS-380-3-27	Haven Thesis original illustrations + thesis information	undated	.5 in. textual	3.40
MS-380-3-28	Franczyk map of section locations	1983-1996	.1 in. textual	3.41
MS-380-3-29	David Carr sections	undated	.25 in. textual, 1 5.25" floppy disk	3.42
MS-380-3-30	USGS Coal Quality CD-ROM	undated	.25 in. textual	3.43
MS-380-3-31	Coal Analysis - Moore, 1977 data	1977	.25 in. textual	3.44
MS-380-3-32	Coal sample analyses	circa 1996	.25 in. textual	3.45
MS-380-3-33	Arizona coal analyses from USGS	undated, 1977-1978	.4 in. textual	3.46

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MS-380-3-34	Isopach maps, computer generated	undated	.1 in. map printouts	3.47
MS-380-3-35	Tables 1-13 elevation & thickness data - all formations	undated	.1 in. textual	3.48
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MS-380-3-38	Data point maps with thickness and elevation data	undated	.25 in. map prints + transparencies	3.51
MS-380-3-39	Toreva Data Points, Location Thickness and Isopach Maps	undated, 1996	.5 in. textual	3.52
MS-380-3-40	Wepo Formation Data Points, Thickness, Coal, Elevations, etc.	undated, 2000	.25 in. textual	3.53
MS-380-3-41	Marcos Shale Data Points, Thickness, Coal, Elevations, Structure Map	undated, 2000	.25 in. textual	3.54
MS-380-3-42	Dakota Formation Data Points, Locations, Thickness, and Coal	undated, 2000	.5 in. textual	3.55
MS-380-3-43	BLM Base Map with Township/Range and UTM Grids	undated	3 maps	3.56
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MS-380-3-45	Data point locations & UTM coordinate tables	undated, 1995	.1 in. textual	3.58
MS-380-3-46	Data point locations, thickness data, & isopach maps	undated, 2000	.25 in. textual	3.59
MS-380-3-47	Total coal isopach and data	undated	.1 in. textual	3.60
MS-380-3-48	Figures sent to Kirschbaum for webpage	1999	.25 in. textual	3.61
MS-380-3-49	CBM Preliminary report to USGS and ASGS	1998-1999	.5 in. textual	3.62
MS-380-3-50	USGS web report illustrations and data tables	2000, 2010	.5 in. textual	4.1
MS-380-3-51	Coal Mine Wash Gap maps/section plots	undated	.5 in. textual	4.2
MS-380-3-52	CBM Rough Rock measured sections	undated, 1995	.25 in. textual	4.3
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MS-380-3-55	CBM Photo Point section	undated, 1997	.25 in. textual	4.6
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MS-380-3-58	Walker well 1a, Navajo	1972, 1995	.25 in. textual	4.9
MS-380-3-59	Coal fragments	1996	.5 in. textual	4.10
MS-380-3-60	Wepo, Toreva, Dakota coal	1996	.5 in. textual	4.11
MS-380-3-61	Additional files [CBM data sheets]	1996	1 in. textual	4.12
MS-380-3-62	KW, KT, KW - Hopi (no coal)	1996	.5 in. textual	4.13
MS-380-3-63	Jurassic - Hopi	1996	.5 in. textual	4.14
MS-380-3-64	Needs review [CBM data sheets]	1996	1 in. textual	4.15
MS-380-3-65	Peabody Coal Drill Log Report	1995	.25 in. textual	4.16
MS-380-3-66	Peabody Drill Data Logs - Navajo #1	1965	.25 in. textual	4.17
MS-380-3-67	Peabody Drill Data Logs - Navajo #2	undated, 1967, 1995	.25 in. textual	4.18
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MS-380-3-73	Peabody Drill Data Logs - Navajo #9	undated, 1995	.25 in. textual	4.24
MS-380-3-74	Pickens - UTM Locations	1995-1996	.25 in. textual	4.25
MS-380-3-75	Pickens - Locality Maps	undated	.25 in. textual and map printouts	4.26
MS-380-3-76	Pickens - Thickness Data	undated	.25 in. textual	4.27
MS-380-3-77	Pickens - CBM Data Sheets	circa 1996	.75 in. textual	4.28
MS-380-3-78	Williams - Descriptions of Measured Sections 1-23	undated, 1996	.5 in. textual	4.29
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MS-380-3-80	Williams - Section 1	circa 1996	.1 in. textual	4.31
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MS-380-3-103	Williams - Offsets	undated	.25 in. textual	4.54
MS-380-3-104	Coalbed Methane - Black Mesa Project - JDN field notebook	1994-1998	1 notebook	4.55
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MS-380-3-107	Lectures on Cretaceous coal resources	undated, 1983-2005	.5 in. textual and overhead transparencies, 24 slides	4.58
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MS-380-3-111	Report presented to Arizona/Mexico Commission in Hermosillo, 1998 [including CD with Sonoran/Spanish language version]	1997-1998	.5 in. textual and overhead transparencies, 1 CD	4.62
MS-380-3-112	Class notes [with inventory]	1955-1968	18 in. textual	Box 7

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MS-380-3-113	Jack Dale Nations biographical information & professional history	1961-2019	.5 in. textual	4.63
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MS-380-3-125	Governor correspondence re: Arizona Oil & Gas Conservation Commission/Interstate Oil & Gas Compact Commission	1975-1992	.5 in. textual	5.2
MS-380-3-126	Newspaper clippings re: City Council & Mayor elections & service	1972-1976	1 in. textual	5.3
MS-380-3-127	Political ads	1972-1976	.25 in. textual	5.4
MS-380-3-128	Audrey Rose (Viliborghi) Nations biographical information & professional history	undated, 1997-2019	.25 in. textual	5.5
MS-380-3-129	Unpublished composite stratigraphic data tables for NSF Coal/Coalbed Methane Research Project, Black Mesa, Arizona	2017 (1993-2000)	.1 in. textual	5.6
MS-380-3-130	Nations & Swift Black Mesa Project Proposal	undated	.25 in. textual	5.7
MS-380-3-131	Cretaceous Coal in Black Mesa	undated	.1 in. textual	5.8
MS-380-3-132	Late Cenozoic Stratigraphy & Tectonics of the Safford, Tonto, and Payson Basins, Southeastern & Central Arizona	undated, 1986-1987, 1991	.25 in. textual	5.9
MS-380-3-133	Figures for unknown publication + email correspondence	2018-2019	.25 in. textual	5.10

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Title

Publications

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Undated, 1956-2018

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Series 4: Publications				
File Number	File Description	Date(s)	Extent	Box/Folder
MS-380-4-1	Scott, Zhou, & Levine. "A Modified Approach to Estimating Coal and Coal Gas Resources: Example from the Sand Wash Basin, Colorado." <i>AAPG Bulletin</i> 79:9.	1995	.25 in. textual	5.11
MS-380-4-2	Murray. <i>Coalbed Methane: A Significant New Source of Clean Energy for the 21st Century</i> . IOCC Annual Meeting.	1990	.25 in. textual	5.12
MS-380-4-3	Peabody Western. <i>Coal Mining on Black Mesa</i> .	1998-1999	.25 in. textual	5.13
MS-380-4-4	Peabody Western. <i>The Black Mesa Coal/Water Slurry Pipeline System</i> . Information Release.	1998	.1 in. textual	5.14
MS-380-4-5	Kiersch. "Coal" from <i>Mineral Resources: Navajo-Hopi Indian Reservations, Arizona-Utah vol. 1, Metalliferous Minerals and Mineral Fuels: Geology, Evaluation, and Uses and a Section on the General Geology</i> .	1956	.2 in. textual	5.15
MS-380-4-6	Hoffman. "Coal Geology of the Lower Moreno Hill Formation, Salt Lake Field, West-Central, New Mexico." <i>NMGS Guidebook</i> .	1994	.1 in. textual	5.16
MS-380-4-7	Leckie, Kirkland, & Elder. "Stratigraphic Framework and Correlation of a Principal Reference Section of the Mancos Shale (Upper Cretaceous), Mesa Verde, Colorado." <i>NMGS Guidebook</i> .	1997	.25 in. textual	5.17
MS-380-4-8	Hopi Office of Mining & Mineral Resources. <i>Mineral and Energy Resources on Hopi Land</i> .	1991	.3 in. textual	5.18
MS-380-4-9	Nations, Swift, & Haven. "Arizona Coal." <i>Arizona Geology</i> 28:4.	1998	.1 in. textual	5.19

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MS-380-4-10	Eaton et al. "Stratigraphy, Correlation, and Tectonic Setting of Late Cretaceous Rocks in the Kaiparowits and Black Mesa Basins" from <i>Geologic Diversity of Arizona and its Margins: Excursions to Choice Areas</i> by Davis and VandenDolder. GSA Field Trip Guidebook.	1987	.1 in. textual	5.20
MS-380-4-11	Geoscience Education, Continuing Education, & Careers Pt. 1. <i>The Professional Geologist</i> 29:10. American Institute of Professional Geologists.	1992	.25 in. textual	5.21
MS-380-4-12	Wood et al. <i>Coal Resource Classification System of the U.S. Geological Survey</i> . Geological Survey Circular 891.	1983	.25 in. textual	5.22
MS-380-4-13	Swanson & Huffman. <i>Guidelines for Sample Collecting and Analytical Methods Used in the U.S. Geological Survey for Determining Chemical Composition of Coal</i> . Geological Survey Circular 735.	1976	.25 in. textual	5.23
MS-380-4-14	Swift & Nations. "Coal and Coalbed Methane Resources of Black Mesa, Arizona." <i>Earth Sciences: It's About Time</i> 3:1. NAU Department of Geology.	1997	.1 in. textual	5.24
MS-380-4-15	Elliot & Nations. "Bee Burrows in the Late Cretaceous (Late Cenomanian) Dakota Formation, Northeastern Arizona." <i>Ichnos</i> vol. 5.	1998	.1 in. textual	5.25
MS-380-4-16	Nations, Swift, & Selestewa. "A Newly Discovered Dinosaur Tracksite in the Lower Jurassic Navajo Sandstone, Northeastern Arizona." <i>The Continental Jurassic, MNA Bulletin</i> 60.	1996	.1 in. textual	5.26
MS-380-4-17	<i>Plateau: The Quarterly of the Museum of Northern Arizona</i> 46:1.	1973	.25 in. textual	5.27
MS-380-4-18	Leckie et al. "Paleoceanography of the Southwestern Western Interior Sea During the Time of the Cenomanian-Turonian Boundary (Late Cretaceous)" from <i>Stratigraphy and Paleoenvironments of the Cretaceous Western Interior Seaway, USA</i> .	1998	.25 in. textual	5.28
MS-380-4-19	West, Leckie, & Schmidt. "Foraminiferal Paleocology and Paleoceanography of the Greenhorn Cycle Along the Southwestern Margin of the Western Interior Sea" from <i>Stratigraphy and Paleoenvironments of the Cretaceous Western Interior Seaway, USA</i> .	1998	.25 in. textual	5.29

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MS-380-4-20	Kirkland et al. "Lower to Middle Cretaceous Dinosaur Faunas of the Central Colorado Plateau: A Key to Understanding 35 Million Years of Tectonics, Sedimentology, Evolution and Biogeography." <i>Geology Studies (BYU)</i> 42:2.	1997	.4 in. textual	5.30
MS-380-4-21	Nations. <i>The Genus Cancer (Crustacea: Brachyura): Systematics, Biogeography and Fossil Record</i> . National History Museum of Los Angeles County Science Bulletin 23.	1975	.5 in. textual	5.31
MS-380-4-22	Nations et al. <i>Lessons Learned from Drilling an Exploratory CO2 Injection Well Near the Cholla Power Plant, Holbrook, AZ</i> . [abstract draft]	undated	.1 in. textual	6.1
MS-380-4-23	Arizona Administrative Code Title 12 Chapter 7. Oil & Gas Conservation Commission.	2007	.25 in. textual	6.2
MS-380-4-24	Nations & Phillips. <i>The Mining and Minerals Cluster in Arizona: An Analysis for the Strategic Economic Development Vision for the Arizona-Sonora Region</i> . AZGS CR 09-A.	1997	.25 in. textual	6.3
MS-380-4-25	Nations. <i>Oil & Gas Occurrence & Potential in Arizona</i> .	2008	.5 in. textual	6.4
MS-380-4-26	Nations, Doss, & Ybarra. "Geologic Setting of Oil & Gas Exploration in Arizona" from <i>Oil & Gas Fields of the Four Corners Area vol. 3</i> . Four Corners Geological Society.	1983	.1 in. textual	6.5
MS-380-4-27	Nations, Doss, & Ybarra. "Stratigraphy & Oil and Gas Production of Arizona, 1978-1983" from <i>Oil & Gas Fields of the Four Corners Area vol. 3</i> . Four Corners Geological Society.	1983	.1 in. textual	6.6
MS-380-4-28	Nations. "The Geology of Arizona: Its Energy Resources & Potential" from <i>The Interstate Oil Compact Commission Committee Bulletin</i> 20:2.	1978	.1 in. textual	6.7
MS-380-4-29	Nations. "Exploring Arizona." <i>Arizona Geology</i> 32:2.	2002	.1 in. textual	6.8
MS-380-4-30	Nations. "The Genus <i>Cancer</i> and Its Distribution in Time and Space." <i>Bulletin of the Biological Society of Washington</i> no. 3.	1979	.25 in. textual	6.9
MS-380-4-31	Nations & Stump. <i>Geology of Arizona 2nd edition</i> . [overview]	1996	.1 in. textual	6.10
MS-380-4-32	Rowe, Colbert, & Nations. "The occurrence of <i>Pentaceratops</i> (Ornithischia: Ceratopsia) with a description of its frill" from <i>Advances in San Juan Basin Paleontology</i> .	1981	.2 in. textual	6.11
MS-380-4-33	Nations. "A New Species of Cancroid Crab from the Pliocene of California." <i>Journal of Paleontology</i> 42:1.	1968	.2 in. textual	6.12

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MS-380-4-34	Nations. "Evidence for a Morrowan Age for the Black Prince Limestone of Southeastern Arizona." <i>Journal of Paleontology</i> 37:6.	1963	.2 in. textual	6.13
MS-380-4-35	Nations. "Cretaceous History of Northeastern and East-Central Arizona." <i>Arizona Geological Society Digest</i> 17.	1989	.1 in. textual	6.14
MS-380-4-36	"Burnham-Bisti Bones Bared." <i>The Pipeliner</i> 40:5.	1977	.25 in. textual	6.15
MS-380-4-37	Nations. "Dinosaur Skull Find May Be Pentaceratops." <i>MNA Museum Notes New Series</i> 5:5.	1977	.1 in. textual	6.16
MS-380-4-38	Ayers. "Pliocene Verde Valley: a much more 'verde' place." <i>Heritage, The Verde Valley Independent</i> .	2008	.1 in. textual	6.17
MS-380-4-39	Eaton & Nations. "Introduction; Tectonic setting along the margin of the Cretaceous Western Interior Seaway, southwestern Utah and northern Arizona" from <i>Stratigraphy, depositional environments, and sedimentary tectonics of the western margin, Cretaceous Western Interior Seaway</i> . Geological Society of America Special Paper 260.	1991	.25 in. textual	6.18
MS-380-4-40	Catton-Isaacs. "Compasses, Computers, and Culture: Studying Coal and Gas." <i>Horizons, Northern Arizona University</i> .	1995	.1 in. textual	6.19
MS-380-4-41	Nations, Swift, & Haven. "Chapter H: Summary of Cretaceous Stratigraphy and Coal Distribution, Black Mesa Basin, Arizona." [printout] Kirschbaum, Roberts, & Biewick. <i>Geologic Assessment of Coal in the Colorado Plateau: Arizona, Colorado, New Mexico, and Utah</i> . U.S. Geological Survey Professional Paper 1625-B. [CD-ROM]	2000	.5 in. textual, 2 CDs	6.20
MS-380-4-42	Nations, Swift, & Haven. <i>Preliminary Investigations of the Distribution and Resources of Coal in the Black Mesa Basin, Northeastern Arizona</i> . Arizona Geological Survey and U.S. Geological Survey Open-File Report. [draft]	1999	.5 in. textual	6.21
MS-380-4-43	Nations, Wilt, & Hevly. "Cenozoic Paleogeography of Arizona." <i>Cenozoic Paleogeography of West-Central United States</i> . Rocky Mountain Section, Society of Economic Paleontologists and Mineralogists.	1985	.3 in. textual	6.22
MS-380-4-44	Nations. "Paleontology, Biostratigraphy, and Paleocology of the Verde Formation of Late Cenozoic Age, North-Central Arizona." <i>Geology of Northern Arizona</i> GSA Rocky Mountain Section Guidebook.	1974	.25 in. textual	6.23

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MS-380-4-45	Nations et al. "Paleontology, Paleoecology, and Depositional History of the Miocene-Pliocene Verde Formation, Yavapai County, Arizona." <i>Arizona Geological Society Digest vol. 13.</i>	1981	.2 in. textual	6.24
MS-380-4-46	Nations & Ranney. "Geologic Model of a Cenozoic Basin in Arizona." <i>Arizona's Industrial Rock and Mineral Resources — Workshop Proceedings</i> . U.S. Geological Survey Bulletin 1905.	1988	.1 in. textual	6.25
MS-380-4-47	Nations. "Stratigraphy and Tectonic Significance of Cenozoic Basin-fill Sediments, Tonto Basin, Arizona: Final Report to Bureau of Reclamation." <i>Seismotectonic Investigation for Theodore Roosevelt Dam Salt River Project, Arizona.</i>	1987	.25 in. textual	6.26
MS-380-4-48	Nations. "Stratigraphy and Tectonic Significance of Cenozoic Basin-fill Sediments, Tonto Basin, Arizona." <i>Field Trip Guidebook to the Tonto Basin, Arizona: Geomorphology, Quaternary Geology, Tertiary Basin Development, Archaeology, and Engineering Geology</i> . Friends of the Pleistocene — Rocky Mountain Cell.	1988	.25 in. textual	6.27
MS-380-4-49	Houser et al. "Late Cenozoic stratigraphy and tectonics of the Safford, Tonto, and Payson Basins, southeastern and central Arizona." <i>Geologic excursions through the Sonoran Desert Region, Arizona and Sonora</i> . Field trip guidebook, Cordilleran Section, Geological Society of America	1990	.2 in. textual	6.28
MS-380-4-50	Nations. "Stop 2: Verde Basin" and "Cross-Section, Colorado Plateau to Black Hills." <i>Highway Geology Symposium Proceedings & Field Trip Guide.</i>	1998	.1 in. textual	6.29
MS-380-4-51	Nations, Landye, & Hevly. "Location and Chronology of Tertiary Sedimentary Deposits in Arizona: A Review." <i>Cenozoic Nonmarine Deposits of California and Arizona</i> . Pacific Section, Society of Economic Paleontologists and Mineralogists.	1982	.1 in. textual	6.30
MS-380-4-52	Smiley et al. "Chapter 1: Geologic Time Scale." <i>Landscapes of Arizona: The Geological Story.</i>	1984	.5 in. textual	6.31
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MS-380-4-54	Nations & Gauna. <i>Stratigraphic, Sedimentologic, & Paleobotanical Investigations of Terrance Grounds, U.S. Army Yuma Proving Ground</i> . Department of Defense. [front matter + executive summary] Anza-Borrego Desert State Park. <i>Paleontology/Fossils in the Park</i> . [website printout]	1998, 2018	.1 in. textual	6.33
MS-380-4-55	Nations & Potochnik. <i>Tectonic/Physiographic Evolution of the Southern Margin of the Colorado Plateau, Central Arizona</i> . Talk given at the GSA Rocky Mountain Section Annual Meeting.	1998	.25 in. textual	6.34

Access Points

Subject Headings

Aerial photographs
Geology, Stratigraphic—Cenozoic
Geology, Stratigraphic—Cretaceous
Geology, Stratigraphic—Paleozoic
Geology, Stratigraphic—Precambrian
Geology, Stratigraphic—Tertiary
Paleoecology
Paleontology—Cretaceous
Paleontology—Jurassic
Paleontology—Paleozoic
Paleontology—Triassic
Petroleum—Geology

Names (Personal)

Nations, Dale
Haven, Henry W. Jr.
Kirschbaum, Mark A.
Swift, Robert L.
Elliot, David K.

Names (Corporate)

Peabody Coal Company (Flagstaff, Ariz.)

Names (Geographic)

Black Mesa (Navajo County and Apache County, Ariz.)
Cameron (Ariz.)
Chelly, Canyon de (Ariz.)
Chinle Formation
Clarkdale (Ariz.)
Colorado River (Colo. – Mexico)
Cow Springs (Ariz.)
Dakota Formation

Dennehotso (Ariz.)
Dinosaur Ridge (Colo.)
Flagstaff (Ariz.)
Grand Canyon (Ariz.)
Hopi Buttes (Ariz.)
Hopi Indian Reservation (Ariz.)
Jerome (Ariz.)
Kaibab Plateau (Ariz. And Utah)
Little Colorado River (N.M. and Ariz.)
Mead, Lake (Ariz. And Nev.)
Meteor Crater (Ariz.)
Moenkopi Plateau (Ariz.)
Mogollon Rim (Ariz.)
Monument Valley (Ariz. And Utah)
Mormon Lake (Coconino County, Ariz: Lake)
Navajo Mountain (Utah and Ariz.)
Oak Creek Canyon (Ariz.)
Painted Desert (Ariz.)
Petrified Forest National Park (Ariz.)
Powell, Lake (Utah and Ariz.)
Rainbow Bridge (Utah)
Safford Basin (Ariz.)
San Francisco Peaks (Ariz.)
San Francisco Volcanic Field (Ariz.)
San Juan Basin (N.M. and Colo.)
Shiprock (N.M.)
Stoneman Lake (Ariz.: Lake)
Sunset Crater (Ariz.)
Superstition Mountains (Ariz.)
Toroweap (Ariz.)
Tsegi Canyon (Ariz.)
Verde River Valley (Ariz.)
Vulcans Throne (Ariz.)
Window Rock (Ariz.)
Wupatki National Monument (Ariz.)