# Contents



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# 1

## Forty Years of Integrating American Indian Knowledge, Public Education, and Archaeological Research in the Central Mesa Verde Region

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The Crow Canyon Archaeological Center (Crow Canyon), founded in 1983, is a nonprofit organization whose mission is to empower present and future generations by making the human past accessible and relevant through archaeological research, experiential education, and American Indian knowledge. As a core value, we believe the study of the past is an intrinsically worthwhile endeavor that creates more informed and sustainable societies. Through a better understanding of human history, we shed light on how the past can teach us about the challenges societies face throughout the world and strive to create change for the betterment of humanity.

For the past four decades, the focus of Crow Canyon's mission-based initiatives has been the Indigenous occupation of the central Mesa Verde region in southwestern Colorado. As defined here, the central Mesa Verde archaeological region is an area of approximately 10,000 square miles bounded by the Colorado, Piedra, and San Juan Rivers. It is located within the larger physiographic region known as the Colorado Plateau, a vast area of geologic uplift encompassing much of western Colorado, eastern Utah, northern Arizona, and northwestern New

https://doi.org/10.5876/9781646424597.c001

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Mexico. The Mesa Verde region is a land of spectacular contrasts, where sandstone canyons divide sage-covered plains and juniper and pine woodlands, against the distant backdrop of the San Juan Mountains, a part of the Rocky Mountains. Cold winters give way to hot, dry summers, and periods of precipitation are punctuated by sporadic—but sometimes prolonged—periods of drought.

Living on this landscape has, at times throughout the centuries, been challenging—peoples in the past and present have met these challenges with extraordinary ingenuity and resilience. From the arrival of Paleolithic hunters to the first farmers who transitioned to sedentism, the story of how people have adapted to, and flourished on, this landscape is one of the most fascinating stories in human history. And flourish they did. The central Mesa Verde region has one of the densest concentrations of archaeological sites in North America. At present, Montezuma County, Colorado—where the Crow Canyon Archaeological Center campus is located—has over 21,000 archaeological sites recorded in the state database. This is a mere fraction of those present on the landscape as numerous parcels located on private, Tribal, public, and federal lands have not been fully surveyed. Some researchers note the population of the county today, approximately 26,000 people, is what the ancestral population was at its height during the thirteenth century AD. The central Mesa Verde region provides endless opportunities to study the past to better serve present and future generations.

Assisted by thousands of participants engaged in citizen science, Crow Canyon has generated one of the largest archaeological datasets in North America. At the time of this publication, eleven long-term research projects (table 1.1), five "Occasional Papers," four manuals and guides, and a substantial photographic database have been published on Crow Canyon's website (www.crowcanyon.org). In addition, countless books, journal articles, book chapters in edited volumes, dissertations, theses, and conference proceedings utilizing Crow Canyon data have been authored in the last forty years, many of which are referenced throughout this volume. The practice of publishing online began in 1997, when a revolutionary decision was made to make our work available and relevant to those outside of Crow Canyon. As a result, archaeological data, educational curricula, and other resources are free and accessible to Tribal communities, cross-disciplinary researchers, and a global public on Crow Canyon's website. The publications and data we share are perpetually growing as we continue to shed new light on the ancient past and its relevance to modern societies throughout the world.

Crow Canyon's educational philosophy is grounded in the belief that everyone's history matters. Our K–12, college, and adult research, education, and travel programs include place-based, experiential learning activities that bring the past to life and articulate with all areas of our mission. Many research and education programs actively engage participants in authentic scientific research


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**TABLE 1.1.** Major Crow Canyon Archaeological Center projects, their dates, and associated major publications.

| Major Projects, Crow Canyon | Project Dates | Major Publications |
|---|---|---|
| Duckfoot Site | 1983–1997 | Lightfoot (1994); Lightfoot and Etzkorn (1993); |
| Sand Canyon Archaeological Project | 1983–1993 | Adler (1992); Huber (1993); Kuckelman (2007); Lipe (1992); Varien (1999) |
| Castle Rock Pueblo Project | 1992–1994 | Kuckelman (2000) |
| Village Mapping Project | 1993–1995 | Lipe and Ortman (2000) |
| Village Testing Project | 1994–1997 | Churchill (2002) (Woods Canyon Pueblo); Kuckelman (2003) (Yellow Jacket Pueblo); Ortman et al. (2000) (Hedley Ruin) |
| Communities through Time: Migration, Cooperation, and Conflict | 1997–2004 | Ryan (2015a) (Shields Pueblo); Ryan (2015b) (Albert Porter Pueblo) |
| Village Ecodynamics I Project | 2001–2006 | Glowacki and Ortman (2012); Kohler and Varien (2012); Varien et al. (2007); |
| Goodman Point Archaeological Project | 2005–2010 | Kuckelman (2017) (Goodman Point Pueblo); Coffey (2018) (Goodman Point Community Testing) |
| Village Ecodynamics II Project | 2009–2014 | Reese et al. (2019); Schwindt et al. (2016) |
| Basketmaker Communities Project | 2011–2020 | Diederichs (2020) |
| Northern Chaco Outliers Project | 2016–present | To be determined |

*Source*: Table created by author.

in the field and/or the laboratory and are aligned with state standards. The Crow Canyon curriculum was developed in consultation with Indigenous partners, ensuring that multicultural perspectives are represented and respected. Crow Canyon remains a recognized leader in education for K–12 teachers, providing them with the knowledge, skills, and abilities to teach students—often from diverse backgrounds—multicultural perspectives on science, technology, engineering, art, and math (STEAM) and humanities curricula.

Crow Canyon partners with American Indians to enrich our understanding of past and present Indigenous cultures and to assist with cultural preservation initiatives. Working closely with our Native American Advisory Group, Tribal governments, and scholars, Crow Canyon seeks to broaden and enhance the perspectives gained through archaeological research, incorporate Indigenous science and perspectives into our educational curricula, and initiate projects that are culturally relevant and directly benefit Indigenous communities. Through well-designed mission-based projects and collaborations with descendant community members,


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Crow Canyon has contributed to some of the most significant understandings in southwestern archaeology and is a leader in place-based, experiential education.

## THIS VOLUME

The primary goal of this volume is to celebrate Crow Canyon in the past, present, and future by providing a backdrop to our humble beginnings and highlighting key mission accomplishments in American Indian initiatives, education, and research over the past four decades. It is our hope that future directions presented here will guide southwestern archaeology and public education beyond current practices—particularly regarding Indigenous archaeology and Indigenous partnerships—and provide strategic directions to guide Crow Canyon into the mid-twenty-first century and beyond.

The authors in this volume know Crow Canyon and the central Mesa Verde region well; they are current and former Crow Canyon researchers, educators, and cultural specialists, Indigenous scholars, and current research associates. All have been inspired by the organization's mission and have made it their life's work to further and share knowledge of the human past for the betterment of societies today and in the future.

## VOLUME THEMES AND SECTIONS

This volume is comprised of individual chapters that serve as distinct contributions, yet they are grouped into parts according to overarching themes including (1) "History of the Crow Canyon Archaeological Center," (2) "Indigenous Archaeology," (3) "Archaeology and Public Education," (4) "Community and Regional Studies," and (5) "Human-Environment Relationship Research." These parts are representative of Crow Canyon's well-rounded mission work that has taken place over the last four decades.

Part I examines the origins and early history of the Crow Canyon Archaeological Center. In chapter 2, Lightfoot and Lipe discuss how the "Crow Canyon School" merged with two organizations: the Interdisciplinary Supplemental Education Programs, Inc., and the Center for American Archaeology, an affiliate of Northwestern University. In 1983, the Crow Canyon Archaeological Center was launched and dedicated to long-term archaeological research in the central Mesa Verde region while expanding public involvement to include data collection-based programs in the field and laboratory. In chapter 3, Kohler, Lightfoot, Varien, and Lipe explore Crow Canyon's emergence as a nonprofit research and education institution as the Dolores Archaeological Program (DAP) came to an end and how the DAP contributed researchers, archaeological methodologies, theoretical underpinnings, and inspiration for decades to come.

In part II, authors focus on Crow Canyon's contributions to Indigenous archaeology and projects and partnerships codeveloped with tribes and


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individuals. In chapter 4, Ermigiotti, Varien, Coffey, Bocinsky, Kuwanwisiwma, and Koyiyumptewa summarize the Pueblo Farming Project, an experimental maize garden program initiated in 2008 with the Hopi Tribe. By examining temperature, moisture, soil composition, and frost-free growing days, they discuss how environmental variables affect modern-day maize yields and apply these data to contribute to our understanding of regional depopulation in the late thirteenth century AD. In chapter 5, Kuwanwisiwma and Bernardini provide a summary of the importance of Mesa Verde in Hopi migrations for twenty-seven clans. This unique perspective on Hopi history provides a multivocal interpretation of the past and supports the role of the Mesa Verde region as a "convergence place" for coalescent communities. In chapter 6, Ortman suggests the future of Indigenous archaeology lies in reframing Western scientific inquiries similar to those of Indigenous ones. Recognizing that Indigenous peoples have traditionally learned from ancestral sites in ways different from Western scientists, Ortman urges us to explore the past with Indigenous partners to expand knowledge and benefit societies throughout the world. In chapter 7, Suina explores the history of colonization and the role of Indigenous knowledge in cultural preservation within the eastern Pueblos. Noting how knowledge is intended for subsets of the population—both Indigenous and non-Indigenous—Suina discusses how archaeologists can forge mutually beneficial relationships with tribes and Indigenous partners.

In part III, contributors examine the role of education at Crow Canyon and within STEAM-focused public archaeology. Like the archaeological research-focused chapters following this section, education contributions utilize various scales of inquiry including the examination of measurable outcomes and impacts of lesson plans within the discipline of public archaeology. In chapter 8, Franklin presents a synthesis of Crow Canyon's education initiatives and contextualizes them within the constructs of cognitive theory and social semiotics. Included in this summary are essential aspects of educational practices that have characterized Crow Canyon's public education programs for four decades, including experiential education and inquiry pedagogy, situated learning, multivocality, and the inclusion of descendant communities. In chapter 9, Patterson, Franklin, and Hammond explore the role of archaeology within K–12 education and demonstrate how science, technology, engineering, art, math, and other subjects are naturally aligned with archaeological studies. Additionally, they explore new directions in archaeological education to foster a greater understanding of our shared humanity in young learners.

Part IV, the largest section of the volume, examines archaeological research focused on community and regional studies within the central Mesa Verde region. Like much of our work over the past four decades, the scholarship in this section is presented at various analytical and interpretive scales. Some of


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the chapters explore households and villages at the residential level, while others focus on longer periods of time and incorporate regional and interregional data. Contributions in this section are organized primarily by time, beginning with the Basketmaker III period (AD 500–750) and ending with the depopulation of the region at the end of the Pueblo III period (AD 1150–1280).

In chapter 10, Schleher, Diederichs, Hughes, and Lyle explore how the social structure of a newly formed Basketmaker III period community comprised of diverse migrants shifted over the generations into a cohesive group dominated by long-standing family lineages and recognizable communities of practice. In chapter 11, Throgmorton, Wilshusen, and Coffey discuss a notable gap in archaeological knowledge around the "Long Tenth Century," a 140-year period beginning in AD 890 and a time when aggregated villages began to transition into great house communities and when Chaco Canyon reached its northernmost extent. In chapter 12, Glowacki, Coffey, and Varien discuss one of Crow Canyon's most impactful contributions to southwestern archaeology: the emergence and nature of community centers from the dawn of sedentism to the final depopulation of the region. Their contribution describes four decades of community center research at Crow Canyon, the importance of the Community Center Database, and the long-term impacts of this research, as well as offering suggestions to guide future research endeavors. In chapter 13, Potter, Varien, Coffey, and Bocinsky examine the formation of three, late thirteenth-century AD community centers, Yucca House, Moqui Springs Pueblo, and Cowboy Wash Pueblo, located on the "frontier" of the central Mesa Verde region. They argue differences in community organization were the result of social, environmental, and demographic factors, including the persistent threat of violence. In chapter 14, Schleher, Linford, Coffey, Kuckelman, Ortman, Till, Varien, and Merewether examine patterns in pottery production to infer cultural dynamics in the socially and spatially related Goodman Point and Sand Canyon communities from AD 900 to 1280. Applying a communities of practice approach, they argue for greater social stability in the Goodman Point community versus the Sand Canyon community, where there is greater evidence of migrants and diversity in pottery production practices. In chapter 15, Arakawa, Merewether, and Hughes summarize Crow Canyon's contributions to lithic analyses methods and research for the past four decades. They address mobility, territoriality, and trade to explore the development of political autonomy in the thirteenth century AD. In chapter 16, Adler and Hegmon study two late-AD 1200s villages—Sand Canyon Pueblo, located in the central Mesa Verde region, and Pot Creek Pueblo, located in the northern Rio Grande region—to examine behavioral similarities and differences in community coalescence, occupation, and depopulation. Their data suggest shared behaviors provide avenues to broaden our understanding of how people negotiated conflict, resource scarcity, and socially mediated strategies that became foundational to descendant community members living in the


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Southwest today. In chapter 17, Lekson explores bi-wall, tri-wall, and quadri-wall structures and their role in the development of the Aztec regional system as power shifted from Chaco Canyon to the middle San Juan region at the end of the AD 1000s. Marking the locations of elites and nobles, these "symbols of power" imbued vernacular architectural elements while signaling a noticeable shift in social, political, and ritual frameworks. In chapter 18, Bellorado and Windes provide new insights into late thirteenth-century AD depopulation behaviors in the greater Cedar Mesa area of present-day southeastern Utah's Bears Ears National Monument. By collecting and examining tree-ring data, they provide new evidence for late (AD 1250–1270) construction activities in canyon sites with defensive attributes and how these activities articulate with those taking place to the east of Comb Ridge. In chapter 19, Kuckelman considers the push-pull factors that led to regional depopulation in the mid-to-late AD 1200s. Examining data collected from numerous villages throughout the region, Kuckelman argues environmental challenges, warfare, and other social disruptions were powerful deterrents to the continued occupation of the region.

Part V of the volume focuses on human-environment relationships and resource availability from the Basketmaker III period to the Pueblo III period in the central Mesa Verde region. In chapter 20, Badenhorst, Driver, and Wolverton examine the role of rodents in the diet of ancestral peoples utilizing data from numerous Crow Canyon Archaeological Center long-term research projects. Although they note there is little evidence of increased rodent consumption through time, they suggest the rise of turkey production may have reduced the need for intensified garden hunting, where rodents may have been captured. In chapter 21, Schollmeyer and Driver utilize Crow Canyon's unusually fine-grained temporal assignments of faunal datasets from villages throughout the region to examine the impacts of human hunting and land use on lagomorph, artiodactyl, and turkey through time and argue that local changes in human population density and distribution influenced the relative abundance of local animals. In chapter 22, Oas and Adams undertake one of the largest studies of consistently acquired, examined, and reported archaeological flora assemblages to assess stability and change in plant use from the Basketmaker III period to the Pueblo III period. Through archaeological and ethnobotanical research, they provide insights into the history of various foods, fuels, and other economically important plants to Indigenous populations living in the central Mesa Verde region.

In the final chapter, chapter 23, Perry offers insights that guide the discipline and Crow Canyon's mission work into the future as we strategically create impactful and meaningful work alongside Indigenous partners, cross-disciplinary researchers, students of all ages, and citizen scientists from across the world. Noting that the future of our discipline is rooted in the recognition of privilege, Perry suggests that our work include reparations for the behaviors of the founders of


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our discipline and that we provide compensation to Indigenous peoples for the benefits we have received, and will receive, in the past, present, and future.

On behalf of the Crow Canyon Archaeological Center and all authors in this volume, we are extremely grateful, honored, and privileged to produce a body of work celebrating Indigenous cultures in the northern Southwest and humbly recognize that our mission-related work would not be possible without Indigenous peoples in the past, present, and future. The authors in this volume respectfully acknowledge ancestral and descendant Indigenous communities for their contributions to all humankind, and we are grateful for the opportunity to partner with them to create more-informed societies worldwide. I hope you enjoy this volume, and may it provide thought-provoking discourse and subsequent actions for the betterment of all humankind.

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