

THE KOSHTARGAH PETROGLYPHS: ROCK ART DOCUMENTATION FROM THE BOUROUIYE WILDLIFE REFUGE, YAZD PROVINCE, IRAN

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Abstract: Although documented rock art sites in Iran have increased in recent decades, substantial geographical gaps remain due to limited systematic investigation in several regions. This study addresses this gap by documenting the Koshtargah petroglyph assemblage in the Bourouiyeh Wildlife Refuge, central Iran, located within a transitional ecological and cultural area between the Iranian Central Desert and the southern Zagros Mountains. Systematic field recording, employing standardized recording methodology, identified 62 open-air panels featuring zoomorphic, anthropomorphic, geometric, hand, and inscriptional motifs. Zoomorphic figures dominate the assemblage, with ibex as the most frequent motif, followed by horses, canids, and felids. Comparative analysis reveals close iconographic affinities with major Iranian rock art sites, particularly in hunting scenes, ibex representations, and geometric and anthropomorphic motifs, suggesting that Koshtargah petroglyphs follow a broader regional iconographic tradition rather than an isolated local development. Evidence from overlaid figures, variation in weathering and patination, and modern inscriptions indicates multiple phases of engraving activity, a preliminary relative chronology, and repeated use of the panels. The assemblage provides a significant dataset for refining the regional framework of Iranian rock art and contributes to broader discussions on regional rock art traditions, iconographic variability, and landscape archaeology approaches in the Iranian Plateau.

Keywords: Rock art; Petroglyphs; Koshtargah; Ibex motifs; Landscape archaeology.

چکیده: اگرچه در دهه‌های اخیر شمار محوطه‌های مستندسازی‌شده هنر صخره‌ای در ایران افزایش یافته است، همچنان به دلیل محدودیت در بررسی‌های نظام‌مند، خلأهای جغرافیایی قابل توجهی در برخی مناطق وجود دارد. این پژوهش با هدف رفع این خلأ، به مستندسازی مجموعه سنگ‌نگاره‌های دره کشتارگاه در پناهگاه حیات‌وحش بوروییه در مرکز ایران می‌پردازد؛ منطقه‌ای واقع در گذار اکولوژیکی - فرهنگی میان کویر مرکزی ایران و زاگرس جنوبی. در این مطالعه، با به‌کارگیری روش‌های استاندارد ثبت میدانی، ۶۲ صخره سنگی روباز شناسایی و ثبت شد که شامل نقوش؛ جانوری، انسانی، هندسی، دست‌انسان و نوشتار است. نقوش جانوری بیشترین فراوانی را در مجموعه دارند که در میان آن‌ها نقش بز کوهی نقش غالب را دارد و پس از آن اسب‌سانان، سگ‌سانان و گربه‌سانان قرار می‌گیرند. بررسی تطبیقی نقوش نشان‌دهنده شباهت‌های شمایل‌نگارانه قابل توجه با محوطه‌های مهم هنر صخره‌ای ایران، به‌ویژه در صحنه‌های شکار، نمایش بز کوهی و نقوش هندسی و انسانی است؛ امری که بیانگر پیروی مجموعه سنگ‌نگاره‌های کشتارگاه از یک سنت شمایل‌نگارانه منطقه‌ای گسترده‌تر و نه یک رویکرد محلی منفرد است. شواهد حاصل از هم‌پوشانی نقوش، تفاوت در میزان هوازدگی و رسوبات، و وجود نوشتارهای جدید، نشان‌دهنده ایجاد چندین مرحله‌ای نقوش بر روی صخره‌هاست. این مجموعه داده‌ای مهم برای تقویت چارچوب منطقه‌ای سنگ‌نگاره‌های مناطق مرکزی ایران را فراهم می‌کند و به مباحث گسترده‌تر در زمینه سنت‌های هنر صخره‌ای منطقه‌ای، تنوع شمایل‌نگارانه و رویکردهای باستان‌شناسی چشم انداز در فلات ایران کمک می‌نماید.

کلیدواژه: هنر صخره‌ای، نقش‌نگاره‌های صخره‌ای، کشتارگاه، نقش‌مایه‌های بز کوهی، باستان‌شناسی منظر.

I. Introduction

Rock art provides an important source of evidence for past human behavior and human–environment interactions (Agnew et al., 2015; Smith et al., 2016: 1613). Across the Iranian Plateau, petroglyphs constitute a valuable archaeological record, although many regions remain insufficiently documented and their broader archaeological significance remains poorly understood (Mohammadi Ghasrian, 2007a). Previous studies of Iranian rock art have generally focused on two main interpretative frameworks. The first, often referred to as *Shepherd Art*, relates petroglyph production to pastoral mobility, seasonal herding, and the exploitation of water and pasture resources (Mohammadi Ghasrian, 2007b: 59; Hemati Azandaryani et al., 2015b: 206).

The second interprets recurrent zoomorphic motifs, particularly the long-horned ibex, as symbols associated

with hunting, water, prosperity, or ritual practices (Samadi, 1988; Schmandt-Besserat, 1997; Mohammadi Ghasrian, 2009). More recently, these interpretations have been re-evaluated through landscape and iconographic approaches that emphasize spatial context, relative chronology, and regional variability (Karimi, 2024; Karimi & Gharagouzloo, 2024).

Despite documented Iranian rock art, including Teimareh (Farhadi, 1998), Jorbat (Vahdati, 2011), Sangestoon (Mohammadi Ghasrian, 2007b), and various assemblages in Hamadan and Kurdistan (Hemati Azandaryani et al., 2014; Lahafian, 2013), significant methodological gaps persist, including limited chronological control, insufficient landscape-scale analyses, and an incomplete understanding of how petroglyph distribution relates to hunting practices and seasonal resource use (Mohammadi Ghasrian & Naderi, 2007; Karimi, 2025).

This study presents the newly documented Koshtargah petroglyphs in the Bourouiyeh Wildlife Refuge. Koshtargah petroglyphs provide new evidence for evaluating hunting iconography and pastoral symbolism, while associated inscriptions offer limited relative chronological indicators (Bednarik, 2009; 2021). By comparing Koshtargah with other documented Iranian rock art sites, this paper aims to: (1) document the motifs; (2) examine their iconographic similarities within regional traditions; and (3) provide a baseline for future chronological and conservation research. In doing so, it moves beyond mere descriptive reporting and contributes to a landscape-based framework for archaeological studies of human–environment interactions.

II. Study Area and Research Background

Koshtargah Valley (Persian: *Koshtargah*, 'hunting field') is situated within the Bourouiyeh Wildlife Refuge, approximately 24 km northwest of Harat in Yazd Province, central Iran (Fig. 1). The main petroglyph cluster is located at 30.163133° N, 54.134789° E (WGS84), at an elevation of (~1,960 m a.s.l.). The area comprises a semi-arid plain forming a transitional ecological zone between the southern Zagros Mountains and the central Iranian deserts. Geological formations consist primarily of sedimentary and

calcareous units, including brown limestone and Cretaceous lithologies (marble, schist, quartzite, and granite), which provide a suitable environment for a variety of ecosystems.

The Bourouiyeh Wildlife Refuge has been protected since 1977 and historically functioned as a seasonal hunting ground and pasture for local agro-pastoral communities. The Koshtargah valley lies near seasonal and permanent water resources that continue to support pastoral activities. Notably, the area does not lie on major nomadic migration routes of Southern Zagros or Central Iran, suggesting localised, rather than trans-regional, landscape use.

Archaeological research in Harat County remains sparse (Dehghan, 2015). The Koshtargah petroglyphs were first brought to scholarly attention by Azizi Kharanaghi (2021: 109–113), who documented them under the toponyms "Chah Abdollah" and "Dahaneh-ye Div Bori". This latter term, meaning "place carved by demons", is locally applied to multiple locations, including a separate rock-cut funerary site in Korkhengan District (Azizi Kharanaghi, 2021: 37–39). To avoid such terminological ambiguity, the present study adopts "Koshtargah", the vernacular name used by local inhabitants and wildlife rangers for both the valley and the main rocky outcrop containing the petroglyphs (Fig. 2).

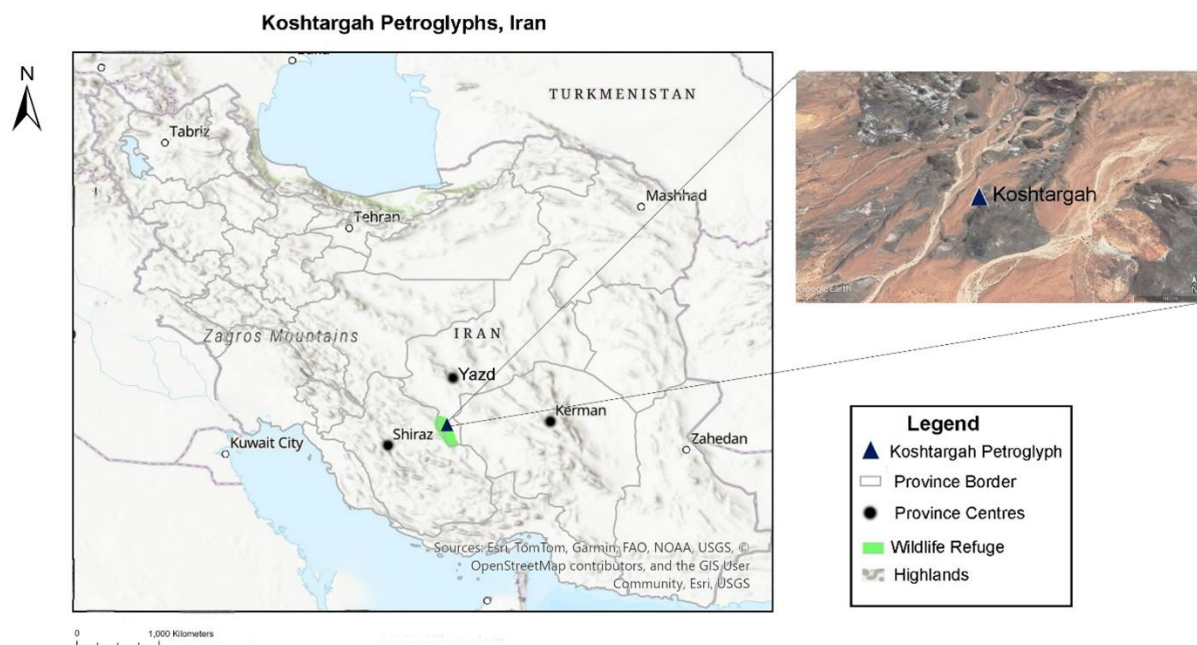


Figure 1: The geographical location of the Koshtargah petroglyphs, Harat, Central Iran.

III. Methodology

Koshtargah petroglyphs were systematically recorded in accordance with standard rock art documentation protocols (Bednarik, 2002; 2021).

Walking transects covered the main outcrop and adjacent boulders. Standardized recording forms documented motif type, dimensions, execution technique (hammering, abrasion, incising), weathering,

and spatial context. High-resolution photographs were taken under oblique light using scale bars to enhance shallow engravings. Semi-structured interviews with residents and wildlife rangers documented local

toponyms and hunting traditions. All field records were compiled into a digital database for comparative analysis.



Figure 2: The main cluster of Koshtargah petroglyphs, view from the west.

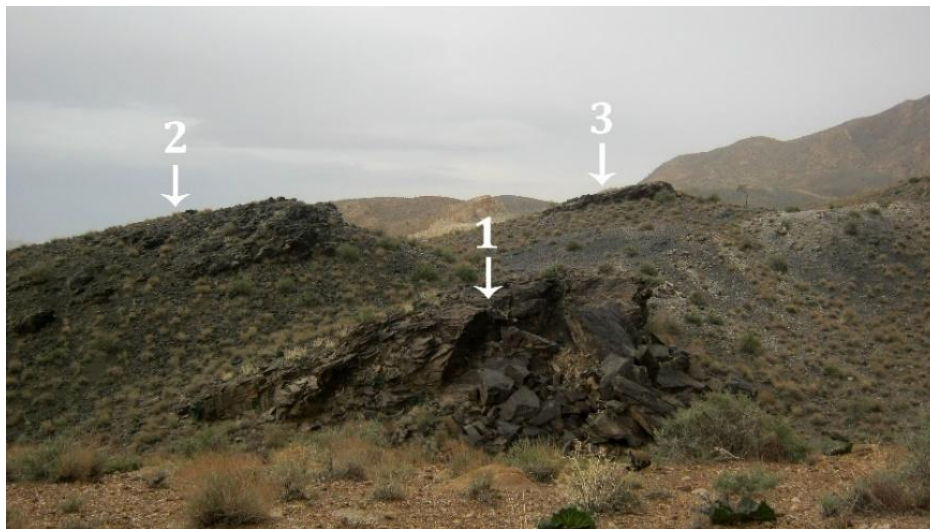


Figure 3: Distribution of panels. This photograph was taken after rainfall, when improved contrast made the carvings more visible.

IV. Results: The Petroglyphs of Koshtargah

The Koshtargah petroglyphs originally faced west, optimally viewed in oblique sunlight. The main outcrop and scattered boulders cover $\sim 30 \text{ m}^2$, with peripheral panels extending $\sim 150 \text{ m}^2$. Some panels have been broken or displaced by human-caused damage. Petrographically, the schistose bedrock exhibits prominent cleavage planes, yielding smooth, flat surfaces suitable for engraving (Figs. 2 & 3)

A total of 205 anthropogenic markings were documented without painted marks (Table 1), comprising zoomorphic (54%), anthropomorphic (23%), inscriptions (13%), geometric (6%), carved hands (1%), and non-figurative (3%). Ibexes dominate the zoomorphic corpus (35%), followed by horses (9%), canids (3%), felids (3%), camels (3%), reptiles (2%), rams (2%), and single occurrences of deer, cattle, gazelle, and birds. Notably, $\sim 97\%$ of zoomorphic motifs correspond to extant regional fauna, providing historical evidence of human–animal interactions.

Table 1: Statistical distribution of motifs at Koshtargah.

Main categories	Motif / Figure type	Number	Percentage
Zoomorphic	Total zoomorphic motifs	112	54%
	Ibex	73	
	Horse	18	
	Canid	7	
	Felid	3	
	Camel	3	
	Reptile	2	
	Ram	2	
	Deer	1	
	Cattle	1	
	Gazelle	1	
	Bird	1	
Anthropomorphic	Human figures / markings	47	23%
Inscriptional	Inscriptions	26	13%
Geometric	Geometric motifs	12	6%
Hand	Carved hand	2	1%
Non-figurative		6	3%

IV.1. Zoomorphic Motifs

Ibexes are predominantly depicted in profile, either individually or in groups, with elongated, curved, or jagged horns. A distinctive motif features two ibexes facing each other with crosshatch patterns on their bodies (Fig. 4), closely paralleling examples from Jorbat, northeastern Iran (Vahdati, 2011: 180). While the ubiquity of ibex motifs in Iranian rock art is well established, interpretations remain debated; purely recreational explanations (Mohammadi Ghasrian, 2009: 877) are insufficient given the recurring compositional associations with hunting scenes.

Horses constitute the second most frequent zoomorph, typically bearing schematized riders—a configuration comparable to depictions at Shamsali (Hemati Azandaryani et al., 2015a: 64) and Takht-e Siah (Mohamadi et al., 2016: 9). A deer (*Cervus*) appears within a hunting scene likely created circa 1981/82 at the panel's base (Fig. 5). However, caution is warranted in synchronising imagery with inscriptions without patination and weathering analyses (Bednarik, 2009). Similar deer motifs occur at Karaftou (Lahafian, 2013: 343) and Doustali Valley (Hemati Azandaryani et al., 2014: 15).

Identification of canids is inherently subjective without ethnographic correlates; those at Koshtargah are plausibly dogs within hunting scenes, same as findings from the Central Zagros (Mohamadifar & Hemati Azandaryani, 2015: 19). Conversely, the three felids exhibit rounded ears, short manes, and tufted tails—consistent with lion representations documented by Farhadi (1998: 26). The last confirmed Asiatic lion (*P. l. leo*) in Fars province dates to 1944 (Heaney, 1943), although historical presence in the Harat plain remains unverified. Single-humped camels are also depicted (Fig. 6) with comparable motifs recorded at Tappeh Shah Firooz, Sirjan (Farhadi, 1997: 16).

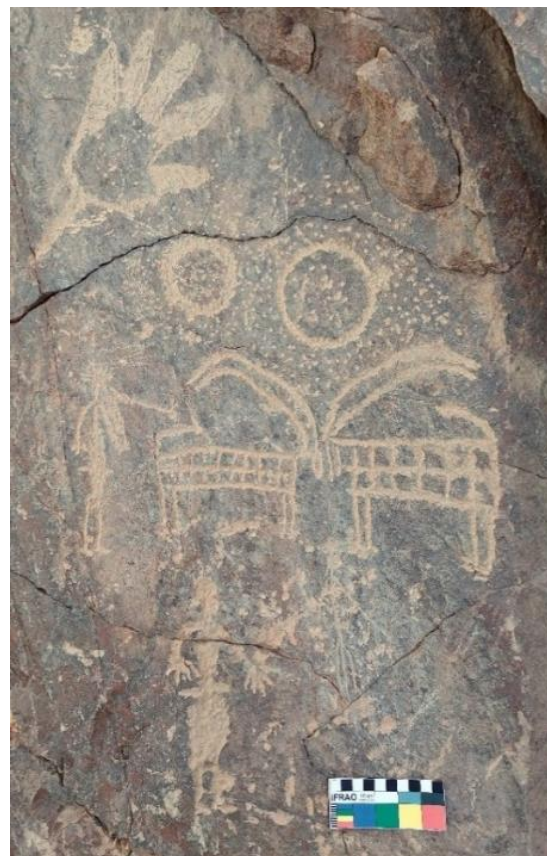


Figure 4: Hunting panel with abstract markings such as circles and a carved hand.

IV.2. Anthropomorphs

Forty-seven anthropomorphic figures were recorded: 68% facing forward and 32% in profile. Schematized riders appear exclusively in profile or three-quarter view, whereas pedestrians are predominantly frontally oriented. There are no clearly identifiable female attributes. Moreover, the frequent association with hunting scenes suggests that many of these figures may represent hunters (Figs. 4–7).

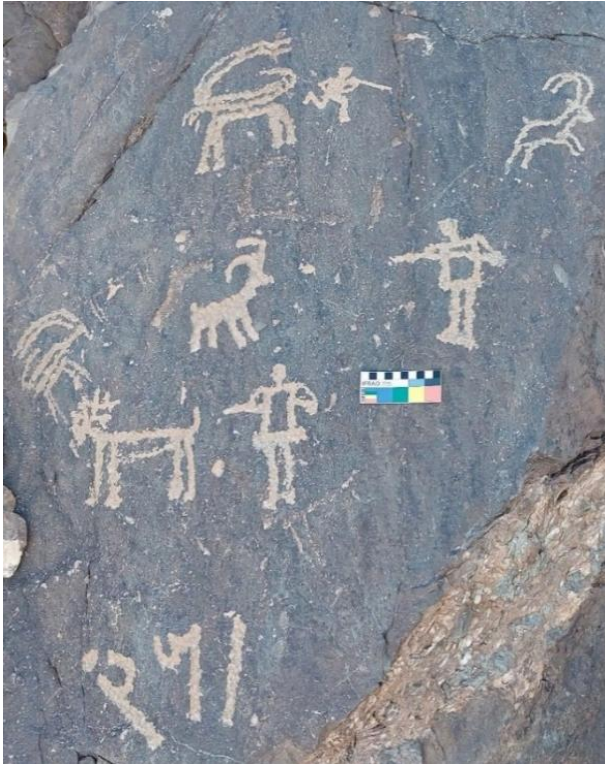


Figure 5: Hunting ibexes and a deer, with a Persian solar date (1360=1981/1982 AD).



Figure 6: A collection of an anthropomorph, three ibexes, canids, felids, and a camel.

IV.3. Geometric Motifs and Hand Representations

Geometric motifs, comprising circles, triangles, trapezoids, and linear designs, are recurrently integrated with zoomorphic and anthropomorphic figures at Koshtargah. Their spatial association with ibex depictions is non-random; circular motifs frequently appear in direct proximity to ibex, indicating a structured compositional syntax rather than extemporaneous decoration (Karimi & Gharagouzloo, 2024: 255). Comparable circular forms, often featuring internal dots or intersecting lines, are documented at Pir-Barreh, Tang-e Tihouei, Tang-e Tadovan, Abdozou

Rock Shelter (Ghasimi et al., 2016), Arges Sofla (Beik Mohamadi et al., 2013), Azandaryan (Hemati Azandaryani et al., 2014), and Sar-Thakht (Hemati Azandaryani, 2020), reinforcing their role within a broader regional symbolic lexicon.



Figure 7: Ibex hunting, a notable collection of human and animal motifs.



Figure 8: A recently created panel shows the year 1372, equivalent to 1993 AD, on the middle right.

Two carved hands with five clearly defined digits, measuring approximately 14 × 25 cm and 17 × 19 cm (Fig. 4), are compositionally embedded within

multifigured panels rather than isolated markings. Weathering concordance with adjacent motifs suggests coeval or near-coeval production. While their precise function remains indeterminate, their recurrence at Karaftou (Lahafian, 2013) and Koh-e Tanbour (Farhadi, 1997), together with their panel integration, supports interpretive frameworks that view them as markers of individual agency, social identity, or phenomenological engagement with place within the hunting landscape (Karimi, 2024; Karimi, 2025).

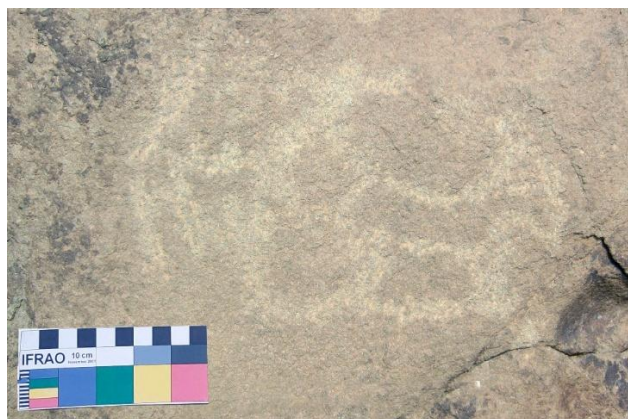


Figure 9: Examples of petroglyphs showing anthropomorphic, ibex, and maybe a donkey or horse, contrasting degrees of weathering and patination, indicating different periods of creation.

IV.4. Inscriptions

Inscriptions include personal names, initials, dates, and occasional Persian poetry, reflecting thoughts and motivations of the creators (Bednarik 2021: 70). Carved dates range from the 1970s to the 1990s; for example, Figure 8 shows the Iranian solar year 1372 (1993 AD) alongside the local surname "Pourshamsi". Approximately 10 of 62 panels feature contemporary dates, providing useful anchors for future relative dating. In some cases, weathering contrasts clearly indicate diachronic production (Fig. 9). Figure 10 indicates a naturalistic horse executed through hammering was later over-carved by a spear-bearing rider using abrasion and incising techniques, demonstrating clear temporal sequencing.

V. Discussion

The Koshtargah petroglyph group expands the documented distribution of Iranian rock art within the poorly investigated transition zone. The predominance of hammering and abrasion techniques is consistent with production methods documented at Azandaryan, Takht-e Siah, and other Iranian rock art sites (Hemati Azandaryani et al., 2015b: 202; Hemati Azandaryani & Rahmani, 2016: 69; Sabzi & Hemati Azandaryani, 2017: 2). Likewise, the dominance of ibex imagery, together with hunting scenes and exaggerated horns, closely parallels iconographic conventions reported from Teimareh, Sangestoon, Jorbat, Qeshlagh, Azandaryan,

Takht-e Siah, Lorestan and Marzbanik Valley (Farhadi, 1998; Karimi, 2024; Mohammadi Ghasrian, 2007b; Vahdati, 2011; Mohamadifar & Hemati Azandaryani, 2015; Hemati Azandaryani et al., 2015b; Mohamadi et al., 2016; Hemati Azandaryani, 2020; Sadeghi et al., 2023; Moradi et al., 2013). Rather than demonstrating direct cultural interaction, these similarities indicate that Koshtargah formed part of a broader regional tradition characterised by shared iconographic conventions.



Figure 10: A naturalistic horse created using the hammering technique (earlier), over which a spear-bearing rider was later carved using abrasion and incising.

The predominance of ibex motifs supports previous interpretations that regard this species as an important symbolic element in Iranian rock art, associated with prosperity, abundance, and water (Samadi, 1988; Hemati Azandaryani et al., 2015b: 205; Hemati Azandaryani & Rahmani, 2016: 72; Schmandt-Besserat, 1997). Following Armstrong Oma's (2010: 175–187) theoretical model, these images may reflect negotiated social contracts, based on trust, reciprocity, and seasonal interaction, rather than simplistic narratives of domination or subsistence utility. At the same time, recent landscape-based studies suggest that concentrations of hunting imagery may also have functioned as visual markers within hunting landscapes rather than serving purely decorative purposes (Karimi, 2025). The occurrence of a rare deer motif, previously reported only from a limited number of Iranian sites (Lahafian, 2013: 343; Hemati Azandaryani et al., 2014: 15; Rashidi Nejad & Zamaniyan, 2009), further broadens the known faunal repertoire of the region. Superimposed engravings and the association of one panel with a dated Persian inscription demonstrate that the outcrop was used repeatedly over time. However, as emphasised by Bednarik (2009), establishing the chronological relationship between engravings and inscriptions requires independent weathering or patination analyses.

The geometric and abstract markings recorded at Koshtargah correspond closely with non-figurative motifs documented elsewhere on the Iranian Plateau (Karimi, 2020; Karimi & Gharagouzloo, 2024; Ghasimi et al., 2016; Beik Mohamadi et al., 2013), indicating that these elements formed an integral component of local visual traditions rather than incidental additions. Modern inscriptions further demonstrate the continued cultural use of the outcrop into recent decades, whereas quarrying, panel breakage, and stone removal highlight the urgent need for conservation, echoing similar threats documented at Bichoun (Sabzi & Hemati Azandaryani, 2017: 4). Collectively, the Koshtargah assemblage provides an important baseline for future research in the Harat region, where priorities should include absolute dating, systematic landscape survey, and long-term conservation to clarify the chronology, distribution, and development of regional rock art traditions.

VI. Conclusion

The Koshtargah petroglyphs constitute an important addition to the documented record of Iranian rock art, providing new evidence from the understudied transitional zone between the Central Iranian Plateau and the southern Zagros. The assemblage demonstrates

the diversity of regional iconographic traditions, with hunting scenes and ibex motifs representing its most characteristic elements. Comparisons with other Iranian rock art sites indicate broad iconographic similarities while highlighting the regional importance of Koshtargah. Superimpositions and associated inscriptions suggest repeated episodes of use through time, although independent dating methods are required to establish a more robust chronology. The ongoing deterioration of several panels also underlines the urgent need for conservation. Together, these findings provide a reliable baseline for future chronological, landscape, and conservation research on Iranian rock art.

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