Scientific Research Publishing

Archaeological Discovery, 2024, 12, 167-175
https://www.scirp.org/journal/ad
ISSN Online: 2331-1967
ISSN Print: 2331-1959

Finding of a Fell Projectile Point in Central Argentina

Diego E. Rivero[1], Guillermo Heider[2], Hugo G. Nami[3]

[1]CONICET-Instituto de Estudios Históricos, Universidad Nacional de Córdoba, Córdoba, Argentina
[2]CONICET CCT-San Luis, Departamento de Geología, Facultad de Ciencias Físico, Matemáticas y Naturales, Universidad Nacional de San Luis, San Luis, Argentina
[3]Department of Geological Sciences, Facultad de Ciencias Exactas, CONICET-IGEBA, Físicas y Naturales (UBA), Ciudad Universitaria, Pabellón II, Buenos Aires, Argentina
Email: hgnami@fulbrightmail.org

How to cite this paper: Rivero, D. E., Heider, G., & Nami, H. G. (2024). Finding of a Fell Projectile Point in Central Argentina. *Archaeological Discovery, 12,* 167-175.
https://doi.org/10.4236/ad.2024.123009

Received: April 11, 2024
Accepted: May 26, 2024
Published: May 29, 2024

Abstract

We present a projectile point recovered from the archaeological locality of El Alto, province of Córdoba, Argentina. Its techno-morphological characteristics and the raw material used in its preparation are described. The results allow it to be included in the typological group of Fell projectile points. The data provided enrich the discussion about the first stages of occupation in the region, characterized by a meager archaeological record belonging to the final Pleistocene and the beginning of the Holocene.

Keywords

Initial Peopling, Pleistocene-Holocene Transition, Atypical Fell Point, Central Argentina

1. Introduction

The central region of Argentina is characterized by a low-altitude mountain range (500 - 2790 m ASL) with a complex of peaks, valleys, steep slopes and high plains. Most of the modern plant communities were included in the Sierra Chaco which is a semi-arid xerophytic forest, 1100 - 1500 m ASL. Changes in the floristic composition along the altitudinal gradient result in a high plain known as the Upper Mountain Grassland Range (Luti et al., 1979).

The study of the first human occupations of central Argentina is a complex challenge for archaeologists, who must deal with a scattered material culture record. Sites with cultural contexts dated to the Pleistocene-Holocene transition (El Alto3, La Enramada 3 and Candonga) are scarce (Cornero et al., 2014; Rive-

ro, 2012; Rivero & Berberián, 2011; Rivero & Heider, 2020). Even so, new evidence and updates to settlement models are regularly presented (Curtoni et al., 2023; Heider et al., 2022; Laguens 2006-2007; Laguens & Alberti, 2019; Rivero, 2012; Rivero & Heider, 2020).

In this report, we present a new piece of evidence to the complicated puzzle of the earliest regional settlement. It is a projectile point, collected on the surface, from the archaeological locality El Alto, in the mountain grassland range at ~1800 m ASL (Córdoba, Argentina). The discovery occurred circa (~200 m west) of the El Alto 3 site (EA 3; **Figure 1**), where early contexts were identified that have been dated between 10,600 and 12,910 cal BP (Rivero, 2012; Rivero & Berberián, 2011). Even though this projectile cannot necessarily be linked to the aforementioned site, its discovery enriches the discussion about the first populations that occupied the region.

2. Morphological and Technological Observations

The specimen is weathered on much of its surface. The dimensions of the specimen were taken following the criteria proposed by Loponte and colleagues (2015). The total length is 37.8 mm (**Figure 2**). The blade is 28 mm long, 26 mm wide and 8 mm maximum thick. The stem is transversely fractured in its basal portion and measures 9.8 mm long, 15.6 mm wide and 7 mm thick. The raw material used was a greenish-brown, amorphous, microcrystalline silica, possibly of non-local origin, with numerous impurities, fissures and alveoli. These sorts of raw material flaws have certain influences on its workability and knapping behavior (Nami, 2010: Plate XI; Nami, 2015a: p. 142). The blank on which it was manufactured is an indeterminate flake, remnants of which are preserved on the ventral and dorsal faces. It was partially reduced by bifacial flaking, probably applied with organic soft percussors. The final shaping was made by using fairly regular pressure that left short retouches no deeper than ~3 - 11 mm from the edges and 2 - 7 mm wide. The stem was made similarly with short retouches, circa 2 - 7 mm deep from the edges, and 2 - 6 mm wide, its cross section being biconvex. Evidence of abrasion is observed on one of its edges, which is a typical procedure for sleeving this type of pieces (Nami, 2003). A 3D model is available at Punta Fell de Córdoba, Argentina - 3D model by Diegorivero-IEH (@Diegorivero-IEH) [ab620e1] (sketchfab.com) (https://sketchfab.com/). This type of thin flakes manufacturing is common in many other South American Fell points (e.g. Bird, 1969; Mayer-Oakes, 1986a, 1986b; Nami, 2003, 2014a, 2021a) and in the region (Laguens, 2006-2007).

An observation about the general shape of the piece allows us to relate it to early South American projectile points. However, it cannot be defined as a "classic" Fell or Fishtail point (FP), like those recovered in other latitudes of South America (Bird, 1969; Mayer-Oakes, 1986a, 1986b; Flegenheimer et al., 2013; Flegenheimer & Weitzel, 2017; Nami, 2014b, 2021a, 2021b). The specimen has some atypical morphological characteristics such as straight sides on the blade and stem. Likewise, although it is fractured in the stem, it does not have fluting and its cross-section is biconvex.

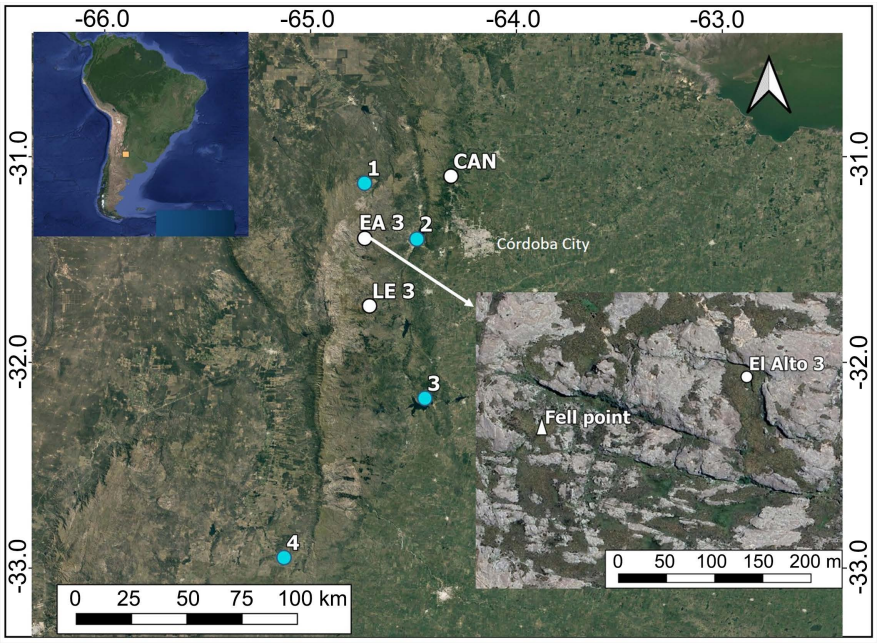

Figure 1. Early sites (white circles), surface findings of Fishtail points (light blue circles), Fell Point recovered in the El Alto locality (white triangle). References: CAN: Candonga; EA 3: El Alto 3; LE 3: La Enramada 3; 1: Characato; 2: San Roque; 3: Villa del Dique; 4: Estancia La Suiza 1.

Figure 2. Views of Fell projectile point from El Alto locality (Photographs: Diego Rivero).

3. Discussion

Although Fell or Fishtail points are usually reduced to a morphological type with broad blade and "fishtail" stem, research performed on Fell points during the

last four decades has identified important variations in both their blades and stems, including other shapes that vary between having slightly convex and straight edges. The stems vary between those that are concave, straight, and contracting; their bases are usually concave, but there may also be straight and convex shapes (Nami, 2014a, 2021a). Fluting is a feature that is not present in all Fell points (Suárez, 2006; Flegenheimer & Weitzel, 2017; Nami, 1997, 2003, 2014b, 2021b). Furthermore, several specimens of Fell points (**Figure 3**) only have a marginal retouch at the base or stem. Consequently, the stem cross-section is biconvex and is not thinned either by fluted or by deep pressure retouching.

Although the resharpening of Fell points can affect the morphology of the blade (Nami, 1989-1990, 2014b), in the specimen we present, we have not identified evidence of intense blade resharpening. A search for a match with the morphology of this point resulted in similar early morphologies from El Inga (Ecuador), classified as a variant with a distinctive primarily lengthening of the stem and the modification of its edges curve to a more nearly "tapered" shape (Mayer-Oakes, 1986b: Figure 3). Also due to its similarities with the so-called "El Inga broad stemmed" (Mayer-Oakes, 1986a, 1986b), which Bell (1965) maintained was a variety of the "classic" Fell points (Mayer-Oakes, 1986b: Figure 2; Nami, 2014a, 2014b: Figure 20). Among other places in the southern cone, Fell points with similar stems were identified in the Fell cave, Magallanes, Chile (Nami, 2014a: Figure 21i), Bajo del Carmel, La Pampa, Argentina (Berón et al., 2015), and several were found in Uruguay (e.g., Nami, 2014a, 2021b).

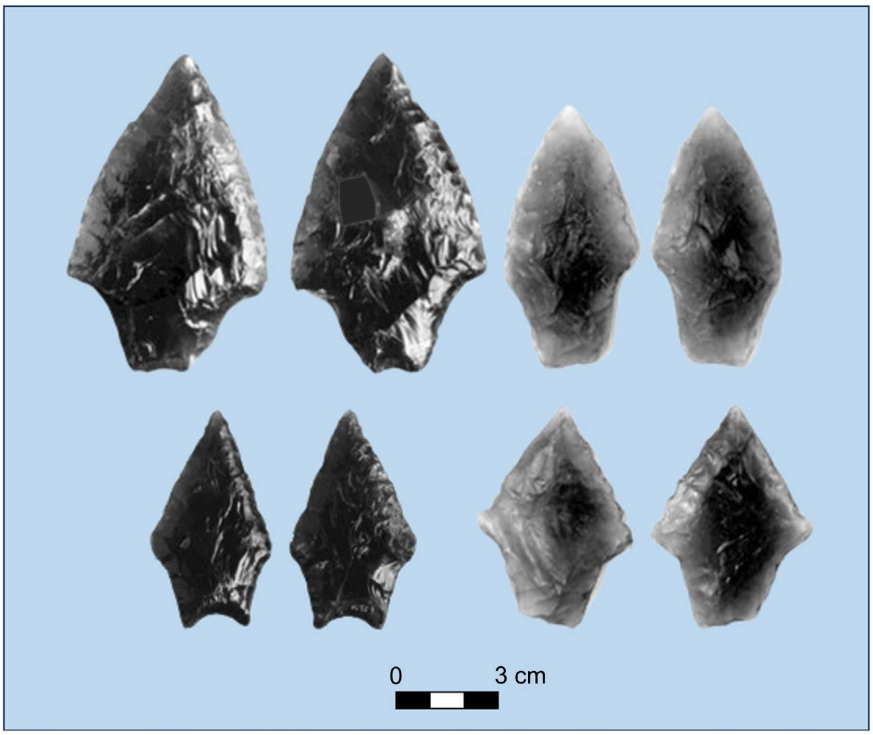

Figure 3. Broad stemmed projectile points, with stems marginally retouched and biconvex section, from El Inga (Ecuador) (Photographs: Hugo G. Nami).

This artifact exhibits fractures both at the tip and in the middle portion of the stem, yet it retains a significant portion of its original form. Experimental and archaeological investigations on projectile points have consistently shown that distinct patterns of breakage emerge as a result of this utilization (e.g., Titmus & Woods, 1986; Woods, 1988; Dockall, 1997; Knecht, 1997; Lafayette & Smith, 2012), particularly evident in "fishtail" points (Nami, 1989-1990, 2003, 2021b; Dumbar, 2012; Weitzel et al., 2014). Experimental findings reveal that, similar to other stemmed points, collisions result in fractures occurring in various locations, notably in the stem (Dumbar, 2012: Figure 8.7; Weitzel et al., 2014) and at the tip (e.g., Nami, 2015b: Figures 13b, 14b; Nami, 2021a: Figure 3(b), Figure 3(n), Figure 4(g)). Therefore, it is likely that collision impact caused the fractures observed in the artifact presented here.

In addition to the specimen we report here, six other FPP were recorded in the region (**Figure 1**). In Córdoba, Schobinger (1974) reported two specimens from Villa del Dique, one of brown basalt and the other of crystalline quartz. Rivero and colleagues (2015) recovered one without the base of the stem from Lake San Roque made with a siliceous rock. In Characato, a fragment of a fluted stem manufactured from volcanic rock was collected (Cattáneo et al., 2016). Finally, at the beginning of this century, in San Luis two specimens were identified at Estancia La Suiza 1. Both are fractured at the blade and were made with local metamorphic silica (Laguens et al., 2007).

The initial settlement process of the region (Laguens et al., 2007; Rivero, 2012) would have involved groups that reached central Argentina with low population densities, generating a scattered archaeological record with few remains The Fell point of El Alto is a significant additional piece of information and is included as a specimen of the El Inga broad stemmed atypical variety. Other Fell points from central Argentina also correspond to atypical varieties such as those with narrow lanceolate blade like the specimens from the coasts of the San Roque Dam (Rivero et al., 2015; Nami, 2021a: Figure 12(m)) and one of those recovered in Estancia La Suiza 1 (Laguens et al., 2007: Figure 1(B)). Although the sample of Fell points is scarce in the region, the high percentage of atypical specimens (almost 42%) is striking.

According to settlement models, the groups that dispersed throughout South America did so following two main routes, one to the west by the Andes Mountains and the Pacific slope; and another along the Atlantic coast until both reached the southern tip (Miotti, 2006; Nami, 2014a, 2021a). The different Fell point designs would have been spread across South America by socio-cultural learning and transmission between groups linked by interaction networks. Distribution studies of Fell points (Nami 2021a) indicate that the lanceolate and broad stemmed varieties, although they are present in a small proportion in all regions of South America, are more common in Central America and northern South America (Nami, 2014a, 2021a).

In addition, El Inga broad stemmed points are common in Ecuador and similar specimens have been found in Jaywamachay, Perú; Epullán locality in Neu-

quén, Argentina; Cueva del Medio and Cueva Fell in southern Chile as well in Uruguay (Nami, 1989-1990, 2015b; Yataco Capcha & Nami, 2016), among others, suggesting a path of dispersion of groups or information regarding the design of the points that link the center of Argentina with the Pacific slope, complementing other central Argentina settlement models that have been linked to the Atlantic slope (Laguens, 2006-2007; Rivero, 2012), without being mutually exclusive.

4. Final Comment

Over the past few years, archaeology has made remarkable advances in understanding the human groups living in Central Argentina during the Pleistocene-Holocene transition. As a result, was obtained a deeper understanding of diverse issues related to the oldest human occupations in the region. These advances contributed to the discovery of new Fell points specimens. In comparison with other southern South American locations, their finds are relatively rare. A large proportion of these points correspond to designs that are far from the typical fishtail or Fell projectile points, highlighting the specimen that we present in this article, corresponding to the El Inga broad-stemmed variety.

This enables the consideration of the link between the settlement of central Argentina and the route of dispersion of the first human groups along the Pacific slope, as a complementary possibility to the link with the Atlantic slope route.

Acknowledgements

We are grateful to Matías Álvarez and Gabriel Vivas for their collaboration.

Conflicts of Interest

No potential conflict of interest was reported by the authors.

Financing

This work was supported by Conicet Trianual Grant (PIP 11220170100886CO).

References

Bell, R. (1965). *Archaeological Investigations at the Site El Inga, Ecuador*. Sam Noble Oklahoma Museum of Natural History.

Berón, M., Carrera Aizpitarte, M., & Páez, F. (2015). Arqueología en el área de valles transversales (Provincia de La Pampa, Argentina). Caracterización y tendencias de los conjuntos arqueológicos. Implicancias sociales en la construcción del paisaje. *Relaciones de la Sociedad Argentina de Antropología, XL,* 549-587.

Bird, J. (1969). A Comparison of South Chilean and Ecuadorian "Fishtail" Projectile Points. *The Kroeber Anthropological Society Papers, 40,* 52-71.

Cattáneo, R., Izeta, A., & Caminoa, J. (2016). A Fishtail Projectile Point from the Southern Pampean Hills, Characato, Córdoba, Argentina. *PaleoAmerica, 2,* 274-276. https://doi.org/10.1080/20555563.2016.1200348

Cornero, S., Neves, W., & Rivero, D. (2014). Nuevos aportes a la cronología de las

ocupaciones tempranas en las sierras de Córdoba. La Gruta de Candonga (Córdoba, Argentina). *Relaciones de la Sociedad Argentina de Antropología, 39,* 285-292.

Curtoni, R., Heider, G., Oliván, A., Álvarez, M., Ozán, I., Tobal, J., Borgo, M., & Tripaldi, A. (2023). Cueva Los Bancos, a New Archaeological Site with Early Occupations in the Southernmost Sector of the Eastern Sierras Pampeanas of Argentina. *PaleoAmerica, 9,* 237-241. https://doi.org/10.1080/20555563.2023.2254131

Dockall, J. E. (1997). Wear Traces and Projectile Impacts: A Review of the Experimental and Archaeological Evidence. *Journal of Field Archaeology, 24,* 321-331. https://doi.org/10.1179/009346997792208113

Dumbar, J. S. (2012). *The Search for Paleoindian Contexts in Florida and the Adjacent Southeast.* Ph.D. Thesis, Florida State University.

Flegenheimer, N., & Weitzel, C. (2017). Fishtail Points from the Pampas of South America: Their Variability and Life Histories. *Journal of Anthropological Archaeology, 45,* 142-156. https://doi.org/10.1016/j.jaa.2016.12.001

Flegenheimer, N., Miotti, L., & Mazzia, N. (2013). Rethinking Early Objects and Landscapes in the Southern Cone: Fishtail-Point Concentrations in the Pampas and Northern Patagonia. In K. E. Graf, C. V. Ketron, & M. R. Waters (Eds.), *Paleoamerican Odyssey* (pp. 359-376). Center for the Study of the First Americans.

Heider, G., Curtoni, R., Borgo, M., Chiesa, J., Olivan, A., & Martínez Quirós, V. (2022). New Research on the Intihuasi Cave, San Luis, Argentina. Implications for the Peopling of the Southern Cone of South America. *Latin American Antiquity, 33,* 857-862. https://doi.org/10.1017/laq.2022.36

Knecht, H. (1997). Projectile Points of Bone, Antler, and Stone: Experimental Explorations of Manufacture and Use. In H. Knecht (Ed.), *Projectile Technology* (pp. 191-207). Plenum Press. https://doi.org/10.1007/978-1-4899-1851-2_8

Lafayette, L. M., & Smith, G. (2012). Use-Wear Traces on Experimental (Replicated) and Prehistoric Stemmed Points from the Great Basin. *Journal of California and Great Basin Anthropology, 32,* 141-160.

Laguens, A. (2006-2007). El poblamiento inicial del sector austral de las Sierras Pampeanas de Argentina desde la ecología del paisaje. *Anales de Arqueología y Etnología, 61-62,* 67-106.

Laguens, A., & Alberti, B. (2019). Habitando espacios vacíos. Cuerpos, paisajes y ontologías en el poblamiento inicial del centro de Argentina. *Revista Del Museo De Antropología, 12,* 55-66. https://doi.org/10.31048/1852.4826.v12.n2.18254

Laguens, A., Pautassi, E., Sario, G., & Cattáneo, R. (2007). ELS1, a Fishtail Projectile-Point Site from Central Argentina. *Current Research in the Pleistocene, 24,* 55-57.

Loponte, D., Carbonera, M., & Silvestre, R. (2015). Fishtail Projectile Points from South America: The Brazilian Record. *Archaeological Discovery, 3,* 85-103. https://doi.org/10.4236/ad.2015.33009

Luti, R., Bertran de Solís, M., Galera, F., Muller de Ferreira, N., Berzal, M., Nores, M., Herrera, M., & Barrera. J. (1979). Vegetación. In J. Vazquez, R. Miatelo, & M. Roque (Eds.), *Geografía Física de la Provincia de Córdoba* (pp. 297-368). Editorial Boldt.

Mayer-Oakes, W. (1986a). El Inga. A Paleoindian Site in the Sierra of northern Ecuador. *Transactions of the American Philosophical Society, 76,* 1-335. https://doi.org/10.2307/1006466

Mayer-Oakes, W. (1986b). Early Man Projectile Points and Lithic Technology in the Ecuadorean Sierra. In A. Bryan (Ed.), *New Evidence for the Pleistocene Peopling of the America* (pp. 281-294). Center for the Study of the Early Man.

Miotti, L. (2006). La fachada atlántica, como puerta de ingreso alternativa de la colonización humana de América del Sur durante la transición Pleistoceno/Holoceno. In J. C. Jiménez López, & S. González (Eds.), *II Simposio Internacional El Hombre Temprano en América* (pp. 155-188). Museo del Desierto de Coahuila.

Nami, H. G. (1989-1990). Observaciones sobre algunos artefactos bifaciales de Bahía Laredo. Consideraciones tecnológicas para el extremo Austral. *Anales del Instituto de la Patagonia (Serie Ciencias Sociales), 19,* 141-151.

Nami, H. G. (1997). Investigaciones actualísticas para discutir aspectos técnicos de los cazadores-recolectores del tardiglacial: El problema Clovis-Cueva Fell. *Anales del Instituto de la Patagonia, 25,* 152-186.

Nami, H. G. (2003). Experimentos para explorar la secuencia de reducción Fell de la Patagonia Austral. *Magallania, 30,* 107-138.

Nami, H. G. (2010). Tecnología Paleoindia de Sudamérica: Nuevos experimentos y observaciones para conocer la secuencia de reducción Fell. *Orígenes, 9,* 1-40.

Nami, H. G. (2014a). Arqueología del último milenio del Pleistoceno en el Cono Sur de Sudamérica, puntas de proyectil y observaciones sobre tecnología Paleoindia en el Nuevo Mundo. In M. Farias, & A. Lourdeau (Eds.), *Peuplement et Modalités d'Occupation de l'Amérique du Sud: L'Apport de la Technologie Lithique* (pp. 279-336). Archéo-éditions.

Nami, H. G. (2014b). Secuencias de reducción bifaciales Paleoindias y puntas Fell en el Valle del Ilaló (Ecuador): Observaciones para comprender la tecnología lítica Pleistocénica en Sudamérica. In M. Farias, & A. Lourdeau (Eds.), *Peuplement et Modalités d'Occupation de l'Amérique du Sud: L'Apport de la Technologie Lithique* (pp. 179-220). @rchéo-éditions.com and Impr. Copymédia.

Nami, H. G. (2015a). Experimental Observations on Some Non-Optimal Materials from Southern South America. *Lithic Technology, 40*, 128-146. https://doi.org/10.1179/2051618515Y.0000000004

Nami, H. G. (2015b). New Records and Observations on Paleo-American Artifacts from Cerro Largo, Northeastern Uruguay and a Peculiar Case of Reclaimed Fishtail Points. *Archaeological Discovery, 3,* 114-127. http://dx.doi.org/10.4236/ad.2015.33011

Nami, H. G. (2021a). Fishtailed Projectile Points in the Americas: Remarks and Hypotheses on the Peopling of Northern South America and Beyond. *Quaternary International, 578,* 47-72. https://doi.org/10.1016/j.quaint.2020.06.004

Nami, H. G. (2021b). New Morpho-Technological Studies to Enhance the Knowledge of Fell Point Variability in Southeastern South America. *Journal of Archaeological Science Reports, 40,* Article ID: 103205. https://doi.org/10.1016/j.jasrep.2021.103205

Rivero, D. (2012). La ocupación humana durante la transición Pleistoceno-Holoceno (11,000-9,000 a.P.) en las Sierras Centrales de Argentina. *Latin American Antiquity, 23,* 551-564. https://doi.org/10.7183/1045-6635.23.4.551

Rivero, D., & Berberián, E. (2011). Paleoindian Occupation in the Central Mountains of Argentina: Was It a Failed Colonization? *Current Research in the Pleistocene, 28,* 118-120.

Rivero, D., & Heider, G. (2020). El paisaje social del centro de Argentina durante la transición Pleistoceno-Holoceno (ca. 11000-9000 AP). *Arqueología, 26,* 109-126. https://doi.org/10.34096/arqueologia.t26.n1.5803

Rivero, D., Heider, G., & Pastor, S. (2015). La identificación de una punta cola de pescado en las Sierras Centrales, implicancias en un modelo de poblamiento del centro de Argentina. *Cuadernos del Instituto Nacional de Antropología y Pensamiento Latinoamericano, 24,* 151-155.

Schobinger, J. (1974). Nuevos hallazgos de puntas "Cola de Pescado" y consideraciones en torno al origen y dispersión de la Cultura de Cazadores Superiores Toldense en Sudamérica. *Atti del XL Congreso Internazionale degle Americanisti, 1,* 33-50.

Suárez, R. (2006). Comments on South American Fishtail Points: Design, Reduction Sequences and Function. *Current Research in the Pleistocene, 23,* 69-72.

Titmus, G. L., & Woods, J. C. (1986). An Experimental Study of Projectile Point Fracture Patterns. *Journal of California and Great Basin Anthropology, 8,* 37-49.

Weitzel, C., Flegenheimer, N., Colombo, M., & Martínez, J. (2014). Breakage Patterns on Fishtail Projectile Points: Experimental and Archaeological Cases. *Ethnoarchaeology, 6,* 81-102. https://doi.org/10.1179/1944289014Z.00000000017

Woods, J. C. (1988). Projectile Points Fracture Patterns and Inferences about Tool Function. *Idaho Archaeologist, 11,* 3-7.

Yataco Capcha, J., & Nami, H. G. (2016). A Reevaluation of PaleoAmerican Artifacts from Jaywamachay Rockshelter, Ayacucho Valley, Peru. *PaleoAmerica, 2,* 368-372. https://doi.org/10.1080/20555563.2016.1199198