

Impact case study (REF3)

Institution: University of Liverpool		
Unit of Assessment: Archaeology (15)		
Title of case study: Heritage of the first farmers		
Period when the underpinning research was undertaken: 2006-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Prof Douglas Baird	Garstang Chair of Archaeology	1994 to date
Dr Eleni Asouti	Reader in Environmental Archaeology	2006 to date
Dr Jessica Pearson	Reader in Bioarchaeology	2004 to date
Dr Ceren Kabukcu	Leverhulme Early Career Fellow	2017 to date
Period when the claimed impact occurred: 2014-2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact		
<p>University of Liverpool research into the development of an important but previously unknown early sedentary and farming community, has been carried out 2006-present at the site of Boncuklu in Konya, the largest province in Turkey. Our research has enabled Konya Museums to protect the site, enhanced their curatorial activity, and facilitated the development of a major permanent exhibition in a newly planned archaeology museum. Teachers and the municipality indicate that we have enhanced local educational provision substantially. We have contributed directly to the creation and production by documentary makers and other media of films and articles about Boncuklu which have a wide reach (e.g. National Geographic circulation 6,100,000). With thousands of visitors from 23 countries, feedback indicates that we have transformed this group's understanding of Neolithic heritage.</p>		
2. Underpinning research		
<p>The University of Liverpool Boncuklu project is directed by Baird, who holds the excavation permit from the Turkish government and is supported by 5 other colleagues from Liverpool: Asouti, Kabukcu, Pearson, Haddow (Archaeology), and Chiverell (Geography – as part of the interdisciplinary aspects of our research). Baird directs, orchestrates and integrates the work of 31 researchers from the Universities of Ankara, Ankara Hacı Bayram Veli, Bournemouth, Copenhagen, Cornell, Harvard, Leiden, Middle Eastern Technical University, Oxford, Peking, Queensland, Reading, UCL and the British Museum. Excavations have been carried out over 14 seasons, from 2006 to 2019 and the 2020 season was interrupted by COVID19. The project is based next to the village of Hayiroğlu, 40km from the city of Konya, 10km north of World Heritage site of Çatalhöyük.</p> <p>The project has identified key research outcomes which have featured in the Konya Museums exhibition design, education materials for local schools, in our on-site visitor information and presentation, in documentaries, in magazine articles and in blogs by ancient DNA enthusiasts, notably:</p> <ol style="list-style-type: none"> 1. the earliest sedentary and farming communities in central Anatolia (3.2 and 3.6), 2. the factors involved in the spread of farming to the area (3.2 and 3.6), 3. the development and transformation of small-scale food production (3.6), 4. human-environment interactions during the early Holocene and in relation to the development of farming (3.2 and 3.6) 5. the inter-relationships of ritual, symbolism and the appearance of sedentism in the area (3.1 and 3.6), 6. genetic continuity of these Neolithic farmers from the Epipalaeolithic communities of the area (REF output), 		

7. features of the kinship structures of these early households from ancient DNA,
8. understanding of health and disease in these early farming communities
9. the emergence of animal herding, both in terms of animal management practices and the appearance of genetic domestication using ancient DNA (3.6).
10. the antecedents of the internationally renowned World Heritage site of Çatalhöyük, helping us understand the social arrangements facilitating major community growth and elaborate ritual and symbolism seen at that site (3.1, 3.2 and 3.6).

The Boncuklu excavations and related research in which the Liverpool team has been central has resulted in 48 papers and 9 PhD theses. Many of the publications are in internationally peer reviewed journals, many of an interdisciplinary character, including Proceedings of the National Academy of Sciences, Nature communications, Current Biology, Proceedings Royal Society B, World Archaeology, Cambridge Archaeological Journal, Environmental Archaeology, Anatolian Studies and Journal of Archaeological Science.

The project has been supported through a series of large research grants from competitive funding bodies including 1 British Academy Research Development Award, 3 National Geographic grants, 2 Australian Research Council discovery awards, 1 Leverhulme large research grant, 1 AHRC large research grant and a Wenner-Gren grant. Our PhD projects have been funded by prestigious and competitive funding sources including AHRC (3), Australian Research Council (3), University of Liverpool (1), Turkish Education Ministry (1), all of these co-supervised by Baird.

3. References to the research

- 3.1 Baird, D**, Fairbairn, A, and Martin, L 2016 The animate house, the institutionalisation of the household in Neolithic central Anatolia *World Archaeology* 49(5), 753-776. [REF output] DOI:[10.1080/00438243.2016.1215259](https://doi.org/10.1080/00438243.2016.1215259)
- 3.2 Baird, D**, Fairbairn, A, Martin, L and Middleton, C 2012 The Boncuklu Project; the origins of sedentism, cultivation and herding in central Anatolia in Ozdogan, M and Başgelen N eds *Neolithic in Turkey new excavations, new discoveries*. 219-244. Arkeoloji v Sanat Yayinlari, Istanbul. [Available from the university on request]
- 3.3 Kilinc, G. M., Omrak, A., Ozer, F., Gunther, T. Buyukkarakaya, A. M., Bicakci, E., Baird D. and Götherström, A.** 2016 The Demographic Development of the First Farmers in Anatolia. *Current Biology*, 26(19), 2659-2666. DOI:[10.1016/j.cub.2016.07.057](https://doi.org/10.1016/j.cub.2016.07.057)
- 3.4 Fletcher, A, Baird D, Spataro M, Fairbairn, A** 2017 The order of things, earliest ceramics in Anatolia *Cambridge Archaeological Journal* 27/2, 351-369. DOI:[10.1017/S0959774316000767](https://doi.org/10.1017/S0959774316000767)
- 3.5 Kılınç, G, Koptekin, D, Atakuman, Ç, Sümer, A, Dönertaş, H, Yaka, R, Bilgin, C, Büyükkarakaya, A, Baird, D, Altinisik, E, Götherström, A, Togan, İ, Some, I M,** 2017 Archaeogenomic analysis of the first steps of Neolithisation in Anatolia and the Aegean, *Proceedings of the Royal Society B* 284 20172064. DOI:[10.1098/rspb.2017.2064](https://doi.org/10.1098/rspb.2017.2064)
- 3.6 Baird, D, Fairbairn, A, Jenkins, E, Martin, L, Middleton, C, Pearson, J, Asouti, E, Edwards, Y, Kabukcu, C, Mustafaoğlu, G, Russell, N, Bar-Yosef, O, Jacobsen, G, Wu, X, Baker, A, Elliott, S** 2018 Agricultural origins on the Anatolian plateau. *Proceedings of the National Academy of Sciences of the United States of America*, 115 (14) E3077-E3086 [REF output] www.pnas.org/cgi/doi/10.1073/pnas.1800163115

4. Details of the impact

1) Beneficiary: Konya Museums

The Boncuklu project has been carried out in close partnership with the Konya Museums who have been a major beneficiary (5.1). Konya Museums is part of the Turkish Ministry of Culture, operates the museum services of Konya city and province and oversees all archaeology in

this region. Konya is Turkey's 7th largest city. Konya Museums include the second most visited museum in Turkey.

Site preservation: Konya Museums have responsibility for the protection of regional archaeological sites, including Boncuklu. Through our intervention, the site is now regularly monitored, and damage by soil extraction has been prevented. Konya Museums Director Ömer Faruk Turkan confirms, "Baird's work at Boncuklu Höyük led to the identification and protection of this archaeological site, as well as directed the attention of large numbers of the public to it." (5.1). The project also convinced local villagers to protect their heritage. One noted in 2017, "we the residents of Hayıroğlu lived for years without knowing the history while we are living in the village. And, unfortunately we destroyed some of it without realising. I thank people from Liverpool University who discovered this history" (5.2 #103).

Curatorial activity: Our research had a direct impact upon Konya Museums' curatorial activity and exhibition development. We provided a collection of Boncuklu artifacts and detailed information relating to their significance, contributed directly to the design and content of a substantial, permanent exhibition, and helped to design a replica Neolithic mudbrick building, which will take pride of place in Konya's new multi-million-pound archaeological museum. The Konya Museums Director stated, "this research comprises the basis for our creation of a suitably informed exhibition dedicated to the Neolithic Boncuklu Höyük in the new Konya Archaeology Museum that we are establishing over the next few years. Also, the information about the Boncuklu Höyük discoveries, that will be exhibited in the new museum, was provided by the project to the museum staff ..." (5.1).

Museum outreach: We have directly enhanced the Konya Museums education resources and outreach through the building of a Visitor Centre at Boncuklu in 2013 with the development during 2014-2019 of the permanent display and reconstruction of Neolithic houses and gardens, all funded by Boncuklu Project resources. These developments led to a 185% increase in visitor numbers to the Centre since 2013 (now interrupted by COVID19) with visitors commenting positively on their enhanced understanding (5.2).

Capacity building: The on-site visitor complex is manned by 2 permanent Museums staff who guide visitors. These staff, who had no previous knowledge of archaeology, were trained by the Boncuklu Project team who advised on site presentation details to impart to visitors. Visitor feedback attests to the success of our training, 46% singled out and praised staff effectiveness in communicating information about our research leading to enhanced visitor understanding of the Neolithic, e.g. "Mustafa, the officer here... attention and guidance was very good. We learned some information about the excavation works. We felt the depths of history in our souls" (5.2 #355).

2) Impact on local educational provision

Turkish primary and secondary school curricula require visits to sites of historical importance. Our Visitor Centre and its trained guides, draws frequent visits from local schools to the site. This has enhanced delivery of the syllabus through these regular local teacher-led visits, as indicated by a principal of the closest primary school (5.3). We have also made our research accessible through a graphical children's booklet (also online), 2000 hard copies were distributed to all local schools and visiting school parties. These resources have led to an enhancement of teaching attested by a local school principal who says "The teachers and students have found it very useful to have this information and these resources provided by the Boncuklu project" (5.3), as well as the Konya Museums Director, who states that "these municipalities consider the project as as a successful educational investment for the local schools" (5.1), also echoed by the mayor of the local municipality Karatay-Konya (which covers a quarter of Konya province – the biggest in Turkey) – "your project has also contributed to the educational resources of the regional schools within the borders of our municipality." (5.10). Usefulness of these resources is directly attested by teachers on their visits, exemplified by a secondary school teacher who visited with pupils from Konya and used our online material. When directly interviewed by us (11/8/17) he stated: "archaeological approach taken at

Boncuklu is significant as it helps to reveal the way people lived rather than just identifying “treasures” and “the (children’s) booklet is useful as a teaching device.”

Teachers from a visit 21/6/19 by Hayıroğlu primary school emphasized the value for their pupils: “...Boncuklu Höyük, where is one of the world's most important excavation sites in our own neighbourhoods Turkey. We were very impressed by what we saw here. Examining, researching and learning about a region where human beings lived in the past made us think about our ancestors and questioning the place where we came from” (5.2 #264). Three local children on another school trip said the following: “We are 11 years old. It caught my attention that it was before Çatalhöyük, even 1000 years earlier. Houses and graves before my Prophet caught my attention.” 30/7/19 (5.2 #324)

3) Enhanced understanding of the importance of, and, the Turkish Neolithic: in the media; amongst ancient DNA amateur enthusiasts; and Turkish and international visitors to Boncuklu

Media: We have directly affected a number of media organisations, collaborating closely with the film makers of 4 documentaries and several popular science and history magazines, co-producing the stories about our research which were disseminated by these media organisations to reach wide audiences during the census period.

Magazines Current World Archaeology (May 2018, issue 88) (global circulation of c. 20,000), National Geographic, English version -February 2019 (global circulation 6,100,000) and subsequently several of its foreign language editions, including the Turkish, Aktuel Arkeoloji May 2019 (circulation c. 10,000) have featured Boncuklu research in newspaper, television and radio reports by at least 13 additional Turkish media organisations. We worked directly with the relevant organisations developing their stories by supplying information, relevant text, quotes and working with their production teams on site at Boncuklu. This includes the National Geographic team over 2 seasons who indicate the consequent quality of the Boncuklu reporting convinced National Geographic to run with the story, including amongst their foreign editions (5.8).

Our transformative effects on the documentary makers are illustrated by three examples:

- 1) ‘Seeds/Tohum’ commissioned by the Delegation of the European Union to Turkey for 2018 European Year of Cultural Heritage, total audiences c. 100,000 from 6 special screenings in Turkey’s major cities and broadcasts on Youtube, CNN Turk, documentary channel IZ TV and by digital platform beIN CONNECT (5.5);
- 2) British Institute at Ankara documentary as part of their heritage awareness training programme in Turkey, undertaken by 8,357 people with an additional 1000 viewers on YouTube (5.6);
- 3) ‘The Ancient history of Anatolia- the adventure of Neolithic from east to west’ was produced by the Intercultural Dialogue Program European Union Project and had 3 international premieres and public screenings (5.8) until interrupted by COVID19.

All the films were produced through close collaboration between Baird and the film directors, from initial conceptualisation of content, pre-filming interviews, detailed planning of the filming at Boncuklu, advice and review during editing. Our input directly contributed to creation and shaping of these films and thereby to their success (5.4, 5.5, 5.6, 5.9). Through them we also reached wide and diverse audiences in Turkey and affected attitudes in regard to Turkey’s Neolithic heritage (5.4, 5.5, 5.6)

Specialist audiences: Ancient DNA enthusiasts: a dedicated community of several hundred amateurs around the world blogs on developments in aDNA with several hundred thousand followers according to web analytics sources. They have absorbed our research results into their thinking about human populations and our work has generated intense debates. These include 5 blog sites: Gene Expression, Eurogenes (100,000 views per month), Population Genomics, Anthrogenica (400,000-600,000 views per month) and ancientDNAera.

Over the census period there have been 26 posts about Boncuklu with c. 550 comments reflecting on issues from past migration and gene flow to skin pigmentation in the past. To take just one example, the Eurogenes blog (8/8/16) flagged our 2016 study of Boncuklu aDNA and received 85 comments including “Very cool stuff! Boncuklu is the earliest hunter-forager to Neolithic site.”(Source 5.7).

Visitors to Boncuklu: The increased reach over the census period is reflected in a 300% increase in visitor numbers between the 2014-2018 period (400-500 per year) and 2019 (1,624 visitors) (as monitored by Museums staff on site), matched by visitor book entries (5.2); more were expected in 2020, shown by 300 visitors in January and February 2020, in the cold season for visiting in central Turkey. The uplift directly relates to the enhanced facilities we created and the profile our research created in the documentaries and magazines, matching the timeline of their dissemination (see above). Lockdown in March 2020 interrupted this continuing promising trend. The project has attracted from 23 countries, including many from Turkey outside Konya province. The site visitor books with 424 detailed records (5.2) best monitor this impact on this broad spectrum of the 10,000s of people affected by our research. Of this feedback 72% specifically commented on how the visit changed their knowledge/understanding of the significance of Neolithic/prehistoric heritage (5.2). In addition, many visitors felt our research helped them understand better the World Heritage site of Çatalhöyük. “It was fascinating to hear about the details of your work here and the connections with Çatalhöyük” 21/7/19 (5.2 #180).

Visitors have stressed how we have changed their understanding of life in the Neolithic: “I got a new insight into structured living practices and the obvious respect and ritualised nature of burials” 6/9/15 (5.2 #69). “Wonderful insight into Neolithic life” 2/11/18 (5.2 #123). “Examples of the transition from hunter gathering to the settled life from the Neolithic era were brought to life at this site for us” 7/6/19 (5.2 #247). People reflect on how we share information about the Neolithic with great effect: “The ... museum structure presents a very effective description” 11/5/19 (5.2 #238). “We are very impressed by the educational display and the models” 10/9/19 (5.2 #192). “We liked the idea of the Neolithic garden. It really visualized things in our minds” 11/9/19 (5.2 #423). We conclude with a quote that neatly sums up the understanding of this heritage that we have achieved in these publics through the popular articles, documentaries and the Boncuklu visitor experience. “These remains belong to the common ancestors of humanity” 8/9/19 (5.2 #412).

5. Sources to corroborate the impact

- 5.1 Letter from Director of Konya Museums Ömer Faruk TÜRKAN, 10/9/19. Ministry reference: 34068228-160.01.02-E.738555
- 5.2 Boncuklu Visitor Book entries accompanied by some summary information.
- 5.3 Letter from principal of Hayıroğlu primary school regarding benefit to local education.
- 5.4 Feedback from EU team leader for SEEDS/TOHUM documentary project.
- 5.5 Feedback from Director of the documentary SEEDS/TOHUM
- 5.6 Feedback from British Institute At Ankara documentary producer.
- 5.7 Composite of example aDNA blogs illustrating the way our work has stimulated considerable thought and modelling of ancient population genetic composition amongst these amateurs.
- 5.8 Feedback from National Geographic journalist and photographer relating to co-production of National Geographic article.
- 5.9 Feedback from Directors of documentary ‘The Ancient History of Anatolia.
- 5.10 Letter from mayor of Karatay-Konya municipality.