

An Austronesian Presence in the Sakishima Islands: An Archaeological Update

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Introduction

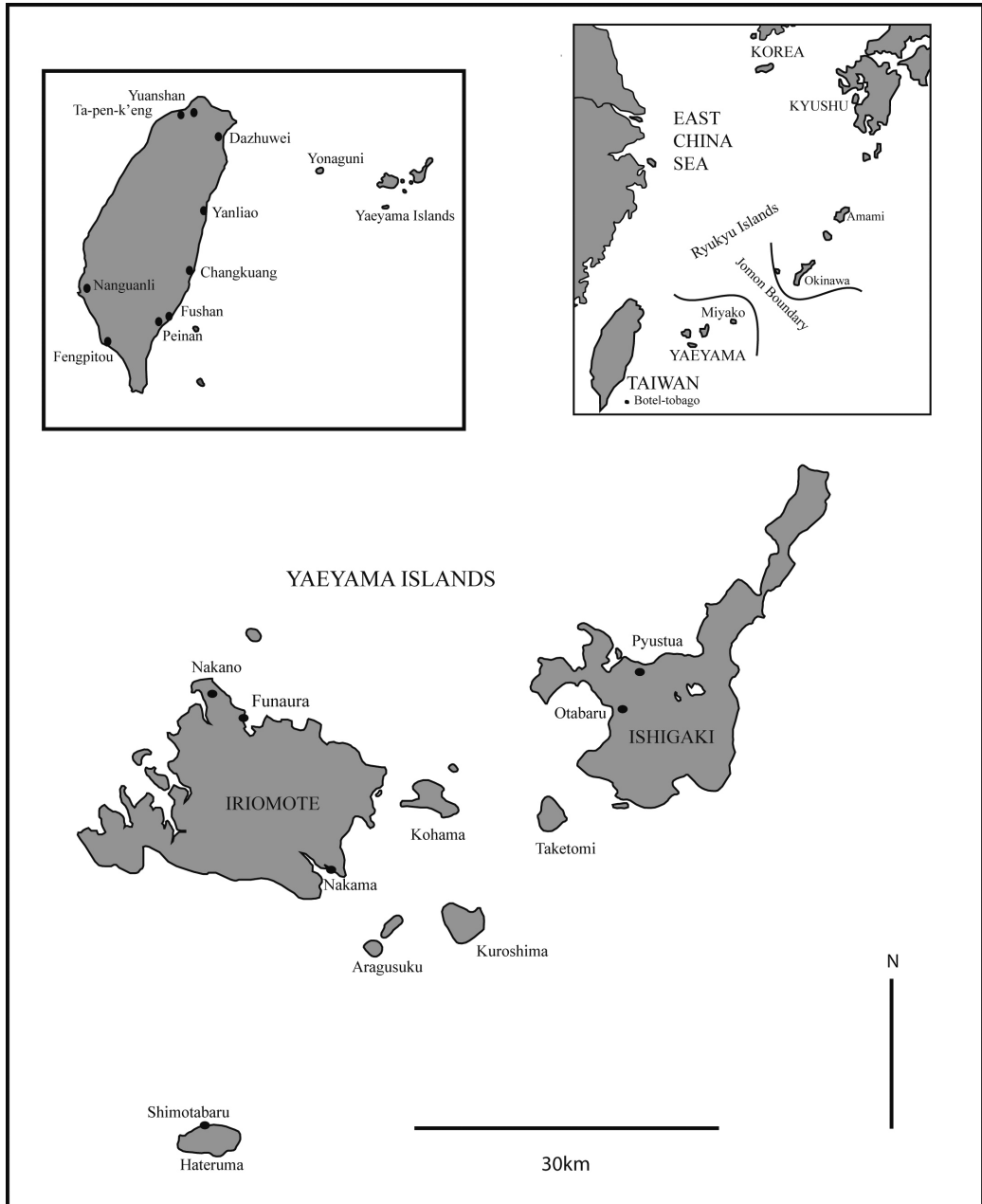
The Sakishima region is made up of the islands of Yaeyama and Miyako. Located only 250 kilometres east of Taiwan, Yaeyama is strategically located to receive any goods or influences from both Taiwan and China to the west (map 1). Yaeyama is made up of two larger islands, Ishigaki and Iriomote, and a number of smaller surrounding islands plus the island of Hateruma 25 kilometres south of Iriomote, and 40 kilometres south west of Ishigaki. In between Taiwan and Yaeyama lies the island of Yonaguni, found just over 100 kilometres east of Taiwan. Ninety kilometres to the north of Yaeyama is Miyako Island, and over 400 kilometres north lies the main island of Okinawa. It will be argued below that the Sakishima region was culturally isolated from the main island of Okinawa for thousands of years, with the major sphere of influence, although scanty, with areas to the west (Taiwan) and later on the south (Philippines).

Shimotabaru Phase

Although the first evidence of human occupation of Japan's most southerly islands goes back to 24,000 years in the late Pleistocene (Anderson and Summerhayes 2008; Nakagawa et al. 2010; Kaifu et al. 2015; Fujita et al. 2016), the evidence is scanty with no evidence of any subsequent human occupation. From Shiraho-Saonetabaru Cave on Ishigaki Island, skeletal remains were found dating to 24,000 years (Nakagawa et al. 2010). Further to the north on the main island of Okinawa, some 400 kilometres distant, the earliest occupation is dated to 35,000 years at Sakitari cave (Fujita et al. 2016). As the islands of the Ryukyus were never joined to the mainland during the late Pleistocene, evidence of earlier occupation is testimony to the maritime voyaging skills of these earlier inhabitants (Kaifu et al. 2015; Fujita 2016).

The next evidence of colonisation is by 4500 to 4000 years ago. Known as the Shimotabaru Phase, this colonisation episode introduces for the first time a Neolithic material culture set including crude low fired pottery and quadrangular adzes found in numerous sites in the Yaeyama islands (Ishigaki-shi 2007, 2008, 2015). Most archaeological sites are found in a rich red volcanic soil on small hills or terraces behind present day coastal plains. Their location was due to the mid-Holocene marine transgression where the sea was some two metres higher than today. The type site of Shimotabaru, located on Hateruma Island, was found on a raised beach ridge. Yonaguni, on the other hand, has only one Shimotabaru phase site, Toguruhama (see below) but with no pottery found to date (Okinawa Prefectural Board Education Board 1985; Yonaguni Town Hall 2015).

A paper by Summerhayes and Anderson (2009) re-examined the colonising phase, including a re-assessment of its timing, the nature of pottery production and exchange, and how this fits into a wider regional picture. This was important as it was the first major review of the evidence, most of which was never published or referenced in English.



Map 1. East Asia and Yaeyama Islands—Archaeological sites listed in text (from Summerhayes and Anderson 2009).

Re-assessment of Timing.

Prior to Summerhayes and Anderson (2009) it was thought that Shimotabaru occupation began from early 4th millennium BP. Radiocarbon age estimates (some over 50 years old) were subsequently recalibrated using updated δ^{13} corrections (Summerhayes and Anderson 2009:80). After calibration it

was determined that Shimotabaru occupation occurred from the middle of the 5th millennium BP to the early 4th millennium BP (4500 to 3900 years ago). Time depth in occupation was also observed by the identification of changes in pottery decoration over time (Ishigaki City Education Board 1997; Kishimoto 2004).

Nature of Exchange/Interaction

Summerhayes and Anderson (2009) argued that there was a degree of interaction between the Yaeyama islands as witnessed by the transfer of pottery, faunal remains and adzes. By undertaking a physico-chemical analysis, using the electron microprobe, of Shimotabaru pottery from a number of sites from the Yaeyama's, Summerhayes and Anderson (2009) identified numerous production centres which produced the stylistically uniform ware. At least four clay sources were identified, probably taken from behind Nagura Bay on the southeast coast of Ishigaki, behind the Otabaru archaeological site. Pottery found from both Hateruma and the north coastal site of Pyutsuta was transferred in, as these areas did not possess clays for pottery making. The presence of quartz in all clay samples, and epidote in most confirms Nagura Bay, Ishigaki, as the primary production area (Figure 1; see Summerhayes and Anderson 2009:83–84 for a detailed discussion).

Unfortunately as most Shimotabaru sites, with the single exception of the Shimotabaru type site on Hateruma, were found in a rich volcanic soil context, few organics survived thus restricting our assessments on whether these colonisers brought with them any form of agriculture. Exchange is seen in the movement of animals and food between the islands during the Shimotabaru phase. What we do know from the midden remains of the Shimotabaru site, is that the economy here was made up predominantly of fish, and freshwater shell fish imported from Iriomote. Wild boar (*sus scrofa riukiuanus*) was also found which would have been imported into Hateruma Island.

Stone adzes were found in all sites. Adzes with step butts, and trapezoidal cross sections, some slightly polished, were found. These were made from a variety of rocks, with most made from metamorphic greenschist which is found in Ishigaki next to the Otabaru site (the Tumuru Geological Formation—Foster 1965) and on the eastern coast of Iriomote (Summerhayes and Anderson 2009:86–87). From Hateruma, adzes made from gabbro, with dolerite, amphibolite were also found (Okinawa Prefectural Education Board 1986). These rocks are found on Ishigaki.

Where did These Colonisers Originate from?

Few archaeologists would argue with the nature of the evidence presented above. The million dollar question which provokes much dispute is where did these Neolithic people originate from? In summary, on the basis of the above evidence, these colonising people settled on beaches and islands within water estuaries, and at all times were close to fresh water. A degree of interaction between islands is evident, with, in particular, a number of production centres producing identical pottery suggesting a mobile population of colonising people.

Summerhayes and Anderson (2009) argued that the makers of the Shimotabaru assemblages probably originated from Taiwan, and indeed probably spoke an Austronesian language. This was based on a number of factors.

First, the colonising phase could not have originated from the Philippines to the south, as the Shimotabaru Phase preceded the introduction of the Neolithic into the Philippines by hundreds of years. That is, the Neolithic colonisation of Yaeyama occurs at the same time as the Middle Neolithic in Taiwan and precedes by a few hundred years the Austronesian expansion from Taiwan to the Batanes (Bellwood and Dizon 2013) and the Philippines (Hung 2005). Furthermore, there is evidence of occupation on Yonaguni (Toguruhama site) at the same time as the Shimotabaru sites which suggests that colonisation passed through that island. Links between the Sakishima Islands and Okinawa are thought to have been very weak or non-existent (Ito 2003:63).

Secondly, the material culture has nothing in common and was not part of the Jomon expansion which stopped at the main island of Okinawa 400 kilometres to the north. This is seen in the evidence below.

1. The pottery had no similarities in form or decoration whatsoever to Jomon pottery to the north. It does have similarities with pottery from east Taiwan. It was argued (Summerhayes and Anderson 2009) that the Shimotabaru ware originated from the Fushan culture from eastern Taiwan in the Middle Neolithic which was seen as a period of growth (Hung 2008:52). Sites where this is found include Fushan (Shi et al. 2001:67) and Dazhuwei (Da-zhu-wei) (Liu et al. 2001) which date to c.4,200–3,500 BP. Other sites such Changkuang (Shi et al 2001:plate 41; Chao 2000) also have bowls with vertical handles/lugs, and date to the late fourth millennium BP. This site also has fingernail impressed decoration on the inside of the vessel. In northeast Taiwan open mouthed vessels with handles/lugs are common at the Yanliao site of Huangangshan Culture (Ye 2000:79–80).
2. It was also argued that similarities in adze forms existed between Shimotabaru and areas to the west. For full details see Summerhayes and Anderson (2009). Briefly though, adzes with attempted stepped butts (Pearson 1969:85) and also the presence of adzes with trapezoidal sections were aligned with types found in Taiwan, southern China and the northern Philippines (Kokubu 1963:229; Kanaseki et al 1964:11; Tsang 2005:69). Pearson (1969:105,111) also noted similarities between the slightly polished, ovoid-in-section basaltic adzes from the T'ai Yuan and Peinan site and those sites from Yaeyamas (Pearson 1969:105). Yet as the adzes found from the Yaeyama contexts were made locally, any similarities were not the result of physical exchange (see Summerhayes and Anderson 2009 for a review of the evidence). Hung (2004) has analysed over 1,000 stone adzes from 210 Neolithic sites from Taiwan and the Penghu Archipelago and has identified source rocks for all these adzes (nephrite, andesite, basalt and slate). None are made from the same materials used in the manufacture of the Yaeyama adzes.

Thus on the basis of similarities in pottery, adzes, timing of colonisation, and the exclusion of the Philippines and Jomon cultures to the north we are only left with the island of Taiwan as the 'probable source'. A supporter of Austronesian colonisation is Mark Hudson. Hudson (2006:425) made the point that "as far as I am aware, no Japanese archaeologist has made the obvious point that the prehistoric inhabitants of Sakishima were probably Austronesians". He argues that this was part of the Neolithic expansion (Hudson 2012:258) out of Taiwan and/or South East Asia (Hudson 2007, 2015).

No Connection with Taiwan?

Some archaeologists strongly argue that there were no links between the Shimotabaru Neolithic of the Sakishima Islands and Taiwan. Based on dissimilarities in artefacts, Chen (2002:35) argues that there are no connections. He also argued that the smaller islands were difficult for agriculture. This is an important point that I will return to later. Similar sentiments are expressed by many archaeologists. Shinjun Sato (2009) wrote that although Shimotabaru pottery at first resembles Southeast Asian pottery, he does not know where it originated. Sato went so far as to criticise links between Shimotabaru pottery and Lapita pottery. Unfortunately he confused 'Lapita' with 'Austronesian' as Lapita only exists in the western Pacific thousands of kilometres to the south, and appearing some 600 years or more later in time.

Another doubter is Isao Morimoto (2012). He also sees no archaeological connections between Taiwan and the southern Ryukyus with the exception of some shell beads. He said that while other shell artifacts from both regions are similar in form and production method "it is unclear that we can regard these materials as the result of influence from one to another. We must take account of their different economic backgrounds" (Morimoto 2012:9). Yet these shell artefacts are much later in time than the period in question. To support his argument he notes Cheng's (2002) argument that the absence of rice from the southern Ryukyus indicates that the two regions belonged to different cultures. That is the people from Sakishima were from a hunter-gatherer economy and not an agricultural society. Again, more on the agricultural question below.

Pearson (2009) is also reserved about any connections with Taiwan suggesting the Philippines as a possibility.

Is it possible that the first people of Sakishima drifted north from the Philippines and belong to a pre-Austronesian culture from that area? (Pearson 2009:99)

This is based on similarities between *Tridacna* shell adzes found in Sakishima and those found in a burial in Duyong Cave Palawan. The problem here is that these shell adzes from Palawan date to about 5000–6500 BP, thus pre-dating any pottery from Palawan or the Sakishima Islands by over a millennium, a point Pearson notes in a subsequent publication (2013:78–79).

Lack of Similarity

Although Pearson recognises some similarities between Taiwan and Shimotabaru cultures, he questions any connections due to the lack of many other shared cultural forms between these two areas. That is, there is too much not shared to suggest a connection (Pearson 2009:98–99). Here he refers to items found in Taiwan yet absent in Shimotabaru culture: bark cloth beaters, pottery spindle whorls, earrings. Pearson (2013:78) states that we need to explain these absences. I will now address this point.

Firstly, the lack of agriculture in Yaeyama. Domesticated introduced pig (*sus scrofa/verrucosus*) is found in the northern Philippines in 4000 year old contexts (Piper et al. 2009:691) after the Yaeyamas were colonised. No domesticated pig was found in the Yaeyama although as noted above wild boar (*sus*

scrofa riukiuanus) was found and would have been translocated to Hateruma Island. As pointed out by Summerhayes and Anderson (2009:79) there has been no intensive study into early agriculture in this region. Arguments by some archaeologists that these people from the Shimotabaru phase lived a hunting and gathering existence is unfortunately based on negative evidence. The Neolithic settlement of Taiwan was for example based on pottery, polished adzes and horticulture of tubers (taro and yams) and not cereals (rice and millet) (see Hung and Carson 2014). The identification of these tubers need starch and phytolith analyses on stone tools and pottery and surrounding soils. This has been lacking to date. Furthermore, as noted above, the Shimotabaru sites, with the exception of the type site, were all located on red acidic volcanic soils where no organics survived.

Secondly, the spindle whorls and jade which are present in Taiwan are absent in the Shimotabaru sites in the Yaeyamas. Yet they first appear outside of Taiwan in the Late Neolithic, a few hundred years after the colonisation of the Yaeyamas. Jade (nephrite) from the Fengtian source from eastern Taiwan was exploited from 5000 years ago (Hung 2004). Yet it first appeared in the Batanes islands and Northern Philippines from the early 4th millennium BP, 3950–3750 years ago (Hung and Iizuka 2013). The first appearance of spindle whorls outside of Taiwan is later still. From the Batanes Islands, they first appear from 3200 years ago, hundreds of years after the Yaeyama islands were colonised (Cameron 2013). The lack of any of these material cultural forms equates to a lack of interaction between Taiwan and the Yaeyama islands after colonisation.

Thirdly, as argued by Hudson (2012:261) and Summerhayes and Anderson (2009), the Sakishima Islands were culturally isolated once colonised. Uncertainty exists as to the nature of any interaction (see Yamagiwa 2015, 2016). Whatever the nature of interaction that occurred between Taiwan and the Yaeyamas, it is of a different nature to that which occurred between Taiwan and the Philippines.

Insights into this can be seen in differences in pottery found and consumed in the Yaeyamas. Although only one vessel form was shared between Taiwan and the Shimotabaru assemblages, it has been the absence of the more complex forms found during the Middle Neolithic of Taiwan, and the differences in technology used, that many see as evidence for no connections at all. Furthermore, the majority of vessel forms and decorations shared between Taiwan and the Philippines are absent.

This leads to an interesting debate on whether the material culture of colonising groups should imitate or be identical to the material culture found in the areas they left behind. There is no reason for this to happen with pottery technology. With regards to pottery manufacture, the pots of any new location made use of existing clay and filler. The latter can be made up of beach sands, rocks, and added to the clay fabric to counter any shrinkage during the drying phase of manufacture. There is no need for new colonies to imitate the exact fabric groups of the areas they left behind—they make do with what they have at hand.

What about the absence of fine made wares in the Shimotabaru Culture compared to the variety of fine pedestal vessels and ring footed bowls found in Taiwan and also to the Philippines to the south? It must be noted that the assemblages from Taiwan consist of two main types of pottery. First, the finely made pedestal vessels and ring footed vessels were probably a non-utilitarian ware not used in domestic activities. Secondly, the plain pots and bowls that shared a similar form to the Shimotabaru pottery were a utilitarian ware used for domestic purposes. This is seen in the site of Fushan, Eastern Taiwan, which was dominated not by pedestal vessels and ring footed bowls but by red

slipped or plain pottery, and contain a pot form similar to Shimotabaru pottery. This plain pottery was a utilitarian ware and different from the fine made red slipped pedestal bowls and ring footed vessels from Taiwan which were a social ware (non-utilitarian/ceremonial?) and not used for cooking food.

Thus the early Yaeyama pottery although lacking the finely made ceremonial/social ware, contained mundane and clumsily made utilitarian ware. One model to account for this lack of social non-utilitarian (ceremonial?) ware and the presence of only basic cooking pottery would argue that with few colonists and no prior populations evident in the Sakishima Island, there was not a need to signal or reinforce their own identity through the production of socially mediated pottery. A similar argument was put forward to account for the loss of the elaborate Lapita dentate-stamped decorated pottery in Remote Oceania soon after colonisation (see Summerhayes 2000a, 2000b).

The Elaboration of Material Culture by Colonising Groups

In an article by Summerhayes and Allen (2007) it was argued that early elaborate material is a reflection of the homeland culture and that pottery decoration is elaborated internally as part of the colonising process. They used the concept of “costly signalling” to explain the elaboration of pottery decoration from the earliest colonising phases in areas of New Guinea involving Neolithic societies. The use of fine non-utilitarian pottery with or without fine decoration, and used in social and ritual use, would have reinforced group identity of any colonising group entering the domain of incumbent groups. Summerhayes and Allen argued that although the colonists “may have superior technology it is in the best long term interests of colonists to avoid conflict with incumbent groups when, by the very nature of the colonising act, the newcomers will inevitably compete for land and resources with existing groups” (Summerhayes and Allen 2007:116–7). Thus by “elaborating their material culture the colonists signal their own strength or fitness and provide objects that by exchange will confer prestige or other more utilitarian values on the recipients”.

Thus the use of ‘costly signalling’ to already populated areas explains the continued use of elaborate decorated vessel forms with the Austronesian diaspora into the Philippines and eventually into the western Pacific. But what happens when a colonising group enters an area where no previous people exist? Who are they signalling to? As seen in Remote Oceania, the colonising populations lost their complex dentate designs and vessel forms (bowls and stands) soon after entering areas where no prior people lived. Yet, the utilitarian pottery forms continued (plain cooking and water storage vessels). Could “costly signalling” apply in the early Yaeyama assemblages? Why bring in complex vessel forms? Why should the Shimotabaru pottery reflect an identical mirror image of Neolithic forms existing in Taiwan during the Middle Neolithic?

As noted above, the colonisation of Yaeyama was of a completely different nature to the movement of peoples south into the Philippines. Once Yaeyama was occupied it was culturally isolated with the nature of subsequent interaction for the next millennia unknown and uncertain (see Yamagiwa 2015, 2016). This explains the absence of spindle whorls, jade and other items which were exported out of Taiwan at a later period of time. Whatever the nature of interaction that occurred between Taiwan and Yaeyama, it is of a different nature to that which occurred between Taiwan and the Philippines. We must recognise that not all colonising groups were successful, and this would affect the trajectory of that group.

Where to from Here?

One island that holds clues to the nature of any interaction is Yonaguni. Its strategic geographical location between Taiwan and the Yaeyama islands ensures that any inferred interaction between Taiwan and Yaeyama should have been felt in Yonaguni—the island in the middle. Yet, Yonaguni is relatively archaeologically unknown. As noted above, there is one site, Toguruhama, which is contemporary with Shimotabaru sites from Yaeyama. The site was dug while extending the airport which is located on the north coast, with the site on a terrace some 6–8 metres above sea level. Toguruhama is dated to between 4560–4315 and 4400–4150 years ago.

The location of Yonaguni and occupation contemporary with Shimotabaru pottery from Yaeyama suggests that colonisation passed through that island. Two specific questions must be addressed:

1. Was a Neolithic presence found on Yonaguni Island? That is, can pottery be found that is related to the Shimotabaru ware of the Yaeyamas?
2. What is the past nature of interactions between Taiwan and the islands to the east? Why has the archaeological path in these islands taken a different route to those in the Philippines and further afield?

This is where attention must be focussed.

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REFERENCES

- Anderson, A. and G. R. Summerhayes. 2008. Edge Ground and Waisted Axes in the Western Pacific Islands: Implications for an Example from the Yaeyama Islands, Southernmost Japan. *Asian Perspectives* 47(1): 45–58.
- Asato, S. 2009. 1898. “Archaeology of the Ryukyu Islands: Major Themes.” In R. Pearson (ed.), *Okinawa: The rise of an Island Kingdom: Archaeological and Cultural Perspectives*, pp. 1–4. BAR Series. London: Archaeopress.
- Bellwood, P. and E. Dizon, eds. 2013. *4000 Years of Migration and Cultural Exchange: The Archaeology of the Batanes Islands, Northern Philippines*. Canberra: Terra Australis 40. Australian National University Press.

- Cameron, J. 2013. “The Spinning Tools from Sunget, Anaro and Savidug.” In Bellwood and Dizon 2013, pp. 115–112.
- Chao, Ching-yung. 2000. Changkuang: A Neolithic Burial Site on the Eastern Coast of Taiwan. *Bulletin of the Indo Pacific Prehistory Association* 20: 165–170.
- Chen, Yu-Pei. 2002. The Prehistorical relationship between Taiwan and the Ryukyu Islands. *Bulletin of the Department of Anthropology National Taiwan University*. (In Chinese)
- Foster, H. L. 1965. *Geology of Ishigaki-shima Ryukyu-retto*. Geological Survey Professional Paper 399-A. Washington: US Department of the Interior. US Government Printing Office.
- Fujita, M., S. Yamasaki, C. Katagiri, I. Oshiro, K. Sano, T. Kurozumi, H. Sugawara, D. Kunikita, H. Matsuzaki, A. Kano, T. Okumura, T. Sone, H. Fujita, S. Kobayashi, T. Naruse, M. Kondo, S. Matsuura, G. Suwa, and Y. Kaifu, 2016. Advanced Maritime Adaptation in the Western Pacific Coastal Region Extends Back to 35,000–30,000 Years before Present. *PNAS* 113: 11184–11189.
- Hudson, M. 2006. Pots not People: Ethnicity, Culture and Identity in Postwar Japan Archaeology. *Critique of Anthropology* 26: 411–434.
- . 2007. Japanese Beginnings. In W. Tsutsui (ed.), *A Companion to Japanese History*, pp.13–29. Chichester: Willey-Blackwell.
- . 2012. ‘Austronesian’ and ‘Jomon’ identities in the Neolithic of the Ryukyu Islands. *Documenta Praehistorica* 39: 257–262.
- . 2015. Japan: Archaeology. In P. Bellwood (ed.), *The Global Prehistory of Human Migration*, pp. 224–229. Chichester: Willey-Blackwell.
- Hung, H. C. 2004. A Sourcing Study of Taiwan Stone Adzes. *Bulletin of the Indo-Pacific Association* 24: 57–70.
- . 2005. Neolithic Interaction between Taiwan and Northern Luzon: The Pottery and Jade Evidence from the Cagayan Valley. *Journal of the Austronesian Studies* 1: 109–132.
- . 2008. “Migration and Cultural Interaction in Southern Coastal China, Taiwan and the Northern Philippines, 3000BC to AD100: The Early History of the Austronesian-speaking Populations.” Unpublished PhD dissertation, Australian National University, Canberra.
- Hung, H. C. and M. Carson. 2014. Foragers, Fishers and Farmers: Origins of the Taiwanese Neolithic. *Antiquity* 88: 1115–1131.
- Hung, H. C. and Y. Iizuka. 2013. “The Batanes Nephrite Artefacts 149.” In Bellwood and Dizon 2013, pp. 149–168.
- Ishigaki City Educational Board. 1997. *Nakura Shell Mound and Pyutsuta Archaeological Site Excavation Report Research Report*. Ishigaki: Ishigaki City Educational Board. (in Japanese)
- Ishigaki-shi 石垣市. 2007. *Kenkyū shi: Yaeyama kōkōgaku no ayumi* 研究史: 八重山考古学のあゆみ (History of Research: History of Yaeyama Archaeology). Vol. 1 of *Ishigaki-shi kōkōgaku bijuaru ban* 石垣市史考古ビジュアル版 (Archaeology of Ishigaki Cty Visual edition). Ishigaki: Ishigaki-shi.
- . 2008. *Shimotabaru-ki no kurashi* 下田原期のくらし (Livelihood in the Shimotabaru Period). Vol. 2 of *Ishigaki-shi kōkōgaku bijuaru ban*. Edited by Ishigaki-shi Sōmubu Shishi Henshūshitu. Ishigaki: Ishigaki-shi.
- . 2015. *Ishigakishishi: Kakuronhen kōko* 石垣市史: 各論編 考古 (Ishigaki City History: Archaeology edition). Edited by Ishigaki-shi Kyōiku Iinkai Shishi Henshūka. Ishigaki: Ishigaki-shi Kyōiku Iinkai.

- Ito, S. 2003. The position of the Ryukyu Jomon Culture in the Asia-Pacific Region. *Bulletin of the Indo-Pacific Prehistory Association* 23: 63–72.
- Kaifu, Y., M. Fujita, M. Yoneda, and S. Yamasaki. 2015. “Pleistocene Seafaring and Colonization of the Ryukyu Island, Southwestern Japan.” In Y. Kaifu, M. Izuho, T. Goebel, H. Sata, and A. Ono (eds.), *Emergence and Diversity of Modern Human Behaviour in Palaeolithic Asia*, pp.345–361. College Station: Texas A & M University Press.
- Kanaseki, T., N. Kokubu, S. Tawada, and M. Nagai. 1964. *Archaeological Survey at the Shimotabaru Site in the Island of Hateruma, Ryukyu, in 1954*. Contribution from the Shimonoseki University of Fisheries, no. 426.
- Kishimoto, Y. 2004. New Classification and Chronology of Shimotabaru Type Pottery. *Bulletin of the Archaeological Study of Okinawa* 2: 1012. (In Japanese).
- Kokubu, N. 1963. The Prehistoric Southern Islands and East China Sea Areas. *Asian Perspectives* 7: 224–242.
- Liu, YC, SJ Qiu, and RC Dai. 2001. *Archaeological Excavation at Dazhuwei, Yilan*. Yilan County Government. (In Chinese)
- Morimoto, I. 2012. Prehistoric Culture of the Ryukyus: On the Cultural Relations between Southern Part of Ryukyus and Taiwan. Paper presented at the symposium: Taiwan and Asia: Fujianese Culture and Its Influence. Graduate Institute of Art History with the College of Liberal Arts National Taiwan University and the National Science Council of Taiwan, 14–15 December 2012.
- Nakagawa, R., N. Doi, Y. Nishioka, S. Nunami H. Yamaguchi, M. Fujita, S. Yamazaki, M. Yamamoto, C. Katagiri, H. Mukai, H. Matsuzaki, T. Gakuhari, M. Takigami, M. Yoneda. 2010. Pleistocene Human Remains from Shiraho-Saonetabaru Cave on Ishigaki Island, Okinawa, Japan, and their Radiocarbon Dating. *Anthropological Science* 118(3): 173–183.
- Okinawa Prefectural Education Board. 1985. *The Toguruhama Site*. Okinawa: Okinawa Prefectural Education Board. (In Japanese)
- . 1986. *Shimotabaru Shell Mound and Obdomarihama Shell Mound: 1st, 2nd, and 3rd Fieldseason of Excavations*. Okinawa: Okinawa Prefecture Cultural Heritage Research Report, no. 74. (In Japanese)
- Pearson, R. 1969. *The Archaeology of the Ryukyu Islands*. Honolulu: University of Hawai‘i Press.
- . 2009. “Archaeology of Sakishima.” In R. Pearson (ed.), *Okinawa: The Rise of an Island Kingdom: Archaeological and Cultural Perspectives*, pp. 97–100. BAR Series, no. 1898. London: Archaeopress.
- . 2013. *Ancient Ryukyu: An Archaeological Study of Island Communities*. Honolulu: University of Hawai‘i Press.
- Piper, P. J., H. C. Hung, F. Z. Campos, P. Bellwood, and R. Santiago. 2009. A Neolithic Introduction of Domestic Pigs into the Philippine Archipelago: Implications for Understanding Routes of Human Migration through Island Southeast Asia and Wallacea. *Antiquity* 83: 687–695.
- Shi, T. F., Y. C. Liu, K. X. Li and M. Ye 2001 *Tai dong xian shi: Shi qian pian* (History of Taitung County: The Prehistory). Taidong: Taidong County Government. (In Chinese)
- Summerhayes, G. R. 2000a. *Lapita Interaction*. Canberra: Terra Australis No.15, Centre of Archaeology, Australian National University.

- . 2000b. “What’s in a Pot?” In Anderson, A. J. and T. Murray (ed.), *Australian Archaeologist: Collected Papers in Honour of Jim Allen*, pp.291–307. Canberra: Coombs Academic Publishing, ANU.
- Summerhayes, G. R. and J. Allen. 2007. “Lapita Write Small.” In S. Bedford, C. Sand, and S. Connaughton (eds.), *Oceanic Explorations: Lapita and Western Pacific Settlement*. Canberra: Australian National University E-Press.
- Summerhayes, G. R. and Anderson, A. J. 2009. An Austronesian Presence in Southern Japan: Early Occupation in the Yaeyama Islands. *Bulletin of the Indo-Pacific Prehistory Association* 29: 76-91.
- Tsang, Cheng-hwa. 2005. “Recent Discoveries at the Tapenkeng Culture Sites in Taiwan.” In L. Sargart, R. Blench, and A. Sanchez-Masaz (eds.), *The Peopling of East Asia*, pp. 63–73. Oxford: Routledge.
- Yamagiwa K. 山極海嗣. 2015. Miyako Yaeyama shotō ni okeru senshi kenkyū no genjō to kadai: Bunka keisei no kaimei ni muketa kenkyū no tenbō 宮古・八重山諸島における先史研究の現状と課題: 文化形成の解明に向けた研究の展望 (An Overview and Perspective of Archaeological Research on Prehistoric Miyako-Yaeyama Islands: Prospective of Studies towards Uncovering Formation of Culture). *Kaizuka*, no. 70 (October 2015), Busshitsu Bunka Kenkyūkai.
- Yamagiwa, K. 2016. Cultural Adaptation to Coral Island in Neolithic Southern Ryukyu Islands. Paper presents at the World Archaeology Congress No.8, Kyoto, September 2016.
- Ye, M. Z. 2000. Study of the Huagangshan Culture. *The I-Lan Journal of History* 43: 67–127.
- Yonaguni Town Hall. 2015. *Yonaguni-jima chōshi, dai san kan: rekishi-hen* 与那国島町史 第三卷歴史編 (Yonaguni Island History of City, vol. 3: History). Yonaguni-cho: Yonaguni Town Hall.