

# Language Revitalisation Using Historical Texts: the Case of Siraya

*Christopher Joby* | ORCID: 0000-0001-9889-7781

Research Associate, Centre of Taiwan Studies, SOAS, University of London, London, UK; Honorary Research Fellow and Associate Tutor, School of History and Art History, University of East Anglia, Norwich, UK  
*c.joby@uea.ac.uk*

Received 12 December 2023 | Accepted 11 March 2025 |

Published online 9 April 2025

## Abstract

To achieve national recognition, Plains Indigenous people (aka Pingpu) in Taiwan need an ethnolect. The language of one Plains Indigenous group, the Siraya, was extinct for most of the twentieth century. However, one advantage they have over other Plains Indigenous groups seeking national recognition is that much of their language was written down by Dutch missionaries in the seventeenth century with the assistance of their Siraya forefathers. This has allowed Siraya language activists to revitalise their language by producing textbooks, songbooks, and other material for learning and using the language. This article analyses how Siraya language activists have used the Dutch texts to breathe new life into their language. It focuses on two features of the language, phonology and lexis, and examines the choices that the language activists have made, differences between the revitalised language and the language recorded in the Dutch texts resulting from these choices, and possible reasons for these differences.

## Keywords

Siraya – revitalisation – Dutch missionary linguists – phonology – lexis – learning materials

## 1 Introduction

On 28 October 2022, the Constitutional Court of Taiwan ruled that the Plains Indigenous people (aka Pingpu, 平埔族群, *pingpu zuqun*) have the right to be recognised as ‘Indigenous’ (臺灣原住民族, *taiwan yuanzhuminzu*) at national level.<sup>1</sup> It gave the national government a three-year deadline to implement a law to facilitate their recognition (Hioe, 2022). This would place the Plains Indigenous groups alongside the 16 ethnic groups that are already officially recognised.<sup>2</sup> The ruling stated that having analysed the legal history of the regulation of Indigenous status in Taiwan since the Qing dynasty, the definition of Taiwanese Austronesian peoples should be extended to groups that meet three criteria: first, the groups must meet the condition of ‘preserving their cultural characteristics such as their ethnolect, custom, and tradition until the present’. This underlines the importance of language to their identity and to attempts to gain official recognition. Second, the members of the groups must share ‘a common sense of ethnic identity’. Third, the groups’ connection to Austronesian Taiwanese peoples can be substantiated by historical data (Constitutional Court, 2022).

One group of Plains people who aim to seek official recognition as ‘Indigenous’ are the Siraya. Their language was spoken for centuries on Taiwan’s southwestern plains. However, because of the assimilation of their society and culture by Han Chinese over several centuries, the Siraya language was gradually eroded and by the late nineteenth century it had become extinct.<sup>3</sup> Since the end of the twentieth century, however, it has been undergoing a process of revitalisation. While it was officially recognised by Tainan City in 2005, despite many attempts it has not yet achieved recognition at a national level, a situation that should finally be resolved by the court ruling (Adelaar, 2013: 213).

The aim of this article is to examine how Siraya language activists have used texts written by Dutch missionary linguists during the Dutch colonial period (1624–1662) to revitalise their language and therefore meet the legal

- 
- 1 Adawai (2017: 321, quoted in Hsieh, 2021: 253) states that the Plains Indigenous groups, known collectively as Pingpu, are the Ketagalan, Kavalan, Pazeh, Papora, Babuza, Hoanya, Siraya, Basay, Luilang, Makatau, Qauqaut, Taivuan, and Trobiawan. This is probably based, however, on the official classification of the Pingpu.
  - 2 The full list is Amis, Atayal, Paiwan, Bunun, Puyuma, Rukai, Tsou, Saisiyat, Yami, Thao, Kavalan, Truku, Sakizaya, Seediq, Hla’alua, and Kanakanavu (Hsieh, 2021: 252). Some of these, such as Thao, have only a few speakers.
  - 3 For a definition of ‘extinct’, see Blust (2013: 52).

requirement of maintaining their ethnolect (Halme, 2023).<sup>4</sup> Several Siraya language activists have in fact published Siraya texts. For want of space, this article focuses on the work of one leading activist, Edgar Macapili, for discussion and analysis, not least because texts that he has written or co-written have been used extensively by people learning the Siraya language.<sup>5</sup>

After a review of scholarly work on Siraya revitalisation, I analyse the texts that the Dutch missionaries wrote and the academic literature on these texts. I then give details of three projects or activities that have contributed to Siraya revitalisation before examining the linguistic choices that those involved in this process, above all Macapili and fellow members of the Tainan Pepo Siraya Cultural Association (TPSCA), have made. The three projects are the production of textbooks for use in schools where Siraya is taught; the writing and singing of songs in Siraya; and Soulangh Cultural Park. The examination of linguistic choices made by the revivalists focuses on two elements of the language: the phonemes they have adopted and the graphical representation of them; and the lexis. A distinctive feature of the Dutch missionary texts is that they are written in two dialects. I therefore analyse which dialectal variants the revivalists have chosen and possible reasons for their choices.

## 2 Literature Review

The literature on language revitalisation is vast. By contrast, relatively little has been published on Siraya revitalisation. In her 2004 monograph *Is Taiwan Chinese?* Melissa Brown analysed the historic shift from Siraya to Hokkien that occurred during the Qing period in Taiwan (1683–1895) and the early years of the revivalist movement (Brown, 2004: 43–53, 75–77, 124–131). In his PhD thesis on language revitalisation and identity politics, Jimmy Huang (2010), himself a Siraya, traces the history of Siraya revitalisation, in which he was heavily involved, and places it in the broader context of the recovery of Siraya identity and the activities in which the language has been practised. However, Huang does not describe in detail the differences between the Siraya in the seventeenth-century Dutch texts and the Siraya being revitalised in the twenty-first century.

4 Meeting the legal requirement to have an ethnolect is not the only reason why the language is being revitalised, although it is the one on which this article focuses. Other reasons for revitalisation include the recovery of Indigenous identity and land rights.

5 Macapili is a native of the Philippines. His first language is Cebuano, which, like Siraya, is an Austronesian language.

The Austronesian linguist Alexander Adelaar has worked closely with Siraya revivalists and so in some sense has an insider's view of their activities. In 2013, Adelaar (2013) published an article which analyses some of the linguistic choices that the revivalists needed to make in revitalising Siraya. I am writing this article more than ten years after Adelaar published his article and so I shall analyse the texts that the revivalists have published since 2013 and evaluate their response to Adelaar's suggestions.

Also in 2013, Edgar Macapili, Jimmy Huang, and another leading member of the TPSCA and Siraya revivalist, Uma Talavan, herself a Siraya, gave a presentation at a conference on language documentation and conservation on the language course material that they had developed to support the learning of Siraya (Huang, Macapili & Talavan, 2013).<sup>6</sup> This provides a useful chronology of key events in the story of Siraya revitalisation up to 2013. Another Siraya scholar, Jolan Hsieh, has published work on the rights of Indigenous people, including the Siraya. This places the Siraya language in its social and cultural context but does not analyse linguistic aspects such as grammar and lexis (Hsieh, 2006, 2017, 2021).

### 3 Dutch Missionary Texts in Siraya

The Dutch missionary linguists who wrote the texts that are now being used to revitalise Siraya worked for the Dutch East India Company. The first Dutch minister-missionary, Georgius Candidius, arrived in Taiwan in 1627. He soon moved to the nearby Siraya village of Sinkang, where he carried out missionary work.<sup>7</sup> He learned the local dialect of Siraya before undertaking its graphisation. He then taught the Siraya people the skills of reading and writing to allow them to read the texts that he wrote. Unfortunately, none of these texts has subsequently been identified (Campbell, [1903] 1992: 99–100).

The second Dutch minister-missionary in Taiwan, Robertus Junius, arrived in 1629 and left in 1643. Like Candidius, he learned the Sinkang dialect of Siraya,

6 Edgar Macapili and Uma Talavan are husband and wife. Talavan represents the Pingpu as a member of the Presidential Office of Indigenous Historical Justice and Transitional Justice Committee. In 2005, Talavan was appointed director of the TPSCA and secretary-general of the Tainan Siraya Cultural Hall by William Ching-te Lai when he was mayor of Tainan.

7 'Siraya' is used as something of a shorthand term to denote both the inhabitants of villages near Fort Zeelandia with whom the Dutch had intensive contact and the language they spoke, which had several dialects. It is probably related to the terms *Sideia* and *Sideis*, which appear on the title page of the 1662 Formulary (Gravius, 1662). Sinkang has several orthographical variants, including Sinkan and Sinckan.



and wrote a catechism in it, which circulated in manuscript and was eventually published in Delft in 1645 (Junius, 1645). No copies of this catechism have been identified in recent times, but two fragments in Siraya, the Lord's Prayer and the catechism's title, were transcribed (Joby, 2023). To date, however, Siraya revivalists have made little use of these texts.

Another surviving text is an anonymous 55-page manuscript, consisting of a Siraya-Dutch vocabulary or lexicon of 1,072 Siraya words and four short bilingual dialogues. The manuscript is preserved in Utrecht University Library and is therefore called the Utrecht Manuscript (UM). As this is the most significant surviving text written in this dialect of Siraya, Adelaar (2011: 2) calls this dialect 'the UM dialect'. Junius's Lord's Prayer and catechism title are written in the same dialect. We know that Junius wrote 'a large vocabulary', so the UM wordlist may be one version of this vocabulary (Van der Vlis, 1842: 443). The UM includes words not found in other Siraya sources, such as parts of the body and types of fish. The dialogues are between two Dutch schoolboys. They are probably intended as learning aids for the Dutch missionaries, who might learn them by rote. The UM has been an important source in the revitalisation process.

After Junius left Taiwan, concerns were raised about his imperfect knowledge of Siraya and the fact that he had changed biblical texts to accommodate them to the Siraya culture. To address these concerns, several of his successors wrote a new catechism, based on the Heidelberg Catechism, a foundational text in Reformed Christianity (Joby, 2023; 2025: 118–20). This catechism, also known as a Formulary, went through several iterations before it was eventually published as a Dutch-Siraya diglot in 1662 by Michiel Hartogh of Amsterdam (Gravius, 1662).

Translations of books of the New Testament were also made into Siraya. In 1661, Hartogh printed Dutch-Siraya diglots of the Gospels of Saint Matthew (GSM) and Saint John (GSJ) bound together (Gravius, 1661; see also Figure 1). The Gospels and Formulary are written in a different dialect of Siraya, probably because the authors, including Gravius, were not based in Sinkang, the village where Candidius and Junius had resided. Adelaar (2011: 2), therefore, calls this 'the Gospel dialect'. Like Candidius, other Dutch missionaries taught the Siraya to write their language in Roman script. After Koxinga ejected the Dutch from Taiwan in 1662, the Siraya wrote their language in an assortment of manuscripts referred to generically as the Sinkang Manuscripts, after the Siraya village, where many of them were found. Paul J. Li (2010) published transcriptions and translations of 170 of these manuscripts, most of which are land contracts concluded with Han Chinese settlers. Many of the words are the personal names of the people who signed the documents, and so the Siraya

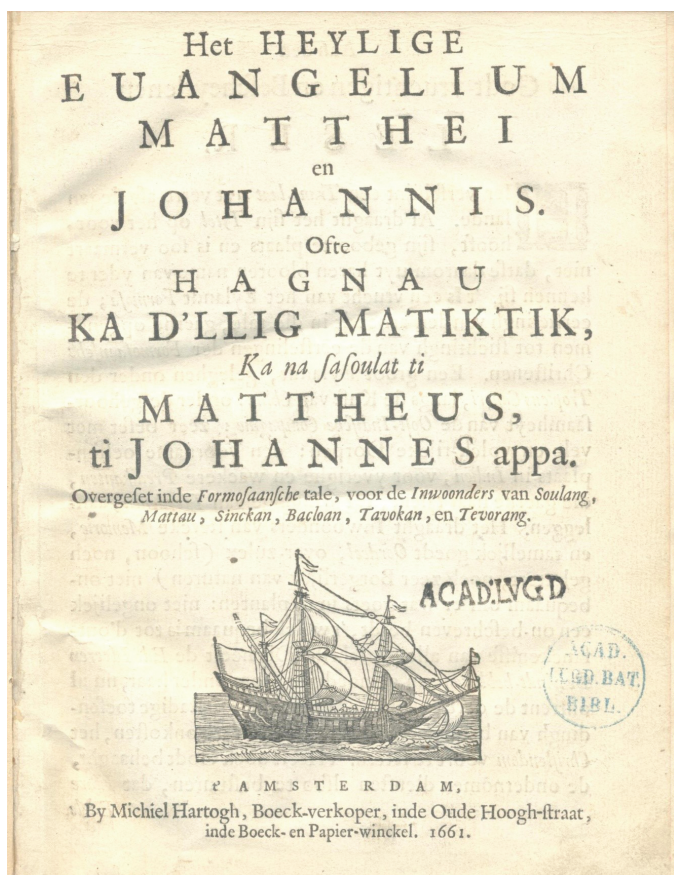


FIGURE 1 The title page of the Gospels of Saint Matthew and Saint John in Dutch and Siraya. Collection Leiden University Libraries (LUL), shelfmark 86o C 21.  
SOURCE: LUL.

text is of limited use to revivalists. One other set of Siraya texts are wordlists. Between 1717 and 1917 wordlists were written for 75 villages in the southwestern plains of Taiwan by Chinese, Europeans, and Japanese (Ogawa, 1917). Later, the Japanese linguists Shigeru Tsuchida and Yukihiro Yamada (1991) published the wordlists.

Siraya is of course not the only language to be revitalised by predominantly using written texts as source materials. Modern Hebrew draws much of its core vocabulary from Biblical and Mishnaic Hebrew, although it has borrowed words from *inter alia* Arabic and Yiddish and has needed to borrow and coin terms for modern technology and other aspects of modern life (Schwarzwald, 2001: 1–4). A different case is that of Diyari, an Aboriginal language spoken

in the northern part of the state of Southern Australia. While it never ceased to have speakers, the current revitalisation is in part possible because of the graphisation and writing of texts in Diyari by Lutheran missionaries in the late nineteenth and early twentieth centuries (Austin, 2014). This article adds to the literature on revitalisation projects using textual source material.

#### 4 Academic Work on Siraya Texts

The most important texts in Siraya revitalisation have been the two Gospels and Formulary in ‘the Gospel dialect’ and the UM in ‘the UM dialect’.<sup>8</sup> Scholars have played an important role in analysing and transmitting these texts. In 2011, Adelaar published a monograph which analyses the phonology, grammar, and lexicon of the Siraya in the GSM, the Formulary, and the UM. This is the definitive scholarly work on these subjects (Adelaar, 2011: 2; also see Chen, 2001, 2005). An important element of the monograph is a line-by-line linguistic analysis of chapters 2–11 of the GSM. Adelaar’s analysis of the grammar has been vital to the Siraya revitalisation project, as has the work that he has done with revivalists, a point I return to below. Although Adelaar’s aim was primarily to produce a work of scholarship, the grammar and lexicon in his monograph have contributed to language planning in the Siraya revitalisation project.

Before 2019, no copy of the Siraya GSJ had been identified. In that year, as a Ministry of Foreign Affairs of Taiwan (MOFA) Fellow, I identified a copy of that text in the Royal Danish Library in Copenhagen (Gravius, 1661; Joby, 2020).<sup>9</sup> This has led to the production of other works including Tzong-hong Jonah Lin’s analysis of the Siraya GSJ as well as the GSM published online.<sup>10</sup>

Several scholars have published versions of the UM wordlist, although they contain many errors (Van der Vlis, 1842; Murakami, 1933: 154–202; Tsuchida, 1998). In 2021, I attempted to correct these errors and provide an online database with corrections and comparative data (Joby, 2021). Adelaar (2006) published an analysis of the four short bilingual dialogues, written after the wordlist in the manuscript. Details of relevant work by other scholars have been published by Adelaar (2011: 1–15) and Joby (2020, 2021, 2025).

8 The Siraya lexicon published by Edgar Macapili (2008) is largely based on these texts. A copy of the GSM is in LUL shelfmark: 860 C 21.

9 The Royal Danish Library (Det Kongelige Bibliotek), Copenhagen, shelfmark 20, 136 00923.

10 See <https://bible.fhl.net/siparsing/>. See also Chen (2020) and Lu (2021).

## 5 *Loci of Revitalisation*

The Dutch texts have been used in several ways and across different locations to revitalise Siraya. I now focus on two types of text and one place through which this process is occurring. The two types of texts include textbooks and learning material alongside songs. The place is Soulhagh Cultural Park.

### 5.1 *Textbooks and Other Learning Material*

The first set of textbooks for learning Siraya was published in 2010. However, before this time, other materials were produced which contributed to the revitalisation process. In 2002, Edgar Macapili wrote a trilingual (English, Hokkien, and Siraya) play based on the story of Noah's Ark. It was performed in Tainan just before Christmas (Adelaar, 2011: 15–16; Macapili, 2002).<sup>11</sup> Also in 2002, the TPSCA, founded a few years earlier, started to compile a trilingual Siraya-Chinese-English dictionary (Huang, 2010: 305). This was published in 2008 (Macapili, 2008).<sup>12</sup> The dictionary draws extensively on the Dutch missionary linguists' texts. It uses little specialist terminology and so is more suitable for use by non-linguists than the lexicon in Adelaar's 2011 monograph (2011: 296–400). Macapili, however, recognises that the dictionary has one or two drawbacks. First, it is very large, weighing four kilograms. Second, it uses European grammatical categories, which are not well suited to Siraya (Huang, 2010: 348–350). Additionally, for the vocabulary from the UM, it uses published editions, which contain errors, rather than the original manuscript (Joby, 2021). Nevertheless, above all because of its comprehensive coverage of the Siraya lexis, it was an important milestone in the corpus planning of the language.

Between 2007 and 2011, the TPSCA held summer camps to educate Siraya children, and other interested individuals, in the Siraya language and culture (Huang, Macapili & Talavan, 2013: 4–6). One activity of note is poetry writing. Most of the poems were written in Mandarin or Taiwanese Hokkien, but they do include words of Siraya, promoting awareness of the language among the children. The summer camps were also used to train teachers to give lessons in Siraya (Huang, 2010: 344–347). The teaching of Siraya in schools began in autumn 2009, when the TPSCA sent teachers to Liuxi Elementary School to teach Siraya four hours a week as part of the Mother Language Class.<sup>13</sup> Over time, this programme has developed, and Siraya is now taught in 17 primary schools and three junior high schools in southwest Taiwan (Adelaar, 2023). In

11 On Siraya culture, see also Duan (2017).

12 For other issues concerning the dictionary, see Huang (2010: 348–350).

13 From September 2009, four elementary schools offered Siraya Mother Tongue classes (Huang, Macapili & Talavan, 2013: 4).

Koupi Village, the elementary school has introduced the teaching of Siraya from the first grade (Huang, 2010: 351). The school in Koupi has signs in Siraya, Mandarin, and, on occasion, Romanised Hokkien. A striking, multicoloured staircase with words in Siraya, Mandarin, and English accompanied by a picture takes the language outside the classroom into a semi-public space and functions as a learning aid (Figure 2). At this and other schools, it is not just Siraya children who learn Siraya but also Han Chinese children.

To facilitate the teaching of Siraya, textbooks have been written and published. The importance of the Dutch missionary texts to Siraya revitalisation is expressed nowhere more clearly than in the foreword to the first set of Siraya textbooks, a five-volume set of learners published by the TPSCA with the Siraya title *Sulat ki Su ka Maka-Siraya* (lit. ‘Book of the Siraya Language’) (Macapili et al., 2010). Here, Adelaar records that the authors drew material in the textbooks from the Siraya translation of the GSM, the Formulary, and the UM. Adelaar also wrote the foreword for a series of ten learners published in 2013 with the Siraya title *Kakutingan ki Siraya ka mahaal ki 10 ki sulat*, and an English title: *Easy to Learn Siraya in 10 Booklets*. He observes, ‘the material is based on data drawn from missionary texts and a wordlist left behind by the



FIGURE 2 Multilingual staircase at Koupi Elementary School.  
SOURCE: AUTHOR’S OWN COLLECTION.



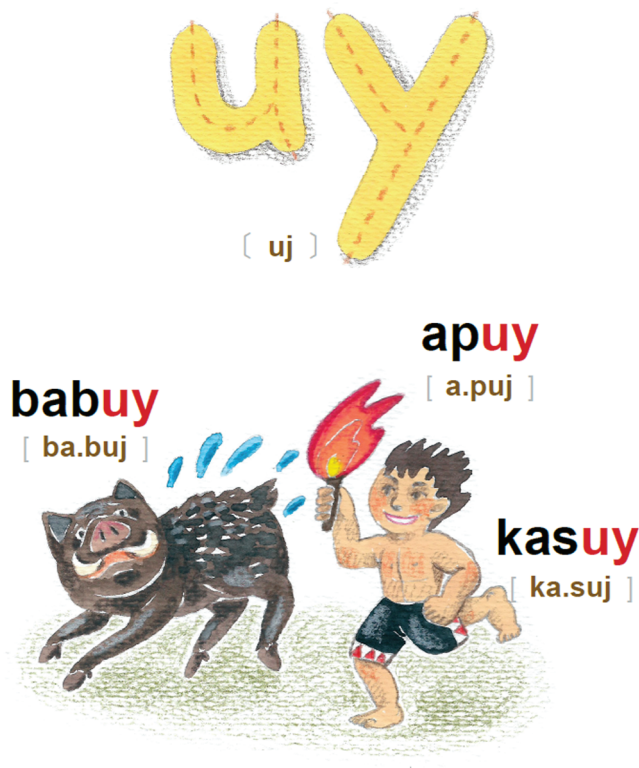
Dutch during their colonisation of West Taiwan in the 17th century’—that is, the GSM, Formulary, and UM (Macapili, 2013a).

The *Sulat ki Su ka Maka-Siraya* textbooks are in colour and include many illustrations, some depicting aspects of traditional Siraya life, such as a traditional shrine or *kuva* and traditional food and drink. They have two main characters with traditional Siraya names: Vokalig, a young girl, and her male friend, Takalang. Each volume has a vocabulary in Siraya, English, and Chinese and a pronunciation guide. In 2012, the TPSCA published CDs to accompany the textbooks. As for the 2013 booklets, the author takes a functional approach to language which allows the learner to ‘function’ effectively in the target language (Germain, 1982: 49). Each booklet contains simple Siraya phrases for a specific discourse function such as greeting someone, introducing oneself, and introducing family members, and contains about ten key phrases in Siraya with Mandarin and English equivalents. Each one is accompanied by a black and white picture that learners are encouraged to colour in as they try to memorise it. Scientific studies indicate that creative drawing can improve memory recall ‘by encouraging a seamless integration of semantic, visual, and motor aspects of a memory trace’ (Wammes, Meade & Fernandes, 2016: 1752). At the back of each booklet is a pronunciation guide to Siraya and a short song with a simple melody composed by the author, which allows the student to practise singing a key phrase. When the booklets were first published in 2013, Siraya orthography had not yet been standardised. In 2017, they were republished with a standardised orthography.<sup>14</sup>

The standardised orthography was first introduced in print in a textbook published in 2016 on pronouncing and writing Siraya using the Roman alphabet (Macapili, 2016: 2). This brings a measure of consistency to Siraya textbooks and is an important element in the language planning of Siraya (Cooper, 1989: 8). The textbook is trilingual (Siraya, Mandarin Chinese, and English) and has Siraya and Mandarin titles: *Kaktingan ki Fonetik ki Ortografik apa ki Siraya* (lit. ‘Siraya Lessons in Phonetics and Orthography’), and ‘來學西拉雅語發音與書寫!’ (lit. ‘Come and Learn Siraya Pronunciation and Writing’) (see Figure 3).<sup>15</sup> The reader will note that the word *Kaktingan* was spelled *Kakutingan* in the

14 The standardised orthography resulted from co-operation with representatives of the Council of Indigenous Peoples (CIP, 原住民族委員會).

15 The words *fonetik* and *ortografik* did not occur in the Dutch texts. They are therefore examples of words introduced by revivalists to fill semantic gaps in the Siraya lexicon. Loanwords in Siraya are drawn from various other languages. These include other Austronesian languages, Proto-Austronesian roots, and European languages such as English and Dutch. The Siraya teachers play an important role in deciding which words are introduced into Siraya. Personal communication with Edgar Macapili, 15 May 2023.



Matakut ta babuy ki apuy.

豬怕火。

The pig is afraid of fire.

FIGURE 3 The diphthong *uy* in *Kaktingan ki Fonetik ki Ortografik apa ki Siraya*.  
SOURCE: TCSA.

2013 textbook (and *kakuting-an* in the subtitle of the 2010 textbook). Adelaar (2011: 336) argues that in the root *kütüŋ/kütüŋ* ('to read') there is a schwa between the 'k' and the 't'. As I discuss below, one of the decisions taken when the orthography was standardised was to cease using a vowel such as 'u' or 'i' to represent a schwa in word-initial consonant clusters.<sup>16</sup>

16 Adelaar also argued that the vowel between 't' and 'ng' was a schwa. This is represented as 'i' in *(ka)kutingan*.

In 2016, a two-volume Siraya learner for Chinese speakers was published by Tainan City Government called *Su ka Maka-Siraya* (The Siraya Language). The author was Shu-fen Li (李淑芬; Hokkien: Siok-hun Li), a Siraya with the Siraya name, Seyluf Tama-Tavali (Li, 2016).

Since 2010, besides textbooks, other materials have been published, which contribute to Siraya revitalisation. In 2017, the first edition of *Siraya Commonly Used Action Words (Verbs)* / 詞綴與動詞變化 was published.<sup>17</sup> This introduces syntax, grammar, affixes, and inflections. It references everyday actions in several social contexts including the home, school, and outdoors. A second edition was published in 2020 (Macapili, 2020). *Sulat ka using ki Kasusuan ka Padagawan ki Siraya* / *Pocket Book of Common Sentences in Siraya Language* / 西拉雅語常用句口袋書, published in 2013, is a phrasebook containing 342 Siraya phrases with Chinese and English equivalents (Macapili, 2013b). These range from basic phrases such as 'What is your name?' to more complex ones such as 'my older brother is happy because Vokalig dances with him'. *Masusu-a kita ki Siraya* / *Let's Talk in Siraya* / 活用西拉雅語 700+, published in 2018, is a more ambitious enterprise, presenting 728 phrases, from simple everyday phrases to more complex sentences in Siraya, with Chinese and English equivalents (Macapili, 2018). Teaching videos have also been made (Hsieh, 2021: 248).

## 5.2 Songs

Siraya is also being revitalised through music and song. In 1997, the musical *Another Window to the Pingpu* (平埔的另一扇窗) with some lyrics in Siraya was first performed (Macapili, 2016: 2). In 2002, a group of mainly young Siraya, together with Edgar Macapili, formed the music group *Onini* (from the Siraya *oni*, 'sound' (UM)) (Huang, Macapili & Talavan, 2013: 4). It performs a few songs in Mandarin and Southern Min, but mainly in Siraya, written by Macapili and Uma Talavan, at cultural events (Huang, 2010: 340, 343–344). In 2005, under Macapili's musical leadership, *Onini* published a CD, 古老的故事如此傳說 *Ancient Stories are so Legendary* (Macapili, 2005). In 2012, a 12-track CD was published. The songs were written and performed by Macapili and Talavan together with Lici Talavan, and the Dutch lyricist Menno Goedhart. The English title of the CD is *Siraya, Where Did You Go?*, the name of the first track. Four other tracks are in English, but seven are in Siraya (Macapili, Talavan & Goedhart, 2012).

Communal events held to preserve or build up the Siraya language community often involve singing. Several studies have concluded that singing in a foreign language can assist students in learning and retaining new phrases

<sup>17</sup> The Chinese title translates as *Affixes and Verb Conjugations*.



(Good, Russo & Sullivan, 2015). On the one hand, traditional singing is being revived in villages such as Jibeishua (吉貝婁, also Kabuasua), where Siraya practise ancestral spirit beliefs. The revival of traditional ceremonies allows for the use of Siraya in the form of chants and incantations (Hsieh, 2021: 248). On the other hand, the singing of Christian songs in Siraya is also being encouraged. Here, several factors are at work. Uma Talavan and Edgar Macapili have both studied music, and Macapili, a professional musician, has written many Christian songs in Siraya, including Siraya versions of traditional Christian hymns, using the Dutch missionary texts as his source. For other songs, he uses what are thought to be traditional Siraya melodies and rhythms. He often uses traditional Siraya instruments for musical accompaniment (Adelaar, 2013: 213). At the end of many of the learners and textbooks, there is a simple song in Siraya, which is based on a phrase introduced in the book. For example, in the first booklet in the series *Kakutingan ki Siraya*, the song to assist learning greetings is *Tabe, tabe, mariyang wagi* (Greetings, greetings, good day).

Macapili and Talavan are both members of the Presbyterian Church of Taiwan (PCT). Communal singing forms an important part of worship in the PCT, which has churches in villages with significant Siraya populations. In 2023, the Tainan City Siraya Cultural Association (TCSCA, formerly the TPSCA) published a collection of Macapili's Christian songs and hymns. The Siraya title is *Takalulugan*, and the English title *Siraya Breathes Hymn Anew*.<sup>18</sup> These songs and hymns have been sung at communal singing events.<sup>19</sup>

### 5.3 *Soulangh Cultural Park*

One of the Siraya villages named by Candidius was Soulangh (Campbell, [1903] 1992: 9, 14). The area that it occupied is in modern-day Jiali in Tainan City. In north Jiali is Soulangh Cultural Park (蕭壩文化園區, SCP), which opened in 2005. It is a multi-purpose space used by artists but also includes objects and buildings representing Siraya culture and language, and therefore gives them a public visual presence.

Four buildings in the SCP present words and sentences in Siraya derived from the Dutch missionary texts. In each case, Mandarin texts accompany the Siraya, creating a bilingual space. Two huts function as information centres. In one, several posters on the walls give basic Siraya words and phrases including the numbers 1–11, with Mandarin equivalents.

18 *Taka-* means 'to sing', *lulug* 'praise', and *-an* is a nominaliser, so literally *takalulugan* means 'singing praise' (Adelaar, 2011: 340, 378).

19 In November 2023, I visited the Presbyterian church in Zuozhen (左鎮) in Tainan City to attend an afternoon of singing these Christian hymns in Siraya by groups from different Siraya churches, accompanied by Edgar Macapili.

A corrugated iron wall on the outside of another building also presents the Siraya language. It combines two of the SCP's goals: to provide a space for artists and to promote the Siraya language and culture. Six panels on the wall tell the story of a legendary Siraya youth who gained the favour of the Qianlong Emperor (reign 1735–1796). Above is a Mandarin text, in the middle artwork depicting the Siraya youth, and below is a Siraya text (Figure 4).

The Siraya youth was named Tian-yu Cheng (程天與) in the Chinese, but also in the Siraya text, which illustrates that by Qianlong's reign, the process of assimilation was underway. His main attribute was that he could run fast, earning him the nickname *Feifan* (飛番): 'the flying barbarian'. This news spread to faraway Beijing. The emperor wanted to see if he could run faster than a horse. He was so impressed by Cheng that he gave him two bows and a lot of money and said that he could visit him three times. Most of his subjects were not allowed to visit the emperor once, let alone three times. Because he ran so quickly, Cheng was asked to deliver official documents. The final panel depicts Cheng's tombstone. The inscription, in Chinese, records that he did meet the emperor three times! While on the one hand, this story would be a source of pride for the Siraya, on the other hand, it is a reminder of the Qing domination of the Siraya, which contributed to the decline of their language



FIGURE 4 The first two panels of the story of Tian-yu Cheng at SCP.

SOURCE: AUTHOR'S OWN COLLECTION.

and culture. This text has the deictic function of illustrating in a public space that this story can be told in the Siraya language and therefore has some sort of equivalence with Mandarin Chinese. Finally, the SCP is home to a *kuva*, which has an inscription referring to the supreme Siraya deity in Siraya and Mandarin.

6 Linguistic Analysis

I now analyse two features of the Siraya language—phonology and lexis—used in the textbooks, songs, and SCP, and compare them with the Siraya written by Dutch missionaries in the seventeenth century to understand what choices the language revivalists have made, and where possible to identify reasons for these choices. One challenge here is that the Siraya data in the seventeenth-century texts is inconsistent (Adelaar, 2013: 212). For example, the same sound is often represented with more than one orthographical variant.

6.1 Phonology of Siraya

An important element in revitalisation is the implementation of a standard writing system to reflect the phonemic set of the language in question. In 2002, a project was begun to produce an alphabet to represent the sounds of Siraya. In 2016, agreement was reached on a phonemic orthography (Macapili, 2016: 2). To compare the phonology of Siraya in the seventeenth-century Dutch texts with the modern phonology, I present the former in Tables 1a and 1b and the latter in Tables 2a and 2b. I also add a short note comparing the use of diphthongs.

TABLE 1 The phonology of Siraya based on Dutch missionary texts (Reproduced from Adelaar, 2011: 50)<sup>20</sup>

<i>Table 1a</i>		
Vowels:	i [i:], ɨ [ɨ]	u [u:], ʉ [ʉ]
	e	ə
	a [a:], ǎ [ǎ]	o

20 According to Robert Blust (2013: 169), probably 90 percent of all Austronesian languages have 15–20 consonants and 4–5 vowels; hence total phoneme inventories that lie between 19 and 25 segments. In the seventeenth-century texts, Siraya had 18 consonants (including the two semivowels) and 9 vowels.

Table 1b

Consonants:					
Consonants	labial	coronal	palatal	velar	glottal
Stops					
voiceless		t		k	' (?)
voiced	p	d, D			
Nasals	m	n		ng [ŋ]	
Liquids		l, r			
Fricatives	v	s		x	h
Semivowels/glides	w		y		

Three consonants in the Gospels have an uncertain phonemic status and phonetic value: c, nġ, and z (Adelaar, 2011: 50).<sup>21</sup>

Adelaar (2011: 51) observes that Siraya had three diphthongs, namely *aw*, *ey*, and *uy*. These are not phonemic units but combinations of a vowel + semivowel. Only *ey* can occur in non-final position, while *aw* has a palatalised allophone *äw*, which is identical to the palatalised allophone of *u*. To these, we can add *-ay* in the UM, as in *nay* ‘earth’. The 2016 guide to modern Siraya phonology has these four diphthongs, viz., *aw*, *ey*, *uy*, and *ay*. The guide gives *nay* for ‘earth’, as opposed to the palatalised form *näy*, which occurs in the Gospels (Macapili, 2016: 48; Adelaar, 2011: 344). *Näy* is a normalised form provided by Adelaar (2011: 92) as Dutch orthography was inconsistent. The 2016 guide also includes the semivowel + vowel combinations, *wa*, *ya*, and *yu*.

6.1.1 Consonants

The modern pronunciation of many of the letters is probably the same as it was in the seventeenth century. However, there are exceptions. In the seventeenth-century texts, ‘g’ in Siraya was probably pronounced as a velar fricative [x], as it is in Dutch (Adelaar, 2011: 37–38; Booij, 1995: 7). By contrast, in the pronunciation guides in many of the modern textbooks, ‘g’ has the value of a velar plosive [g] (Macapili, 2013a). However, in the 2016 pronunciation guide, a word-final ‘g’ can be pronounced as both a velar fricative [x] and velar

21 ‘z’ was probably a voiced sibilant in Gospel texts, although this is not certain (Adelaar, 2011: 52).

TABLE 2      Phonology of modern Siraya (Reproduced with modifications from Macapili, 2016: 45)

Table 2a							
Vowels:							
Vowels	Written form			IPA (International Phonetic Alphabet)			
near-close vowel <sup>22</sup>	i			i			
close-mid vowel	u			u			
open-mid vowel	e			e			
schwa				ə			
near-open vowel	o			o			
open vowel	a			a			
Table 2b							
Consonants:							
Consonants	labial	labiodental	coronal dental	coronal alveolar	palatal	velar	glottal
Stops	p, b		t, d			k, g	ʔ (?)
Nasals	m		n			ŋ	[ŋ]
Lateral			l				
Trill (flipped)			r				
Fricatives		f, v		s, z		[x]	h
Affricate					c		
Semivowels/ glides	w				y		

plosive [g] (Macapili, 2016: 43). One argument put forward by revivalists for the general shift to a velar plosive is that it is easier for speakers of Hokkien or Mandarin to pronounce than a velar fricative. Understandably, the revivalists

22    The descriptions in the first column are given in the source text (Macapili, 2016). IPA [i] is a close front vowel; IPA [u] is a close back vowel; and IPA [o] is a close-mid back vowel.

do not want potential learners to be put off by difficult pronunciation. As for the word-final 'g', the pronunciation guide gives the example of *talag* 'house', which can be pronounced with a final velar plosive [g] or velar fricative [x], viz. IPA *talag* and *talax* (Macapili, 2016: 4). The fact that a final 'g' can be pronounced as [x] is illustrated in the story of Tian-yu Cheng at the SCP. On the fourth panel, the word for 'bow' is written *tapkux*. In the UM, it is written *tapkoug*. Likewise, on the second panel, the word for 'fly' is written *subux*. In the GSM (Chapter 13 verse 4, henceforth 13:4), it is written *soubuh* [*subüx*], where the 'h' is presumably velarised (Adelaar, 2011: 375). This story may have been written on the wall at the SCP before 2016, for I have not found evidence of the use of a word-final in texts written after 2016. In the 2023 songbook *Takalulugan*, 'light' in the song 'Come, light of God', is written *ramag* and the title *Iruaa ramag*. Finally, in the Gospels, the word for teacher is *tama-ma-täütäux* (normalised form), where *tama* is an agentive prefix (Adelaar, 2011: 382). In the textbooks, it is *tamamagtawtawug* (Macapili, 2013a: 3, 11); and *tamamagtautauug* (Macapili et al., 2010: book 5 page 27, henceforth 5, 27). It has therefore acquired an extra word-medial 'g'. This is possibly because some of the tokens of the word in the Dutch texts have an 'h' in this position, for example *tama-mahta-taeutaewuh* (Matt. 9:11), although this was probably silent (normalised form *tama-ma-täütäux*) (Adelaar, 2011: 253; Macapili, 2008: 530).

'r' was most probably pronounced in more than one way in seventeenth-century Dutch, for in modern Dutch /r/ may be realised in as many as six ways (Booij, 1995: 8). Therefore, it is difficult to know with certainty what sound or sounds were represented by 'r' in Siraya words in missionary texts. The revivalists decided that it should be pronounced as a trill, as that is how it is pronounced in many modern Austronesian languages, above all those in the Philippines, but also Malay (Huang, 2010: 317).

In the Dutch texts, before 'i' or 'y', 'c' was a sibilant or affricate, and before 'o' it stood for 'k' (Adelaar, 2011: 34). In modern Siraya, it is simply an affricate 'ts'. For example, *lici* 'tassle' has the IPA value *litsi* (Macapili, 2016: 24). In combination with an 'h' in words of Greek origin beginning with χ *chi*, 'c' in Dutch was pronounced as a velar fricative [x, ʁ] or a voiceless velar plosive [k], for example *Christen* 'Christian'. In Dutch missionary texts, this was written in Siraya as *Christang*. We do not know if the initial 'ch' was pronounced in Siraya as a velar fricative or velar plosive. In modern Siraya texts such as the 2023 songbook it is, however, written with 'k' and pronounced as a voiceless velar plosive, viz., *Kristus* 'Christ' and *Kristang* 'Christian' (Macapili et al., 2010: 5, 26; Macapili, 2023: 22).

Adelaar (2013: 51) suggests that there may have been a phonemic glottal stop in Siraya. However, the only words spelled consistently in a manner which suggest its presence are *t'e* [tʔe] 'misery' and its derivations. One derivation in the 2008 dictionary is *ka'te'an* (Macapili, 2008: 920). In the GSM (6:34), this

has the normalised form *ka-t'e-ən* and so in the dictionary the glottal stop in the root has been removed (*t'e* > *te*) (Adelaar, 2011: 383). In modern Siraya, one word that has two phonemic glottal stops is *pi'pi* 'to break into fragments', which has the IPA value *piʔpiʔ*. By contrast, in the Gospels, this word does not have glottal stops, viz. the normalised form *pipi* (Adelaar, 2011: 357).

In the set of Proto-Austronesian (PAN) consonants reconstructed by the Austronesian linguist John Wolff (2010, vol. 1: 31), there is no voiceless labiodental fricative [f]. Likewise, the phonemic set of seventeenth-century Siraya presented by Adelaar (2011: 50) lacks this phoneme. Nevertheless, 'f' does occur in a few words in Dutch texts: for example, *gnataf* (UM 'window'), *nġataf* (Gospels 'door'), *fnang* (UM 'deer'), and *glaf* (UM)/*laf* (Gospels) 'room'.<sup>23</sup> It is also used in the Gospels for biblical names based on Dutch forms such as 'Pharisees' (*Fariseen*) and 'Philip' (*Filippus*). The revivalists do include 'f' in the phonemic set of modern Siraya. One reason for this is that several loanwords include the phoneme [f]. Three examples in the 2016 pronunciation guide are *fonetik* 'phonetics', *ortografik* 'orthography', and *Formosa*, the Portuguese name for 'Taiwan' (Macapili, 2016: 51).

#### 6.1.2 The Semivowel 'y'

In Dutch texts, 'y' does not occur in a word-initial position.<sup>24</sup> In revivalist texts, it replaces word-initial 'i' and 'j' in the Dutch texts (a word-initial 'j' in Dutch is a glide). For example, in Dutch texts 'Spirit' in the phrase 'Holy Spirit' is written *lupan* or *Joepan*. In modern texts such as the hymn 'All creatures of our God and King' (Siraya: *Mukuimid makururaw*) it is written *Yupan* (Macapili, 2023: 1). It has therefore undergone an orthographic change. Similarly, *Jesus* in the Dutch texts is rendered *Yesus* in modern texts, and *Jesus Christ* as *Yesus Kristus*. In the Dutch texts, the enclitic =*ian*, =*iän* is the first-person plural exclusive genitive pronoun. In modern texts, it is rendered *yan*. In the 2023 songbook (p. 13), 'our God' is rendered as *Alid yan*. 'y' is also used in modern texts in non-initial positions. 'Birds' is rendered *ajajam* in the Gospels (e.g. GSM 6:26) but *ayayam* in the 2016 pronunciation guide (Macapili, 2016: 33). On occasion in Dutch texts, the digraph *ij*, which usually represents the diphthong /ei/, is used in Siraya in non-initial positions. For example, 'salt' is rendered as *vaija* (GSM 5:13). Adelaar (2011: 395) gives the normalised form *vaya*. Modern Siraya

23 On a wall at Jibeishua, where there is a traditional Siraya learning centre, a sika deer is depicted. This is named as *fulang*. *Fnang* is probably a reflex of the PAN \**benan* 'sika or sambar deer' (Blust & Trussel, 2020). Like Siraya, Amis is an East Formosan language. \*b has the reflex 'f' in the central dialect of Amis. Something similar may have happened in Siraya (Wolff, 2010, vol. 1: 190). One other possibility is that 'f' represented a bilabial fricative [ɸ] in the Dutch texts.

24 'y' does not occur in the native Dutch alphabet.



does not use *ij*, so ‘salt’ is written *vaya* (Macapili, 2008: 1005).<sup>25</sup> There may also be a phonetic shift here from a diphthong to a semivowel.

### 6.1.3 Vowels

The number of vowels in Dutch texts, nine, has been reduced to six in modern Siraya. The three vowels that are now not used are the long *a* [a:], *i* [i:], and *u* [u:]. The distinction between *e* and *ə* has been retained and *o* remains a long vowel (Macapili, 2016: 45). One consequence of this is that the phonetic distinction in the Dutch texts between the short vowel *u* and the long vowel *ou* has been lost in modern Siraya textbooks (Adelaar, 2011: 31).<sup>26</sup> The verb *rub* ‘to sink’ had the normalised form *rüb* indicating a short vowel. By contrast, *duha/ruha*, variant forms of ‘two’, have the normalised forms *duha/ruha* indicating a long vowel (Adelaar, 2011: 364, 365). In the modern textbooks, there is no distinction, viz. *rub*, *duha/ruha* (Macapili, 2008: 1032, 1099). This move is facilitated by the lack of *u/ou* minimal pairs in the Dutch missionary texts (Adelaar, 2011: 31). Again, this change and the absence of [a:], [i:], and [u:] in modern Siraya may help to facilitate the learning process.

One important orthographical change is that while the Dutch texts have double, or geminate, consonants, modern Siraya texts do not. For example, *vullum* [vũlũm] ‘sky’ or ‘heaven’ in the Gospels is written *vulum* in the modern textbooks and songbook. The Dutch texts have geminates to indicate a short preceding vowel. There are no geminates in Proto-Austronesian and they are usually absent in other Taiwanese Austronesian languages or Formosan languages (Adelaar, 2011: 169, 24, 44). Furthermore, as modern Siraya lacks [a:], [i:], and [u:], there is no need to use geminates to distinguish between short and long vowels.

The Austronesian linguist Robert Blust (2013: 175) argues that Proto-Austronesian had a four-vowel system, which included a schwa. Adelaar (2011: 19–21) asserts that in the Siraya recorded by the Dutch in the seventeenth century there was clearly a schwa, although no separate letter was used to represent it. He therefore recommended that the revivalists introduce a separate letter for schwa, arguing that (Adelaar, 2013: 230–231)

recognizing schwa as a phoneme in its own right will restore an inherent feature of Siraya phonology. Moreover, it will also reduce the

25 The digraph <ij> does occur in the Sinkang Manuscripts. For example, one manuscript dated to 1683, renders ‘earth’ as *inaij* (Li, 2010: 330).

26 Adelaar (2013: 29), whose first language is Dutch, states that the digraphs <ou> and <oe> represent the same phoneme ‘u’.



spelling inconsistency in Siraya texts and bring out the phonotactic structure of Siraya.

Nevertheless, the revivalists have decided not to introduce a separate letter for schwa, although they are 'keenly aware' of its existence (Adelaar, 2013: 230–231). I now examine two cases in which schwa is pronounced in modern Siraya to identify the strategies that the revivalists decided to employ.

The first case is where there is a heterorganic consonant cluster in a word-initial position. Dutch authors did not write it; instead, they wrote it as a free alternation between a short 'i' and a short 'u', or as an apostrophe (Adelaar, 2013: 231, 216). For example, the UM has *tging* 'fish' and *fnang* 'deer', while the GSM has *t'hing* for 'fish'. Initially, the authors of modern Siraya texts inserted a 'u' between the consonants, viz. *tuging* and *funang* (Macapili et al., 2010: 1, 32; 4, 20). However, the 2016 guide to orthography and phonetics has *tging* and *fnang*; that is, the UM forms. The IPA pronunciation guide indicates that there is a schwa after the initial consonant, viz., *tə.giŋ*, *fə.naŋ*. This also affects actor-voice (AV) verbs with an infix <m>. For example, in the 2010 learner, 'to eat' is *kuman*. In the 2016 guide, it is *kman* with the IPA value *kəman* (Macapili et al., 2010: 4, 32; 2016: 16).<sup>27</sup>

Second, schwa was pronounced in affixes applied to the end of words, -V[owel]n, in seventeenth-century Siraya. Dutch authors wrote the schwa in free alternation as 'e', 'i', 'u', or zero (Adelaar, 2013: 216). The undergoer-voice (UV) suffix had the normalised form -ən, in for example *ka-kan-ən* (a reduplicated form) (written as *ka-kan-nin*) meaning 'food' (< *kan* 'to eat') (Adelaar, 2011: 218). The 2016 guide has *kanen* for 'food'. The IPA guide indicates that the 'e' is pronounced as a schwa, viz. *kanən* (Macapili, 2016: 9).

Finally, a diaresis is used to mark syllable boundaries between two vowels in the Dutch texts, for example *Galilëa* (GSM 2:22). It is, however, absent from modern Siraya texts. The final song in the 2023 songbook is a Siraya version of 'Your will be done', which is a line from the Lord's Prayer. In the GSM (6:10), this is rendered *Paämt-au ta kamoei-en-hou* (*Pa-am't-aw ta ka-muy-ən=hu*). However, in the song, it is rendered *Kamuyen oho paamutaw*; <aa> presumably indicates a long 'a'. A diaresis was also used to mark palatalisation in the seventeenth-century texts, a phenomenon discussed below.

#### 6.1.4 Dialectal Differences in Phonology

There are three important phonological differences between the Gospel and UM dialects (Adelaar, 2013: 224). Words that exhibit these differences occur

27 Adelaar (2013: 215; 2011: 101–102) identifies these as class 3 verbs. In the actor voice, they take an <m> infix if they begin with a (non-labial) consonant, e.g. *k<m>an*.

in Dutch texts in both dialects. Adelaar (2013: 230) argues that combining the vocabularies of the different dialects would be awkward and ‘may create an unrepresentative phonological mix’. Furthermore, it might create ‘unnecessary doublets and obscur[e] lexical and morphological connections’. Nevertheless, in building Siraya vocabulary, the revivalists have used words from both dialects exhibiting these phonological differences.

1. PAN \*d, Proto-Siraya \*ð > UM s
- G d/r (d-/r- in initial position and r elsewhere (D))

Table 3 illustrates that in this sample of ten words, the Gospel form is more common. Moreover, forms with r- in the initial position are preferred to those with d-. These are allomorphs of the phoneme D (Adelaar, 2011: 55).

TABLE 3 Words in the UM and Gospel dialects with reflexes of PAN \*d, Proto-Siraya \*ð

Meaning	UM	Gospel	Modern Siraya <sup>28</sup>	Source
‘water’	salom	raloum (ralum)	salom	Macapili et al., 2010: 1, 32; SCP
‘thunder’	singding	rungdung	su<m>ingding	Macapili, 2018: 157
‘down’	sasim	rarim/darim	darim	Macapili et al., 2010: 1, 34
‘father’	samma	rama/dama	rama	Macapili, 2013b: 104
‘when, if’	so	ru/du	ru	Macapili et al., 2010: 1, 32
‘two’	sosoa	ruha/duha	ruha	SCP
‘big’	isang	irang	irang	Macapili, 2023: 1
‘foot’	sapal	rapal	rapal	Macapili, 2016: 18
‘back’	rikos	rikor	rikor	Macapili et al., 2010: 4, 22
‘glorious / light’	ma-samach	ramäx	ramag	Macapili, 2023: 9, 18

28 As already indicated, the data under the heading Modern Siraya is taken from texts published by Edgar Macapili. To give one example here of a difference between the texts published by Macapili and those published by Shu-fen Li, while Macapili uses the UM form *salom*, Li uses the Gospel form *ralum* ‘water’ (Li, 2016: 31).

TABLE 4 Words in the UM and Gospel dialects with reflexes of PAN \*R and \*S, Proto-Siraya \*x

Meaning	UM	Gospel	Modern Siraya	Source
‘day’	wagi (waxi)	wäi	wagi	Macapili, 2016: 32
‘seed’	gaap	ähäp	gaap	Macapili, 2013a: 4, 3
‘to get up’	gapit	äpit	gapit	Macapili et al., 2010: 1, 20
‘beautiful, good’	maganig	mä-änix	maganig	Macapili et al., 2010: 5, 20
‘left’	ougi	ui/äwi	ugi	Macapili et al., 2010: 4, 36 <sup>29</sup>
‘room’	glaf	laf	glaf	Macapili, 2018: 114 <sup>30</sup>
‘hear’	gmilingig	milingix	milingig	Macapili, 2016: 42
‘baptise’	gmouloug	m-äwlux	mawlug	Macapili, 2008: 653

2. PAN \*R and \*S, Proto-Siraya \*x > UM x (in all positions)  
G ø- -ø-, -x

The data in Table 4 suggests that the revivalists prefer to use the UM form, although the ‘g’ will be pronounced as a velar plosive [g] rather than a velar fricative [x]. One exception is where there is a word-initial ‘g’ followed by an <m> infix for AV verbs. Here, the Gospel form is preferred.<sup>31</sup> While this may facilitate pronunciation, it means that there is a mixing of the dialects.

3. Proto-Siraya \*a, \*u > UM a, u  
G ä, äw

In the Gospel dialect, the presence of word-final *x* or of a historical \**x* in all positions leads to palatalisation of some adjacent vowels: usually, \**a* becomes *ä*, and \**u* becomes *äw*. These vowels remain unaffected in the UM dialect (Adelaar, 2013: 225). As Table 5 illustrates, depalatalised forms such as those in the UM are used in modern Siraya. However, in the case of *ramag* and

29 This entry gives *ugi* as ‘right’, but in Dutch texts it references ‘left’. Likewise, it gives *wal* as ‘left’, although in Dutch texts this means ‘right’.

30 The author explains that one reason why *glaf* was chosen instead of *laf* is that the gloss in the UM (‘room’, Dutch *camer*) is clearer than in the Gospels (‘room’ or ‘hall’) (Adelaar, 2011: 337).

31 The verb *gumiltag* ‘to strike lighting’ is one exception to this (Macapili, 2018: 157). The noun *giltag* (normalised form *xiltax*), but not the AV verb \**gmiltag*, is in the UM. This may explain this inconsistency.

TABLE 5 Words in the UM and Gospel dialects with reflexes of Proto-Siraya \*a, \*u

Meaning	UM	Gospel	Modern Siraya	Source
‘light-ning’ <sup>32</sup>	xiltax	‘ltäx	gumiltag (verb)	Macapili, 2018: 157
‘dawn’	bavarax	varäx	vavarag	Macapili, 2018: 197
‘in the open’	toupanax	tu pänäx	(tu)panag	Macapili, 2008: 375
‘man’	(ma)parach <sup>33</sup>	päräx	parag	Macapili, 2010: 4, 36
‘glorious/light’	ma-samach	ramäx	ramag	Macapili, 2023: 9, 18
‘tree’	pesanach	päränäx	paranag	Macapili, 2016: 47

*paranag*, there is mixing of the forms. They are depalatalised (UM) but have ‘r’ (Gospel) instead of ‘s’ (UM) for reflexes of PAN \*d, Proto-Siraya \*ð (case 1 above). In other cases, too, where the Gospel form has palatalisation and the UM form lacks it, the revivalists have chosen the UM form. For example, ‘earth’ in the UM is *nay*, but in the Gospels *näy*. Modern Siraya has *nay* (Macapili, 2023: 15). Similarly, in the Gospel texts in certain phonetic environments, such as proximity to a palatalised -a, some affixes and clitics undergo palatalisation, for example =*uhu* ‘your’. This does not occur in modern Siraya.

In each case, the data set is relatively small, but there is clearly some mixing of the two dialects, and a few words exhibit features of both dialects. In case 1, modern Siraya generally adopts the Gospel forms, although there are exceptions. In case 2, the UM form is preferred unless the word is an AV verb with an <m> infix. In case 3, the UM form is preferred, but *ramag* and *paranag* have features of both dialects.

6.1.5 Siraya Phonemes in Dutch and Modern Texts: a Comparison  
Concluding this section on phonology, Table 6 compares the Siraya phonemes in Dutch texts with those in modern Siraya and presents lexical items that illustrate their distribution. It indicates that many phonemes are common to both forms of Siraya, although in some cases such as ‘r’ we cannot be certain how they were realised in the seventeenth century.

32 Also ‘thunder’.  
33 *Ma-parach* means ‘strong man’ or ‘hero’.

TABLE 6 Differences between Siraya phonemes in Dutch texts and those in modern Siraya with lexical items to illustrate their distribution

Siraya phonemes in Dutch texts	Siraya phonemes in modern texts	Examples
Consonants		
b	b	<i>baig</i> ‘kiss’
c [ts]	c [ts]	<i>tamamacit</i> ‘soldier’
d	d	<i>darang</i> ‘road’
D (Gospel dialect)		<i>Duruha</i> ‘two’
f	f (loan phoneme)	<i>fonetik</i> ‘phonetic(s)’
	g	<i>gaap</i> ‘seed’
h	h	<i>mahapul</i> ‘soft’
k	k	<i>kudo</i> ‘oyster’
l	l	<i>(la)lulug</i> ‘praise’, ‘thanks’
m	m	<i>mata</i> ‘eye’
n	n	<i>nanang</i> ‘name’
p	p	<i>popgag</i> ‘egg’
r	r	<i>raul</i> ‘garden’
s	s	<i>smulat</i> ‘write’
t	t	<i>rutok</i> ‘rabbit/hare’
v	v	<i>vural</i> ‘moon’
x	x (final)	<i>talag[x]</i> ‘house’
z?	z	<i>zaroch/zarok</i> ‘small river/creek’
’(ʔ)	’(ʔ)	<i>t’e</i> ‘misery’ (Gospels) <i>pi’pi</i> ‘to break into fragments’ (modern Siraya)
Semivowels		
w	w	<i>wagi</i> ‘sun’, ‘day’
y	y	<i>Iupan/Joepan</i> (Gospels), <i>Yupan</i> (modern Siraya) ‘Spirit’

TABLE 6 Differences between Siraya phonemes in Dutch texts and those in modern Siraya with lexical items to illustrate their distribution (*cont.*)

Siraya phonemes in Dutch texts	Siraya phonemes in modern texts	Examples
Vowels		
ă [a]	a	<i>ănim</i> ‘six’
a [a:]		<i>alak</i> ‘child’
e	e	<i>=eta</i> ‘our’
ə	ə	<i>kanən</i> (normalised form) ‘food’
ĩ [i]	i	<i>tamamacit̚</i> ‘soldier’
i [i:]		<i>ma-ipat</i> ‘to be silent’
o	o	<i>vato</i> ‘stone’ (long o)
ũ [u]	u	<i>ũsing</i> ‘small’
u [u:]		<i>uxi</i> ‘left’
Diphthongs		
aw	aw	<i>vavaw</i> ‘above’
ey	ey	<i>purarey</i> ‘cloud’
uy	uy	<i>vavuy</i> ‘pig’ (Gospels); <i>babuy</i> (modern Siraya)
ay	ay	<i>ayam</i> ‘bird’

6.2      *Lexis*

I now analyse choices not related to phonology that the revivalists have made in building the modern Siraya lexis. Here again, the fact that the Dutch texts were written in two dialects has complicated this process. In some cases, the UM and Gospels give a word one meaning, but modern Siraya texts give it another meaning. In the Dutch texts, *sillala* (UM), *silala* (GSM; Adelaar, 2011: 372) means ‘to change or convert’. In the 2010 learner, in English it means ‘again’, and in Chinese 再見 (*zaijian*), ‘goodbye’ or ‘see you again later’ (Macapili et al., 2010: 5, 36). In other cases, texts in the UM and those in the Gospel dialect give different meanings to the same word. For example, in the UM *aluf* means

‘straw’, whereas in the GSM it means ‘grass’ (Adelaar, 2011: 300).<sup>34</sup> In *Kakutingan ki Siraya* (booklet 4, p. 7), it has the Gospel meaning of ‘grass’. By contrast, the texts in the two Siraya dialects sometimes use different words to denote the same concept. One example is the word for ‘God’. The texts in the UM dialect use *Deus* or *Deos*, most probably a Portuguese loanword (Joby, 2023: 30–31). In the Gospels, the word for God is *Alid*. The origin of this is uncertain, but it may have been related to *arit*, a term used today by the Siraya to denote ancestral spirits. The 2023 songbook uses *Alid*. Furthermore, it often uses the phrase ‘Meyrang Alid’, literally ‘Lord God’. This is the name that Christian Siraya use to reference and address their god (Huang, 2010: 340). It is a slight modification of the phrase ‘Meirang ka Alid’, literally ‘Lord who is God’ used to render ‘Lord God’ in the Gospels (e.g. GSM 4:7, 10).

Non-Christians, too, use *Alid*. On the front of the *kuva* at the SCP is a wooden board with inscriptions in Siraya and Mandarin. The Siraya reads *kuva ki* (of) *Alid*. So, here *Alid* does not refer to the Trinitarian Christian God as it does in the Gospel dialect, but to a traditional Siraya deity, possibly in some sense returning to its origins. Interestingly, the Mandarin references *Ali-zu* (阿立祖). *Ali-zu* is a fertility deity worshipped in Sinicised Siraya villages, which has been incorporated into the Han Pantheon (Hsieh, 2006: 67–70). This name probably derives from *Alid*, with the final element of the Sinicised rendering, *zu* (祖), referring to ‘ancestor’. Therefore, in this sign at least, there is an equivalence between *Alid* and *Ali-zu*, although whether this is the case in the mind of Siraya worshippers would require further investigation.

In some cases, a word is only found in one dialect and so that form must be used in modern Siraya. *Zaroch* ‘small river’ (Dutch: *spruyte*) occurs in the UM, but not in the Gospel dialect material. This is used for ‘creek’ in the 2016 phonology guide, rendered as *zarok* and therefore also undergoing slight phonological modification (Macapili, 2016: 8).<sup>35</sup> Another word from the UM not occurring in the Gospel dialect material is *rutock*. In the UM, it is defined as ‘hare’ (Dutch: *haas*). However, in the 2016 phonology guide, *rutok* means ‘rabbit’ so it has undergone a semantic shift (Macapili, 2016: 47). A third word from the UM not occurring in the Gospel dialect material is *tapkoug* ‘bow’ (Dutch: *boog*), mentioned above. It appears on the fourth panel of the story of Tian-yu Cheng at the SCP as *tapkux* and in the 2010 learner as *tapkug* (Macapili et al., 2010: 2, 20). On the same panel is *lumari*, which only occurs in

34 The UM has *havour* for ‘grass’.

35 In fact, the UM has *zaroch karot kot*. *Karot kot* occurs in the Formulary as *karutkut* and the GSJ as *karoutkout* (Joby, 2020: 220). This may suggest that the *karot kot* element should be included in modern Siraya texts.

the Gospels, meaning ‘farthing’ (Dutch: *penning*) (e.g. GSM 5:26; Adelaar, 2011: 338). The Chinese text has 錢 (*qian*), ‘money’. Likewise, *sawturu* ‘three times’ only occurs in the Gospels (e.g. GSM 26:75; Adelaar, 2011: 370). This appears on the fourth and sixth panels of Cheng’s story. Finally, in the Dutch missionary texts *akey* ‘eagle’ only occurs in the GSM and Formulary (Adelaar, 2011: 298). It appears in the 2016 phonology guide (Macapili, 2016: 6).

6.3 Numbers

In general, revivalists have chosen the Gospel forms for the numbers 1–11 (see Table 7). However, this is not the whole story. For ‘one’, the UM has *sasat* (a reduplicated form), while the Gospels have both *sasat* and *saat*. The 2010 learner has *sasat*, whereas the 2013 learner has *sat* for ‘one’ (Macapili et al., 2010: 3, 25; Macapili, 2013a: booklet 9). The 2023 songbook has *sasat* and *saasat*, possibly to fit the metre (Macapili, 2023: 25). A poster at the SCP with the numbers 1–11 in Siraya has *saat*. As for ‘four’, the UM has *pagpat* (a reduplicated form) and the Gospels have *axpat* or *xpat* (normalised forms) (Adelaar, 2011:

TABLE 7 Comparison of numbers 1–11 in the UM and Gospels with 2010 and 2013 learners and poster at SCP

Number	UM	Gospels (normalised forms)	SCP	2010 learner (1–10)	2013 learner (1–10)
1	sasat	sasat/saat	saat	sasat	sat
2	sosoa	duha, ruha	ruha	ruha	ruha
3	toutouro	turo, turu	turu	turu	turu
4	pagpat	axpat, xpat	apat	apat	apat
5	ririma	rīma	rima	rima	rima
6	ninnim	nə-nəm, ənəm	anim	anim	anim
7	pipito	pīto, pītu	pitu	pitu	pitu
8	kougipat	kuīxpa	kīpa	kīpa	kīpa
9	mattouda	matuda	matuda	matuda	matuda
10	sat keteang	saat kītiän	kitian	kitian	satkitian
11	satketeang gabi sasat	sa-saat kītiän äb ki saat	kitian abki saat		



142, 306; Joby, 2021). The textbooks and the SCP poster have a different form, *apat*, possibly to facilitate pronunciation. The removal of /x/ before /p/ also occurs in 'eight', which is probably an innovation whereby  $8 = 2 \times 4$  (Blust, 2013: 280). The Gospels have the normalised form *kuĩxpa* (the UM has *kougipat*), whereas the SCP poster has *kipa*. The Gospel word for 'ten' is *saat kitiän*. The 2013 learner retains the initial 'one' (*sat*), but there is no diaeresis on the final 'a', viz *satkitian* (Macapili, 2013a: 9: 12). The 2010 learner and the SCP simply have *kitian* (Macapili et al., 2010: 3, 25). In the SCP, a similar pattern can be observed for 'eleven'.

## 7 Conclusion

The aim of this article has been to analyse how the Siraya language has been revived to help the Siraya meet one of the criteria for being recognised at national level as Indigenous, as stated in the October 2022 Constitutional Court ruling, which is to continue to practise its ethnic language. While by no means the only reason for revitalising Siraya, it is certainly a very important one, not least because national recognition as Indigenous will allow the Siraya to access national funding and give it legal parity with other groups recognised as Indigenous.

Central to the story of Siraya revitalisation has been the use of texts written in the seventeenth century by Dutch missionaries with the help of Indigenous informants. I have analysed how Siraya revivalists have used these texts to build the phonemic set and lexis of modern Siraya. The picture that has emerged is a complex one. In relation to the phonemic set, while many sounds and the letters used to represent them have probably remained unchanged, there are differences. 'g' in word-initial and word-medial positions now has a different phonemic value. 'r' is realised in one way, a trill. In truth, we cannot know how 'r' was realised in seventeenth-century Siraya and given the range of possible sounds for a Dutch 'r', the revivalists' decision to draw on sounds in other Austronesian languages is a reasonable one. The number of vowels in modern Siraya is smaller than in seventeenth-century Siraya, above all because three long vowels have not been revived. The continued use of schwa has been problematic. Initially, in word-initial consonant clusters another vowel was inserted, but this has since been removed, although schwa is indicated in pronunciation guides. Word-final affixes are written with another vowel, with schwa being indicated in the IPA guide.

The article paid detailed attention to words occurring in Dutch texts written in both the UM and Gospel dialects, which exhibit phonological differences.

I concluded that in some cases the revivalists have given preference to UM forms, while in other cases, they have chosen Gospel forms. In a few cases, such as *ramag* 'light' and *paranag* 'tree', they have taken an element from each dialect.

The revivalists also had to make choices between words in Dutch texts in both dialects which do not exhibit these phonological differences. In such cases, they adopted a variety of strategies. Perhaps the most interesting case concerns the word for 'God'. Here, the revivalists chose the Gospel word, *Alid*, rather than the UM word, *Deos/Deus*. In modern Siraya, *Alid* is, however, used for both the Christian Trinitarian God and a traditional Siraya deity. In one or two cases, the meaning has shifted; for example, *rutok* from 'hare' to 'rabbit'. I should though say that despite these apparent criticisms, the revivalists have done a truly excellent job in breathing new life into Siraya, all the more so given that most of the data that they are using is textual and has many inconsistencies.

For scholars, work remains to be done. Siraya textbooks continue to be published. Shu-fen Li has published several textbooks in Siraya and Mandarin Chinese with the title *Tabe Siraya* 'Greetings, Siraya'. In 2022, the TCSCA published a series of nine graded textbooks written by Wan-ying Lu (2022). Furthermore, Edgar Macapili is in the process of writing a Siraya New Testament and eventually an entire Siraya Bible. These texts will require scholarly analysis. It will also be instructive to analyse differences between Siraya grammar in the Dutch texts and in modern textbooks. One feature that could usefully be analysed is the voice system in modern Siraya. This work could build on Adelaar's (2013: 217–223) extensive study of the voice system in the Dutch texts.

This article will, I hope, contribute to the literature on reviving languages using texts. I have given other examples such as Hebrew and Diyari and it may be instructive to compare these and other cases to understand the specific challenges that revivalists using texts face and how they address these challenges.

In the seventeenth century, Dutch missionaries also wrote texts and a lexicon in another Formosan language, Favorlang, which is closely related to Babuza, spoken in Yunlin and Changhua Counties on Taiwan's western plains.<sup>36</sup> Although the number of Taiwanese who might claim Favorlang or Babuza heritage would probably be much smaller than the number of Siraya, there are individuals who would like to revive this language. They could do so using the Dutch texts and could perhaps learn from the experience of Siraya revivalists using the Dutch texts analysed in this article. The case of Siraya

---

36 Paul J. Li (2019) has published a linguistic analysis of these texts.

can also serve as a model for the revitalisation of other languages in Taiwan in which texts have been written more recently, and endangered languages elsewhere in the world.

Concluding, at the time of writing Siraya revitalisation is at a turning point. While progress has been made on training teachers and introducing Siraya in schools, it is not yet a fully functioning first language used in everyday communication. The decision of the Constitutional Court could well open a new chapter in this story. It will allow revivalists to access additional funding and raise the profile and hopefully the prestige of Siraya, which should benefit its revival. The fact that it has been able to reach this position is due to the hard work, enthusiasm, and vision of revivalists such as Uma Talavan and Edgar Macapili and scholars such as Alexander Adelaar. Nevertheless, it could not have been revived without the Dutch texts written with the help of the Siraya forefathers. Unwittingly, therefore, missionary linguists working four hundred years ago have made an essential contribution to the revitalisation of the Siraya language and the recovery of the Siraya identity which had been gradually eroded in the intervening period.

### Acknowledgements

I would like to thank Elizabeth Zeitoun, the editor of this topical section, for the advice and encouragement that she has given me, Kerim Friedman for his comments on an earlier draft of this article, Nick Wright for help in gathering information, and Edgar Macapili for providing me with copies of several of the learning aids analysed in this article.

### Notes on Contributor

#### *Christopher Joby*

is a Professor, PhD, hab., FRHistS, and Research Associate at the Centre of Taiwan Studies, SOAS, University of London, and an Associate Tutor and Honorary Research Fellow at the School of History and Art History, University of East Anglia. He has been awarded several scholarships including a MOFA Taiwan scholarship, a Chiang Ching-kuo Foundation Fellowship, and a Center of Chinese Studies grant. He has published articles on Indigenous languages, religion, and food culture in Taiwan, and his monograph, *Christian Mission in Seventeenth-Century Taiwan*, was published by Brill in 2025. He is currently writing an ethnohistory on Indigenous Taiwan.

## References

- Adawai, Jason Pan (2017) 'Taiwan', in Katrine Broch Hansen, Käthe Jepsen, and Pamela Leiva Jacquelin (eds), *The Indigenous World 2017*, Copenhagen: International Work Group for Indigenous Affairs, 320–326.
- Adelaar, K. Alexander (2006) 'Siraya dialogues', in Henry Y. Chang, Lillian M. Huang, and Dah-an Ho (eds), *Streams Converging into an Ocean: Festschrift in Honor of Professor Jen-kuei Li on his 70th birthday*, Taipei: Academia Sinica, 665–685.
- Adelaar, K. Alexander (2011) *Siraya: Retrieving the Phonology, Grammar and Lexicon of a Dormant Formosan Language*, Berlin: De Gruyter Mouton.
- Adelaar, K. Alexander (2013) 'Reviving Siraya: A case of language engineering', *Language Documentation and Conservation* 7: 212–234.
- Adelaar, K. Alexander (2023) 'Siraya', in Paul J. Li, Elizabeth Zeitoun, and Rik De Busser (eds), *Handbook of Formosan Languages*, Leiden: Brill, 542–571.
- Austin, Peter (2014) 'And still they speak Diyari: The life history of an endangered language', *Ethnorêma* 10: 1–18.
- Blust, Robert (2013) *The Austronesian Languages*, rev. ed., Open Access, Canberra: Asia-Pacific Linguistics, Research School of Pacific and Asian Studies, Australian National University. Retrieved 9 September 2024 from <https://openresearch-repository.anu.edu.au/bitstream/1885/10191/6/Blust-2013-AustronesianLanguages.pdf>.
- Blust, Robert and Trussel, Stephen (2020) *The Austronesian Comparative Dictionary*, web ed. Retrieved 9 September 2024 from <https://www.trussel2.com/acd/>.
- Booij, Geert (1995) *The Phonology of Dutch*, Oxford: Clarendon Press.
- Brown, Melissa J. (2004) *Is Taiwan Chinese? The Impact of Culture, Power, and Migration on Changing Identities*, Berkeley: University of California Press.
- Campbell, William G. (ed.) ([1903] 1992) *Formosa under the Dutch: Described from Contemporary Records*, reprint, Taipei: SMC. Original work published by Kegan Paul (London).
- Chen, Bien-horn (2001) 台南 *Siraya* 語馬太福音字彙解讀 / *Notes on Vocabulary of the Siraya Version of Matthew*, Tainan: Association of the Plain Tribes in Tainan [Siraya text with English and Chinese translations].
- Chen, Bien-horn (2005) 台(南) *Siraya* 語基督教信仰要項解讀 / *Notes on Formulary of Christianity in Formosan Siraya Dialect—With Translation in English, Chinese and Dutch*, Taipei: National Culture and Arts Foundation [Siraya and Dutch texts with English and Chinese translations].
- Chen, Bien-horn (2020) 台南 *Siraya* 語約翰福音註解 / *Notes on the Gospel According to Johannes in Formosan Siraya Dialect*, Taipei: s.n. [Siraya and Dutch texts with English and Chinese translations].
- Constitutional Court of the ROC (Taiwan) (2022) 'Summary of TCC Judgment 111-Hsien-Pan-17 (Case on the Indigenous Peoples Status for the Siraya People)', 28

- October. Retrieved 9 September 2024 from <https://cons.judicial.gov.tw/en/docdata.aspx?fid=5535&id=346962>.
- Cooper, Robert L. (1989) *Language Planning and Social Change*, Cambridge: Cambridge University Press.
- Duan, Hung-kun (2017) 西拉雅文化 [Siraya Culture], Tainan City: Tainan City Government and Indigenous Peoples Committee [in Chinese].
- Germain, Claude (1982) 'The functional approach to language teaching', *The Modern Language Journal* 66(1): 49–57.
- Good, Aria; Russo, Frank; and Sullivan, Jennifer (2015) 'The efficacy of singing in foreign-language learning', *Psychology of Music* 43(5): 627–640.
- Gravius, Daniël (1661) *Het Heylige Evangelium Matthei en Johannis ofte Hagnau Ka D'llig Matiktik. Ka na sasoulat ti Mattheus, ti Johannes appa. Overgeset inde Formosaansche tale, voor de Inwoonders van Soulang, Mattau, Sinckan, Bacloan, Tavokan en Tevorang* [The Holy Gospel according to Matthew and John or the True and Holy Gospel according to the Books of Matthew and John. Translated into the Formosan language, for the inhabitants of Soulang, Mattau, Sinckan, Bacaluan, Tavakan and Tevorang], Amsterdam: Michiel Hertogh [in Dutch and Siraya].
- Gravius, Daniël (1662) *Patar ki tna-'msing-an ki christang, Ka Tauki-papatar-en-ato tmaeu'ug tou Sou Ka Makka Si-Deia. Ofte 't Formulier des Christendoms. Met de Verklaringen van dien inde Sideis-Formosaansche Tale* [Formulary of Christianity. With Explanations of it in the Sideia (Siraya)-Formosan Language], Amsterdam: Michiel Hertogh [in Dutch and Siraya].
- Halme, Jordyn (2023) 'Taiwan's unrecognized indigenous tribes are reviving dead languages to achieve recognition', The China Project, 5 June. Retrieved 9 September 2024 from <https://thechinaproject.com/2023/06/05/taiwans-unrecognized-indigenous-tribes-are-reviving-dead-languages-to-achieve-recognition/>.
- Hioe, Brian (2022) 'Taiwan's Pingpu Peoples one step closer to recognition', *The Diplomat*, 2 November. Retrieved 9 September 2024 from <https://thediplomat.com/2022/11/taiwans-pingpu-peoples-one-step-closer-to-recognition/>.
- Hsieh, Jolan (2006) *Collective Rights of Indigenous Peoples: Identity-based Movement of Plain Indigenous in Taiwan*, London: Routledge.
- Hsieh, Jolan (2017) 'The changing identities of Taiwan's Plains Indigenous Peoples', in J. Bruce Jacobs and Peter Kang (eds), *Changing Taiwanese Identities*, London: Routledge, 12–26.
- Hsieh, Jolan (2021) 'Restoring Pingpu Indigenous status and rights', in Chia-yuan Huang, Daniel Davies and Dafydd Fell (eds), *Taiwan's Contemporary Indigenous Peoples*, London: Routledge, 239–255.
- Huang, Chun Jimmy (2010) 'Language Revitalisation and Identity Politics: An Examination of Siraya Reclamation in Taiwan', unpublished PhD dissertation, University of Florida, US.

- Huang, Chun Jimmy; Macapili, Edgar; and Talavan, Uma (2013) 'Heritage linguistics and language activism: A conversation with the Siraya', paper presented at the 3rd International Conference on Language Documentation and Conservation (ICLDC3), University at Hawai'i at Mānoa, Honolulu, 28 February–3 March.
- Joby, Christopher (2020) 'A recently-discovered copy of a translation of the Gospel of St. John in Siraya', *Oceanic Linguistics* 59 (1/2): 212–231.
- Joby, Christopher (2021) 'Revisions to the Siraya lexicon based on the original Utrecht Manuscript: A case study in source data', *Historiographia Linguistica* 48(2/3): 177–204.
- Joby, Christopher (2023) 'Two approaches by Dutch missionaries to communicating the gospel in seventeenth-century Taiwan', *Mission Studies* 40(1): 22–48.
- Joby, Christopher (2025) *Christian Mission in Seventeenth-Century Taiwan: A Reception History of Texts, Beliefs and Practices*, Leiden: Brill.
- Junius, Robert (1645) *Soulat i A.B.C. ka patutugogniang ta Alla lack i Christang tu guma guma na D. Robertus Iunius padre ki Deos. ABC Boeck, twelck sal geleerd worden de kinderen der Christenen inde dorpen van Do. Robbertus Junius padre qui Deos* [ABC Book, for the Instruction of Christian Children in the Villages of Rev. Robertus Junius, Minister of God], Delft: Andreas Clouting [in Siraya and Dutch].
- Li, Paul Jen-kuei (2010) *Studies of Sinkang Manuscripts*, Taipei: Institute of Linguistics, Academia Sinica.
- Li, Paul Jen-kuei (2019) *Text Analysis of Favorlang*, Taipei: Institute of Linguistics, Academia Sinica.
- Li, Shu-fen (Seyluf Tama-Tavali) (2016) *Su ka Maka-Siraya / 西拉雅語* [The Siraya Language], Tainan: Tainan City Government [Siraya learner in Chinese].
- Lu, Wan-ying (2021) 西拉雅字彙集: 取自 *Daniel Gravius* 西拉雅語約翰福音 [Siraya Collection: From the Siraya Gospel of John by Daniël Gravius], Tainan: Tainan City Siraya Cultural Association [in Siraya and Chinese].
- Lu, Wan-ying (2022) *Su ka maka Siraya / 西拉雅語* [The Siraya Language], 9 parts, Tainan: Tainan City Siraya Cultural Association [Siraya learner in Chinese].
- Macapili, Edgar (2002) *Ta avang ki Noe-an* [Noah's Ark], Tainan: Tainan Pingpu Siraya Association [in English, Hokkien, and Siraya].
- Macapili, Edgar (2005) 古老的故事如此傳說 / *Ancient Stories are so Legendary*, compact disc, Tainan: Tainan City Siraya Cultural Association [in Siraya and Chinese].
- Macapili, Edgar (2008) 西拉雅詞彙初探: 以新港語馬太福音研究為主例 / *Siraya Glossary, Based on the Gospel of St. Matthew in Formosan (Sinkan Dialect): A Preliminary Survey*, Tainan: Tainan Pepo-Siraya Culture Association [in Siraya, Chinese, and English].
- Macapili, Edgar (2013a) *Kakutingan ki Siraya ka mahaal ki 10 ki sulat / 簡易西拉雅語繪小書 10 冊 / Easy to Learn Siraya in 10 Booklets*, Tainan: Tainan City Siraya Cultural Association [Siraya learner in English and Chinese].

- Macapili, Edgar (2013b) *Sulat ka using ki Kasusuan ka Padagawan ki Siraya / Pocket Book of Common Sentences in Siraya Language / 西拉雅語常用句口袋書*, Tainan: Tainan City Siraya Cultural Association [in Siraya, Chinese, and English].
- Macapili, Edgar (2016) *Kaktingan ki Fonetik ki Ortografik apa ki Siraya / 來學西拉雅語發音與書寫!!* [Come and Learn Siraya Pronunciation and Writing], Tainan: Tainan City Siraya Cultural Association [in Siraya, Chinese, and English].
- Macapili, Edgar (2018) *Masusu-a kita ki Siraya / Let's Talk in Siraya / 活用西拉雅語700+*, Tainan: Macapili & Talavan Studio [in Siraya, Chinese, and English].
- Macapili, Edgar (2020) *Siraya Commonly Used Action Words (Verbs), 2nd Edition / 詞綴與動詞變化第二版*, Tainan: Tainan Siraya Cultural Association [Siraya with English explanations].
- Macapili, Edgar (2023) *Takalulugan / Siraya Breathes Hymn Anew / 聖詩西拉雅譯本*, Tainan: Tainan City Siraya Cultural Association [Siraya songs with English and Chinese glosses].
- Macapili, Edgar; Chao-kai, Shi; Talavan, Uma; Nga-I, Ten; and Huang, Jimmy (2010) *Sulat ki Su ka Maka-Siraya / 西拉雅語繪本* [Book of the Siraya Language (Siraya), Siraya Picture Book (Mandarin Chinese)], Tainan: Tainan County Government [an illustrated bilingual English and Chinese learner].
- Macapili, Edgar; Talavan, Uma; and Goedhart, Menno (2012) *Siraya, Where Did You Go? / 西拉雅，你去了何處?*, compact disc, Tainan: Wan Shujuan Publishing [songs in English and Siraya].
- Murakami, Naojirō (1933) *Sinkan Manuscripts*, Taipei: Taipei (Taihoku) Imperial University [Siraya and Chinese texts].
- Ogawa, Naoyoshi (1917) *Comparative Vocabulary of Formosan Languages and Dialects*, manuscript, later published by the Research Institute for Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies, 2006.
- Schwarzwald, Ora R. (2001) *Modern Hebrew*, Munich: Lincom Europa.
- Tsuchida, Shigeru (1998) 'English index of the Siraya vocabulary by Van der Vlis', *Studies of Taiwan Aborigines* 3: 281–310.
- Tsuchida, Shigeru and Yamada, Yukihiro (1991) *Linguistic Materials of the Formosan Sinicized Populations I: Siraya and Basai*, Tokyo: University of Tokyo.
- Van der Vlis, Christianus Jacobus (1842) *Formosaansche woorden-lijst, volgens een Utrechtsch handschrift: Voorafgegaan door eenige korte aanmerkingen betreffende de Formosaansche taal* [Formosan Wordlist, according to a Utrecht Manuscript: Preceded by Some Short Observations Concerning the Formosan Language], Batavia: Bataviaasch Genootschap van Kunsten en Wetenschappen [wordlists in Siraya and Dutch].
- Wammes, Jeffrey D.; Meade, Melissa E.; and Fernandes, Myra A. (2016) 'The drawing effect: Evidence for reliable and robust memory benefits in free recall', *The Quarterly Journal of Experimental Psychology* 69(9): 1752–1776.
- Wolff, John U. (2010) *Proto-Austronesian Phonology with Glossary*, 2 vols, Ithaca, NY: Cornell Southeast Asia Program.