1 History of the Islands

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Discovery

The Juan Fernández (Robinson Crusoe) Islands (Fig. 1.1) were first brought to the attention of Europeans by the Spanish sea captain Juan Fernández, who sighted them on November 22, 1574 (Medina 1974). He sailed from Callao (a port near Lima, Perú) on a voyage south to Chile (Valparaíso or perhaps Concepción) (Woodward 1969). Such a trip normally took three to six months because sailing close to the western coast of South America required fighting the Humboldt Current flowing northward. Seeking a better route, Juan Fernández went first westward and then turned southward, avoiding the negative impact of the coastal current and coincidentally allowing discovery, first, of the Desventuradas Islands (San Félix and San Ambrosio, also owned by Chile) and, further south, of the Juan Fernández Islands. It is unclear whether he observed both the large islands, Robinson Crusoe (Masatierra; originally called Santa Cecilia) (Woodward 1969) and Alejandro Selkirk (Masafuera) or just the former with its small off-shore neighboring island, Santa Clara, but after discovery, he then turned eastward and arrived in Chile in record time. The trip, in fact, was so fast (30 days) that he was viewed with great suspicion, and he may even have been brought before the Inquisition on charges of having used witchcraft for such a fast trip (Woodward 1969). Other ships, however, soon accomplished the same feat, and this opened up a flow of ship traffic past the islands.

A note regarding naming of these islands is in order. The islands were originally, and historically, named after their discoverer, Juan Fernández. The two main islands were called Más a Tierra (literally "closer to the land," often condensed to Masatierra) and Más Afuera ("further away," often Masafuera), reflecting their positions relative to the Chilean continent. In 1962, the Chilean government officially renamed the archipelago as the Robinson Crusoe Islands. Masatierra was renamed "Isla Piloto Robinson Crusoe," and Masafuera was designated "Isla Marinero Alejandro Selkirk," but most people have abbreviated the names to just Robinson Crusoe Island and Alejandro Selkirk Island, which is the approach taken in this book. The reason for these changes was apparently to stimulate tourism, taking advantage of the connection with the famous novel, *Robinson Crusoe*, by Daniel Defoe published to popular acclaim in 1719. Not everyone has been completely enthusiastic about these modifications, however (e.g., Barrera 1963).

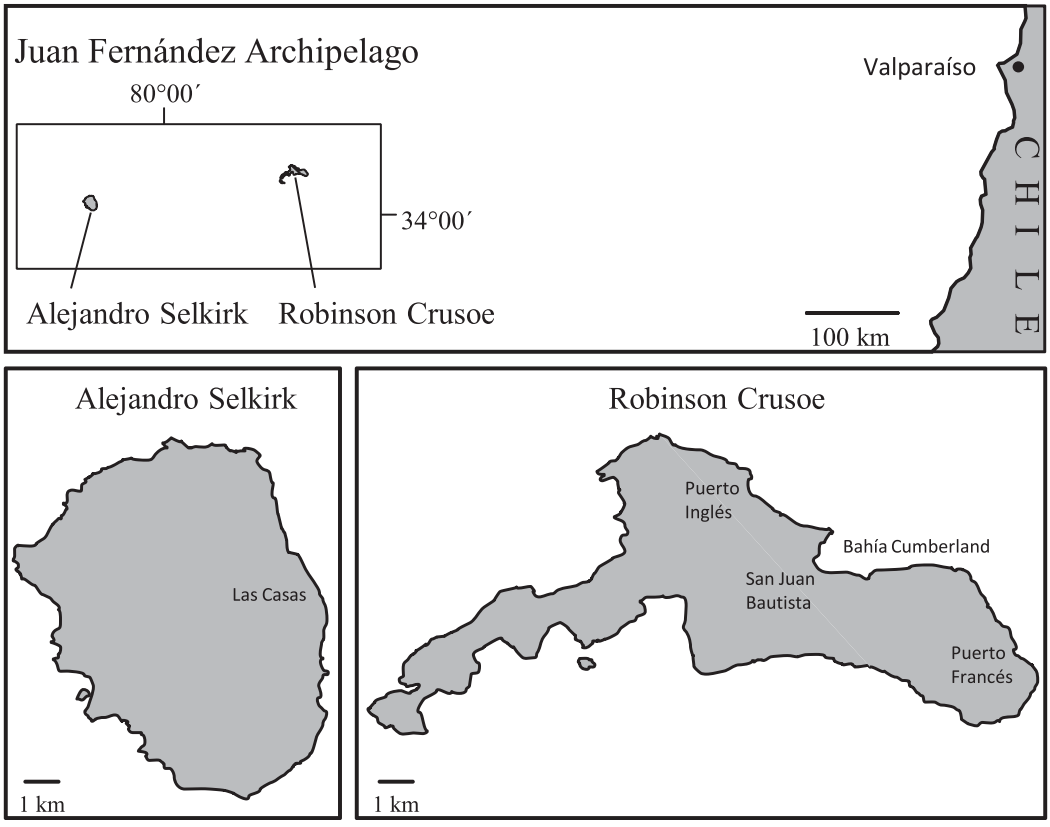

Figure 1.1 Location of the Juan Fernández (Robinson Crusoe) Islands in the eastern Pacific.

There was, in fact, a real Robinson Crusoe, but he bears scant resemblance to the hero in Defoe's famous and engaging novel (Howell 1829). In January of 1704, a Scottish sailing master, Alexander Selkirk, aboard the ship *Cinque Ports*, under command of Captain Thomas Stradling, sailed around Cape Horn and continued northward along the Chilean coast. The ship arrived at Robinson Crusoe Island on February 10, 1704. After a series of incidents involving French ships arriving at the archipelago, a dispute developed between Selkirk and Stradling such that the former insisted on staying ashore. Stradling provided Selkirk with only a few survival provisions, but because the island had drinkable water, vegetated hills with some edible plant species, sea lions in abundance, fish, lobsters, and feral goats that were left from previous voyages, it was possible for Selkirk to live alone on the island (without an assistant, Friday, as occurs in the novel) for more than four years and four months! Many ships arrived at Robinson Crusoe Island during this period, but because of the continuing wars in Europe, it was difficult for Selkirk to know who was friend and who was foe. Eventually, in 1709, he dared to connect with two ships, the *Duke* and the *Duchess*, which, luckily, were British, and seized the opportunity to return home to Europe. This now-bearded man, dressed in goat

skins, created quite a sensation, especially when the *Duke* arrived back in England on October 1, 1711. Selkirk was interviewed by many journalists, and reports were published in local outlets. Although Daniel Defoe may or may not have met Selkirk (Woodward 1969), in any event it is certain that he took advantage of this lone mariner's story to write his uplifting and entertaining novel of 1719. It was set, however, somewhere in the Caribbean rather than in the actual Juan Fernández Islands in the eastern Pacific.

Pirates and Early Visitors

Since their discovery, the Juan Fernández Islands in the seventeenth century became a location for ships of many nations to pause to refit the boats and refresh the sailors. The presence of a sheltered natural bay (Bahía Cumberland), a subtropical (or warm-temperate) climate, abundant fresh water, forested slopes, native plants that served as vegetables, and meat in the form of feral goats and native sea lions all combined to attract vessels, especially those that survived the difficult passage around Cape Horn. The sheltered bay also served well as a refuge from which ships from England, France, and The Netherlands could attack colonial Spanish ships and coastal cities. The island became known, therefore, as a stopping place for ships sailing around the world to rest before continuing their journey westward across the Pacific and also to serve as a pirate's lair.

Many of the visitors to the islands published comments on their stays, especially the captains or first mates of ships in the early eighteenth century. It was still of significant interest for readers in continental Europe to learn details of voyages to far-away lands. Reports by George Shelvocke (1726) and Jacob Roggeveen are examples from this period (from the Netherlands; Sharp 1970).

Another important visitor to the Juan Fernández Islands during this period was George Anson, captain of the *Centurion*, which sailed into the main bay of Robinson Crusoe Island on June 9, 1741. The importance of Anson's visit was the detail of the observations that he offered in his logbook (Walter and Robins 1748) on the natural history and geography of the islands. His voyage from England around Cape Horn with three ships was marred by serious illness, only 335 crewmen surviving of a total of 961 at departure from England (Woodward 1969). To cure all remaining crew members, plus to refit the ships needing repair, Anson remained on Robinson Crusoe Island until September 19, 1741. From this position he successfully attacked and captured Spanish ships and pillaged shore communities, finally traversing the Pacific and returning home to England in 1744.

It was due in large measure to Anson's successful disruption of Spanish shipping and commerce that the Spanish government, centered in the Viceroyalty of Perú, in Lima, decided of necessity to officially reclaim the Juan Fernández Islands and establish a permanent settlement there. They dispatched two prominent officers with scientific training, Jorge Juan and Antonio de Ulloa, to reconnoiter the islands and report on the best ways to secure the archipelago for Spain. They visited the islands, principally

Robinson Crusoe Island, on January 7–22, 1743. In their secret report submitted later that year (published and made public only in 1826), they described the natural history of the islands but, more important, recommended the establishment of defenses. The biggest challenge was to arm the natural bay, Bahía Cumberland, so that no marauding ships (especially British) could anchor there.

Spanish Control

Reacting to the report of Juan and Ulloa, the Viceroyalty of Perú in 1750 dispatched a colonization force to the Juan Fernández Islands. This consisted of a ship with 62 soldiers, 171 colonists (including women), and 22 convicts (Orellana R. 1975). Cows, sheep, mules, pigs, and poultry were also transported. The idea was to establish a permanent settlement around Bahía Cumberland. Also dispatched was a ship laden with arms, including rifles, muskets, and gunpowder, plus 18 cannons and 7,400 cannonballs to arm the envisioned fortress (Woodward 1969). The village, named San Juan Bautista, was organized in short order and received more immigrants from Concepción, Chile. Misfortune struck, however, with a severe earthquake and tidal wave on May 25, 1751 (Vicuña Mackenna 1883) that caused substantial damage to the village and fort. Help was immediately provided, however, to allow rebuilding of all structures, and by December of that same year, the fortress (Santa Bárbara) was constructed and nine cannons were placed to challenge and repel uninvited pirates (Morel 1975). Although the small community at this point was not at all self-sufficient, the goal of controlling the islands and reducing pirate action was achieved. The importance of this strategic move was underlined by the reality that the English had successfully colonized the Falkland (Malvinas) Islands, lying off the eastern coast of southern Argentina. With this strategic point under alien control, it emphasized the importance of controlling access to the western coast of southern South America, which the Juan Fernández Islands provided.

The Spanish, however, had settled and fortified only one island, Robinson Crusoe (Fig. C1). Alejandro Selkirk Island (Fig. C2), lacking a natural harbor, was still open for visits by ships of other countries. John Byron, for example, in his ship *Dolphin*, visited Alejandro Selkirk Island in 1765 (Gallagher 1964) to take on water and wood, not realizing that Robinson Crusoe Island was now under Spanish command. Because the Spanish had taken over the eastern island quietly, it came as a surprise to many ships that this former pirate's bay was no longer available for open use. Spain, for its part, continued to fortify the island and to send the worst criminals to this isolated location. The number of settlers, obviously, declined proportionately with increasing numbers of convicts. Some of the prisoners were forced to dig caves along the sea cliffs in which to live. These were documented by Claudio Gay during his visit in 1832 (Muñoz Pizarro 1944) (Fig. 1.2), and they remain of interest to tourists even today. Maintaining a penal colony combined with a settlement, however, became more difficult to sustain over the years, and Robinson Crusoe Island was actually nearly abandoned for a short period in 1814.

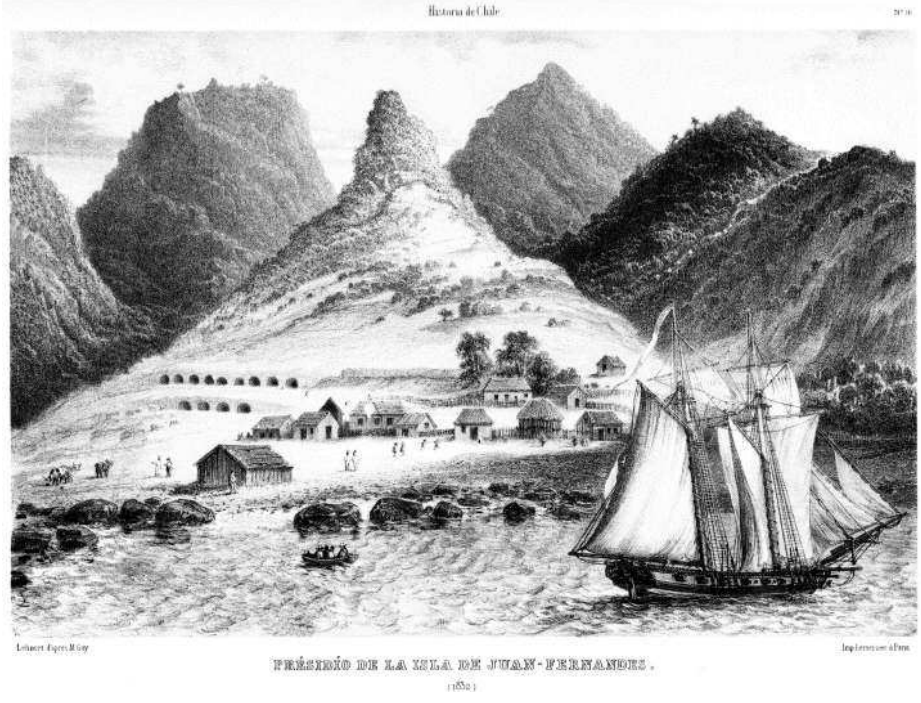

Figure 1.2 Bahía Cumberland on Robinson Crusoe Island, showing the small village of San Juan Bautista and the caves (left side of drawing) constructed by convicts in the late eighteenth century. (From Gay 1854.)

While Spanish control succeeded in keeping English, French, and Dutch ships away from the Juan Fernández Islands, the American Revolution of 1776 opened up opportunities for American vessels to visit the archipelago. The whaling industry on the East Coast of the United States, particularly from Massachusetts, flourished by sending ships into different oceans, including around Cape Horn, along Chile, and into the Pacific (Pereira 1971). The large number of seals and sea lions served as a powerful attraction to visit the Juan Fernández Archipelago, especially Alejandro Selkirk Island. It is difficult today to imagine the scale of harvesting of the fur seals; for example, Captain Amasa Delano and his crew alone took 3 million skins to sell in China between 1797 and 1804 (Delano 1817; Woodward 1969)!

Chilean Independence

With the invasion of Spain by Napoleon in 1807 and the abdication of King Fernando VII, this weakness in the Spanish government opened up opportunities for independence in the colonies of Spanish America. Simon Bolívar, José de San Martín, and Bernardo O'Higgins (remarkably the illegitimate son of the Viceroy of Perú, who was the most powerful Spanish authority in the New World), all having spent years in Europe and

having been exposed to the liberal thinking of French and American authors, spent a good part of their lives in the liberation of Venezuela, Panamá, Colombia, Ecuador, Perú, Bolivia, Argentina, and Chile. Chile easily won its independence early in 1810, with many *criollos* (persons born in the New World of Spanish descent), including Bernardo O'Higgins, leading the way. This freedom did not last long, however, because Chile was reconquered by royalist troops from Perú. Many republicans (patriots) were rounded up (Vicuña Mackenna 1883), and fifty were sent to Robinson Crusoe Island, where they were kept in the old caves carved earlier by convicts (Fig. 1.2). O'Higgins and others escaped to Argentina, however, and joined with José de San Martín, who was planning the liberation of Chile. This was to be followed by a naval invasion of Perú for conquest of the last bastion of Spanish control. With the final freedom of Chile in 1814, the patriots on Robinson Crusoe Island were now free to return to the mainland and help participate in the formation of a new government.

With the exodus of all prisoners from Robinson Crusoe Island, only a few people elected to remain in San Juan Bautista as entrepreneurs selling fresh water and wood to passing ships. Soon, however, O'Higgins realized the need for a penal colony to remove undesirables from the Chilean mainland, and he therefore reestablished the colony in San Juan Bautista in 1821. This also had the positive effect of once more keeping the archipelago under local control, especially to guard against English or American occupancy.

The early years of the young, independent Chile were filled with the usual amount of political upheavals common to all Latin American republics, and the settlement of San Juan Bautista in the Juan Fernández Islands also followed this trend. The island was rented to Joaquín Larrain in 1829–33, but it continued as a penal colony, receiving all manner of murderers and other criminals. An Englishman, Thomas Sutcliffe, assumed the governorship on November 25, 1834, but this administration was especially affected by the high tidal wave that destroyed the village on February 25, 1835 (Sutcliffe 1839, 1841), exactly three months after Sutcliffe's arrival. Rebuilding ensued, but social instability in the little village was still problematic.

Development of a Stable Community

The gold rush in California in 1848 intensified ship traffic to Robinson Crusoe Island. Many Americans made the long trip around Cape Horn from the East Coast of the United States westward to California (Lewis 1949). This provided helpful income for the islanders in sales of fresh water, wood, meat, and vegetables. These free-spirited visitors also continued the substantial impact on the natural vegetation of the islands, which sadly has been so typical of oceanic islands. As many as fifty ships visited Robinson Crusoe Island in 1849–1850 (Lewis 1949; Woodward 1969), but maritime traffic dropped way down afterward.

The period from 1850 to 1900 on Robinson Crusoe Island was one of relative calm, and European immigrants began to arrive. This allowed a more stable fishing and agriculture community to become established. Sales of fresh water, wood, vegetables,

and meat continued to passing ships, but in addition, livestock was encouraged as well as development of the lobster and fishing industries. This phase led to the development of families in the village that are still represented today. For example, Karl Alfred von Rodt, of Swiss origin, after having served in the Austrian Army, emigrated to Chile and eventually to Robinson Crusoe Island in 1877 (von Rodt 1907; Ruh 1975). As with von Rodt, most visitors to the archipelago were taken by its pastoral charm, and many believed that there could be successful economic possibilities, which often turned out to be unrealistic. The population stayed small, therefore, with, for example, only 64 persons in 1877 (only 29 adult males) (Woodward 1969).

World War I led to the very odd and dramatic circumstance of a visit by the German ship *Dresden* and its sinking by British ships in Bahía Cumberland on March 9, 1915 (Parker de Bassi 1987). Chile was officially neutral during the war, so the port commander had permitted the *Dresden* to drop anchor. Two British ships, however, which were tracking the *Dresden*, approached and believed the ship to be making an escape. This led to the British firing on the *Dresden* and eventually sinking her in the bay, where she still rests today at a depth of 60 m (Woodward 1969). Most of the crew of the *Dresden*, however, was able to leave the ship before it was destroyed. A plaque in the cemetery of San Juan Bautista near Punto San Carlos, erected in 1922 by the German community in Valparaíso, commemorates the three German crew members who died in the incident. This monument was damaged, however, during the destructive tsunami that swept the lower portions of the village on February 27, 2010 (Arana 2010).

Awareness of Natural Resources

The early decades of the twentieth century saw continued economic development and social stability plus a growing awareness of the unique natural heritage that the islands possessed. The village continued to grow, with a few hundred persons taking up residence. In response once more for a place to house criminals, Alejandro Selkirk Island was this time used as a penal colony during 1909–30 (Fig. C2). Remains of stone walls from this period can still be seen today.

Most important in these decades were the field studies and publications of Federico Johow, an immigrant to continental Chile from Prussia, and Swedish botanist Carl Skottsberg, who visited the islands in 1906–7 and 1917–18. Johow (1896) summarized information on the flora of the archipelago in Spanish, building on the earlier studies by Hemsley (1884) from the Challenger Expedition (see Chapter 2). Although Skottsberg's publications were in English (1921, 1956) and German (1928), they served well to attract international attention to the amazing diversity of endemic plants.

In realization of the scientific importance of the endemic flora of the islands and in view of the enormous negative impacts perpetrated on the island's ecosystem over nearly 400 years, the archipelago was designated a Chilean National Park on January 16, 1935. Although this was an important step forward in beginning to protect the natural resources

of the islands, the lack of enforcement measures resulted in little actual conservation achievements. Furthermore, it was difficult to contain the activities of the villagers, who in some cases were third- or fourth-generation islanders and regarded the islands as virtually their own. The Corporación Nacional Forestal (CONAF) of Chile, which administers the national parks (among other responsibilities), has in recent years become very active in conservation, and many positive steps have been taken. In addition, the archipelago has now been placed on the "tentative" list (an initial step) as a UNESCO World Heritage Site, which has strengthened its international importance.

Contemporary Village Life

The Juan Fernández Archipelago is one of the more isolated civilized locations in the world. Despite being a Chilean national park, the islands are not easy to reach. One can choose flying to the islands in a small five- to eight-seat propeller airplane that leaves from Santiago, or one can take a boat from Valparaíso. The flight lasts 2.5 hours, and the boat trip takes two days. In the small airplane, one lands on the western tip of Robinson Crusoe Island on a single narrow runway. From there one must take a jeep to the coast at Bahía Padre and then a 1.5-hour boat ride around to the eastern side of the island to Bahía Cumberland and the village of San Juan Bautista. The connections, therefore, are fun and filled with some adventure, but they are not designed for tourism with comfort and luxury. Hence many visitors tend to be young, energetic, and not particularly wealthy. To reach Alejandro Selkirk Island (Fig. C2), one must travel by boat for about thirteen hours from San Juan Bautista. There is no airplane connection between the two islands.

San Juan Bautista (Figs. 1.3, C3, and C4), the only permanent village in the islands, is small, with a current population of 885 persons (www.comunajuanfernandez.cl). There are very few streets, one running nearly parallel to the shape of the bay and another (La Pólvora) extending up the island toward the hills. Prior to the destructive tsunami of 2010, there was a municipal building, port captain's office, gymnasium, village plaza, pier, soccer field, several simple restaurants, guest houses, a school, small general stores and souvenir kiosks, a church, houses, a national park information center, and one discotheque (which was open only on Friday and Saturday nights). On February 27, 2010, however, a 3-m-tall tidal wave, originating from a submarine earthquake of level 8.8 near the Chilean coast (Farías et al. 2010), reached Robinson Crusoe Island and destroyed most of the village up to 60 m. Eleven persons perished, and six others were never found. All buildings mentioned earlier were destroyed, and all but the largest trees were also swept out to sea. This area of the island is being rebuilt in attractive style, but the older historical buildings close to the sea have been lost (see Fig. 3.7). Nonetheless, in any architectural configuration then or now, for the typical tourist there is really not much to see and do in the village. Most visitors, therefore, prefer to fly back to the continent after only a few days. For a plant biologist, however, the islands offer endless fascinations for exploration and investigation, as we hope this book successfully communicates.

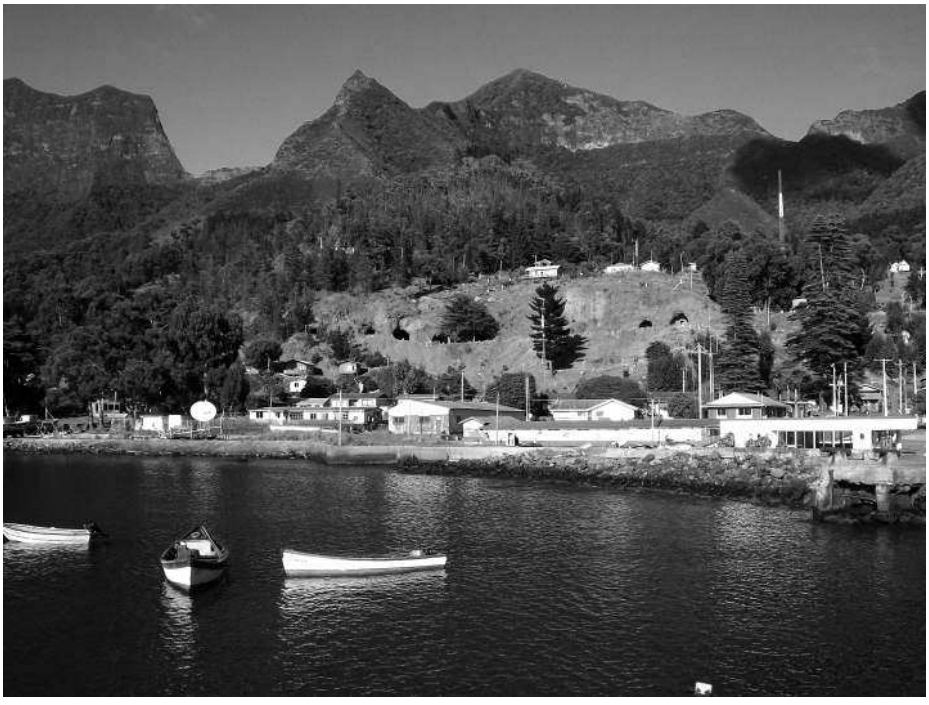

Figure 1.3 View of the village of San Juan Bautista, Robinson Crusoe Island.

The present economy of the village depends mainly on lobster fishing (Figs. C5 and C6) and tourism. The lobsters have long been fished for sale to continental markets (especially restaurants, where a good lobster dinner can cost US$50). The fishermen of Robinson Crusoe Island belong to a cooperative (Hernández and Monleon 1975), where adequate-sized lobsters from each day's catch are kept in holding pens until transported by plane or boat to the mainland. With heavy fishing, however, the lobster population declined into the 1970s and 1980s (Yañez et al. 1985), and incomes diminished proportionately (Arana 1987). The good news is that with new regulations to promote sustainability, lobster fishing has now made a recovery (Ernst et al. 2013).

Tourism, and especially ecotourism, has now also become important in the economy of the islands. Because the islands are a national park, there are restrictions on land use by the resident population. More important, education in the primary school now has more emphasis on conservation, to prepare the next generation for increasing demands from ecologically minded tourists. A tension had existed between the villagers, some of whom can trace their families in the islands back several generations and who view the islands as their own, and the Chilean government with its conservation mandates. This tension is now dissipating due to the clear need for cooperation to stimulate ecotourism.

In the 1980s, prior to arrival of telephones and televisions, the small village of San Juan Bautista was really isolated from the mainland. There were only two cars in the village because with only two short roads there was little need for automobiles. People walked everywhere and chatted frequently when encountering a friend in passing.

Telephones now make it possible to call from house to house, and this began to change the rhythm of the village. Multichannel television from satellites (now also available on Alejandro Selkirk Island) offered broader entertainment for families at home, which also changed people's social habits. Telephone and Internet connections to the outside world further lessened the villagers' national and international isolation.

Nonetheless, despite modernization, the people of San Juan Bautista continue to be warm and welcoming. They are proud of their island, which is in many ways a modern paradise, where crime is virtually nonexistent, every family can have a house and garden, community support is strong and sincere, and there is a delightful subtropical climate with some of the clearest and most star-strewn night skies on the planet. We were completely captivated by the islands, and this is one reason why we have never hesitated to return to continue our research.