

History of Sheep and Sheep Ranching on Santa Cruz Island, California

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Santa Cruz Island is the largest of California's Channel Islands, about 96 square miles in area; maximum elevation is 2470 feet and is the highest elevation of all the Channel Islands. The Northern Channel Islands, of which Santa Cruz is one, are an extension of the Santa Monica Mountains. The longest axis of each of the Northern Channel Islands trend east-west, and these islands are separated from mainland California by the Santa Barbara Channel. The climate is Mediterranean, with mild wet winters and warm dry summers. Prevailing winds are from the northwest. Santa Cruz Island, because of its rugged topography, has numerous microclimates in terms of temperature extremes, cold air drainages, precipitation, and fog. Freezing temperatures frequently occur each winter in interior valleys, but most of the island is frost free. Likewise, average summer temperatures are much higher in interior valleys compared to the north coast. Generally, the period June through October is dry except for summer coastal fog.

Bedrock geology is quite varied. The Santa Cruz Island Fault divides the islands into geologic provinces north and south of the fault. Volcanic rock and sedimentary rock including the Monterey Formation shale and limestone dominate the north part of the island; quartz-rich diorite, tonalite, and schist, as well as sedimentary breccias, sandstones, and shale and more volcanic rocks dominate the island south of the fault. The many plant communities reflect the various soils and microclimates and include grasslands, numerous coastal and interior shrub communities, oak woodlands, pine forest, coastal marsh, freshwater wetlands, and riparian herbaceous and woodland communities.

Native Americans, of the Chumash nation, first populated the island about 7000 years before the present. Several villages thrived on the island. Once European contact occurred, disease greatly reduced the population. The last Chumash people were removed to mainland missions by 1822. Numerous cultural remains are found on the island and are protected.¹

Santa Cruz Island was first mentioned (though not by that name) in the voyage log of Juan Rodriguez Cabrillo, 1542. The island was one of a group he called "Islands of Saint Luke." Subsequent mentions of Santa Cruz Island were made in the logs of Sebastian Rodriguez Cermenio (1595), Sebastian Viscaino (1602), Gaspar de Portola (1769), and George Vancouver (1793). Portola's expedition officially claimed the islands for the King of Spain. At that time, the island was named Santa Cruz (Holy Cross) because a cross-topped walking stick was lost by the Spaniard explorers, but returned the next day by the Chumash people living on the island at that time.²

Mexico won its War of Independence from Spain in 1821. At that time, California, including the Channel Islands, became part of Mexico. Junak et al. (1995)¹ state there is no evidence of any European livestock on the island before 1830. During this year, a group of 100 Mexican convicts were sent to Santa Cruz Island with cattle and a few horses, but no mention of sheep.

During the period 1839 to 1857, Andres Castillero owned Santa Cruz Island, having been granted it via Mexican Land Grant, in exchange for military service to the Mexican nation during the Mexican War of Independence (at that time, all of California plus several other western states were Mexican territories). Apparently, Castillero never lived on the island and in fact lived in Mexico. In 1850,

Castillero entered an agreement with William Forbes and Isidoro de la Torre (business associates, members of Barron, Forbes & Company) to cede half of Santa Cruz Island, facing the Santa Barbara Channel, on condition that these gentlemen pledge to protect the island, agree to not sell the island, and agree that upon the death of one, the other be given first refusal rights to purchase the interest of the deceased.³

First ranch facility construction occurred in 1852 to 1853. At about this time, Dr. James Barron Shaw of Santa Barbara was hired, either by Castillero or by Barron, Forbes, & Co., to manage the island. The first permanent ranch house was built in the Central Valley of Santa Cruz Island during 1853 to 1855. Eustace Barron, a principal of Barron, Forbes & Co., reportedly went to Spain to purchase "Spanish" sheep,³ and to England to purchase "Lancastershire" sheep³. Libby Richards⁴, in an online blog, wrote "Lancastershire" sheep probably meant either "Lonk" sheep, which is an old breed indigenous to the Lancashire area of England, or Leicester sheep. Sheep 101⁵ describes the Lonk sheep as coarse wooled, so since wool production was important to the island ranch, Leicester sheep are more likely. The most important Spanish breeds are Merinos (most likely here, and borne out by other accounts) and Rasa Aragonesa, which are a cross between Merino and Churra and Lacha sheep. Churra are bred for milk production, very hardy, indigenous to Castile and Leon, areas with long severe winters, short springs, and hot dry summers (perfect for southern California including the Santa Cruz Island); Churras reportedly are the ancestors of the Navajo-Churro, and resemble them.⁵

The Mexican-American War of 1846 to 1848 and the Treaty of Guadalupe Hidalgo of 1848 resulted in the cession of what is now Texas, New Mexico, Utah, Arizona, Nevada, and California (including the Channel Islands) to the United States. The terms of the treaty protected private property rights of Mexican citizens residing in these lands; still, conflicts over land ownership were common. In 1852, Castillero filed a petition to confirm his grant to Santa Cruz Island; Forbes and Torre did not enter any claims of interest. William Barron represented Castillero's interest with Shaw's support. The courts upheld Castillero's claim.³

In 1857, Castillero sold Santa Cruz Island to William Barron. Barron (via Barron, Forbes & Co.) reportedly tried unsuccessfully to sell the island in 1858. The advertisement claimed 50 sheep on the island at that time. When the island failed to sell, Barron decided to start a sheep ranch under Shaw's management. Shaw managed the ranch from 1853 to 1869. Shaw bought 200 ewes from Alphonso Thompson, who owned half of Santa Rosa Island. In 1854, Shaw bought 1000 sheep from Los Angeles, herded them to Santa Barbara, and transported them to Santa Cruz Island by schooner. A newspaper account described that in 1858 Shaw imported a 6-month old "improved French Merino" ram which weighed 102 pounds, stood 31 inches, and had fine wool¹. In 1860, tax assessor's records reported 12,375 sheep, 116 rodeo cattle, 3 bulls, 72 cow-calves, 2 oxen, 42 mares, 2 stallions, 52 colts, and 11 "lame horses." In 1861, Shaw imported more sheep from the Balearic Islands and from England. The sheep were Merino rams and Leicester rams and ewes. By 1864, tax records reported 24,371 sheep on Santa Cruz Island. The increase in sheep numbers probably was driven by demand for wool for Civil War uniforms and blankets. By 1869, the sheep ranch was well known and included corrals, shearing sheds, and a substantial wharf at Prisoners' Harbor. Tax records reported 23,819 sheep in 1869.³

In 1869, William Barron sold Santa Cruz Island to a group of 10 investors in San Francisco; these investors included Justinian Caire. The investors formed the Santa Cruz Island Company to manage the

island and its assets. An economic depression in 1877-1880 and drought in 1876-1877 (little feed for the sheep) saw thousands of sheep slaughtered for hides and tallow. By 1880, Caire controlled all stock of the Santa Cruz Island Company and first visited the island then. Caire continued developing ranch infrastructure on the island. In addition, the construction of Stearns Wharf in Santa Barbara in 1871, completion of a rail system between Santa Barbara and Los Angeles in 1880 and completion of the rail system to San Francisco in 1894 made it easier to transport equipment, supplies, and livestock to and from the island and to markets. The Santa Cruz Island Company diversified the ranching operations, commercially producing wool, meat, tallow, wine, and olives. Ten ranches were established on the island, operated as a unit through headquarters at the Main Ranch in the island's Central Valley. Vegetables, fruit, grains including wheat, barley, and corn, onions, and potatoes were grown for use on the island. Hogs and chickens were kept. Hay (including alfalfa) was grown in selected fields.³

A very important development by the Santa Cruz Island Co. and Caire was development of water sources on the island. There are at least 5 perennial streams (run year round) on the island. To supplement this, springs were developed, and numerous wells were hand dug to 30 to 35 feet depth, up to 10 feet in diameter, and lined with stonework. Windmills pumped well water into tanks or concrete reservoirs.³

Caire introduced Rambouillet-Merinos to the island. About 35,000 to 40,000 sheep were on the island in the early years of the Santa Cruz Island Co. By 1890, 50,000 sheep were counted. Sheep were sheared twice per year. Mostly they had the run of the island. They were rounded up from horseback by cowboys hired from Santa Barbara. One record of the Santa Barbara Morning Press stated that 45 shearers left Santa Barbara for Santa Cruz Island, and would take six weeks for shearing. Sheep were subdivided into small pens for each shearer. The shearer pulled a sheep, wrestled it into position, tied the feet, and began shearing. If the sheep was cut or nicked, a boy would dab the cut with a mix of pine tar and turpentine. Shearers were paid one token per sheep with an extra token for each ram. At the end of the day, the shearer cashed in the tokens. A shearer could shear 70 to 80 sheep per day with hand shears. A sacker packed the wool in six foot long burlap sacks which weighed 300 to 400 pounds full. The fleece was tossed up into a sack hanging from a platform, and the sacker got into the sack to stomp the wool to compact it. When the sack was full, the sacker would sew it shut. The wool sacks were stored until prices were sufficient to justify sale, then shipped to markets. After shearing, the sheep were sorted, some rams castrated, lambs sorted for market, sheep were dipped and wormed and loaded onto ships. Usually, sheep were transported to Los Angeles from Santa Barbara. When the island was overstocked or during drought, tallow was produced in addition to wool and meat.³

The Caire family controlled Santa Cruz Island from 1880 to 1937 via the Santa Cruz Island Company. After Justinian Caire died in 1897, litigation among his survivors (who each had varying numbers of shares of the Santa Cruz Island Company) meant constant conflict in and out of court, yet sheep ranching continued. In 1917, 15,000 sheep were reported on the island; in 1919, 13,206 were sheared. Cattle, grape, and wine production also continued.³

Clifford McElrath was hired in 1919 by the Caire family as "assistant superintendent," quartered at the Main Ranch. He described the major predators of newborn lambs to be eagles and ravens (no coyotes or other large predators were on the island). When feed was scarce, the sheep in best condition were the wild sheep which had been browsing on shrubs on the hillsides. These would come

into the valleys for water. Twelve to 20 of these wild sheep would be captured by roping from horseback and moved into corrals, to provide meat for ranch personnel. McElrath describes large-scale sheep roundups, called “las corridas” consisting of roundups of semi-wild sheep for shearing, docking, castrating, sorting, and shipping to market. Twenty to 25 vaqueros (cowboys) were hired from Santa Barbara; tack and horses would be prepared, corrals and wing fences would be repaired, then riders would attempt to herd the sheep in large flocks to ridge tops, eventually working them into corrals. Often, sheep would break back or down, and the roundup was finished for that day. At a corral gate, an “old ewe” often would start back and the rest would follow her – there was no way to stop them at that point. McElrath wrote that “the sheep are like deer in some respects. When they see a rider, instead of heading down hill for the valley or flat land, where they can be driven in a bunch to the corrals, they head for the highest and roughest country.” If 10,000 out of 25,000 sheep were corralled, that was considered good. The sheep would later be herded down steep canyons to the valley floors. Some “lana largas” – long-wooled sheep – had 6 to 7 years’ growth of wool (as much as 30 pounds), could not run as far as the others and would lie down, and have to be hauled on wagon to the shearing pens. The Vaqueros sheared the sheep with hand shears, as many as 70 to 80 per day. Corridas and shearing took place from March until May.⁶

Herding with dogs was tried by Basque herders from Winnemucca, Nevada, who came to buy a few thousand sheep. The sheep butted the dogs into cactus and rocks. The Nevada herders then tried constructing wing fences out of muslin to funnel the sheep into corrals. McElrath describes one ram “trailing yards of muslin from his horns and looking Valentino in *The Sheik*.” The Nevada herders then allowed the vaqueros to round up the sheep.⁶

In 1922, a report by an agricultural engineer hired by the courts recommended to extend the vineyards, reduce the wild sheep population and replace them with “tame” sheep, exclude livestock from some pastures to allow them to reseed – but that the main economic gain would be to develop the island as a resort.³

In fact, Ira and Margaret Eaton ran a commercial fishing and boat excursion business from Santa Barbara and established camps and a rustic resort on Santa Cruz Island from 1909 to 1937. While not involved in the sheep ranching, Margaret kept a diary and made some layperson’s observations regarding sheep on the island. She often observed large numbers of sheep on cliffs and hills above the coastline and marveled at their ability to not fall off the cliffs. The year 1909-1910 saw a severe drought. In 1910, on a walk, Margaret and her daughter found 35 dead sheep and later found two orphaned lambs. They fed the lambs milk and later, barley grain.⁷

The Eatons themselves leased Anacapa Island and bought an undisclosed number of sheep on Anacapa. Sheep on this island ate “iceplant”, a succulent, for water (which was scarce: one spring, accessible only at low tide). Ninety of the sheep were stolen by competing fishermen, nevertheless the business reported good success selling high-quality wool from the remaining sheep. The Eatons then ended the sheep enterprise⁷, with the ultimate fate of these sheep not given.

In 1918, the Eatons established a rustic resort or “camp” at Pelican Bay on Santa Cruz Island. To prevent soil erosion above the trails to and from the camp, Margaret planted ice plant in the winter. Predictably, the sheep ate it all. She replanted the following spring, with success.⁷

After years of conflict among the Caire heirs, referees appointed by the courts surveyed Santa Cruz Island and divided the island into seven tracts, one for each shareholder of the Santa Cruz Island Company, and the size of each tract proportional to the number of shares held by each. Tracts 1 through 5 were on the western and central parts of the islands, tracts 6 and 7 were on the eastern end. In 1937, the Santa Cruz Island Company sold parcels 1 through 5, comprising 90 percent of the island, to Edwin L. Stanton of Los Angeles.³

Edwin Stanton supposedly offered his 90 percent to the National Park Service immediately after his purchase, but received no reply. He officially evicted the Eatons from Pelican Bay in 1937. He sold the cattle and attempted to eradicate the pigs. He abandoned the sheep enterprise, allowing the sheep to go feral. In 1949 he leased a small part of the island to the U.S. Government for a missile tracking station. In 1950, he put the island up for sale but it did not sell. His younger son, Dr. Carey Stanton, took over management of the ranch in 1957. Edwin Stanton died in 1963; in his will he had directed his survivors (his wife Evelyn, son Carey, and attorney Richard Bergen) to re-create the Santa Cruz Island Company, which they did do. After Evelyn's death in 1973, Carey owned 2/3 of the stock in the Santa Cruz Island Company and held the rest in trust for his nephew Edwin Stanton III (the son of his older brother, who had been killed in World War II). Edwin Stanton III brought legal action against the Santa Cruz Island Company and Carey Stanton. Facing expensive litigation and considerable debts, in 1978 Carey Stanton sold his shares to The Nature Conservancy, which had been interested in acquiring the island since 1973. The Nature Conservancy paid \$900,000 to Edwin III for his third, and \$900,000 to Carey for half of his stock plus more to pay taxes and expenses and allow the Santa Cruz Island Company to pay its obligations. In return, Carey was to will his remaining stock to The Nature Conservancy. Carey Stanton died in 1987, at which time The Nature Conservancy entirely owned the Santa Cruz Island Co. The company was changed to a nonprofit organization, then was dissolved in 1992.³

Two of the Caire daughters had married, one to a Capuccio, the other to a Rossi. Tracts 6 and 7, the eastern 10 percent of Santa Cruz Island, belonged to these two families. Ambrose Gherini, the lawyer for the Capuccio and Rossi families, negotiated the sale of the Capuccio tract to the Rossi family. The Rossi's operated the ranch through the National Trading Company, an import-export business they owned with Gherini – though the land itself was never transferred to the company. Eventually, Ambrose Gherini became the sole shareholder of the National Trading Company. His wife (Maria Rossi Gherini) acquired 2/3 of tracts 6 and 7 and Ambrose acquired the remaining 1/3. In 1929, inventory records showed 4047 sheep, 24 hogs, 12 horses, 12 chickens, 200 tons of hay, and 16,544 pounds of wool. Because of severe drought in 1929, the sheep were in poor condition. The Gherini's operated the sheep enterprise from 1926 to 1984. Ambrose had two sons, Pier and Francis. Pier Gherini managed the ranch with his father from 1945 to 1952, then with his mother Maria and brother Francis. Annually, 1000 to 1500 sheep were transported to the mainland (via fishing boats) for sale. Early on, the sheep were taken to Stearns Wharf in Santa Barbara, later to Port Hueneme in Ventura County. Sheep were trucked to market. After Maria died in 1960, the ranch passed to her four children (including Pier and Francis) and the family continued the sheep ranch. Sheep were predominantly Rambouillet and Merino, with "other breeds." The sheep were fine wooled, and compared to mainland sheep, smaller and "more of a range animal." They were sheared once per year, in May and June. The Gherini's improved pasture fences for sheep control and to be able to close off pastures for regrowth and reseeding. They established 17 pastures on the 6200 acres of the ranch.³

In 1979, the Gherinis contracted with William C. Petersen, who had worked on the island during the 1960's. The sheep on the island were free-range and feral, migrating from tract to tract across the whole island. Petersen and his crew rebuilt fences, corrals, and other ranch infrastructure. Petersen also developed some innovative methods of loading sheep onto boats, including a corral on 55 gallon barrels as floats, which could be pushed and pulled from the dock to a waiting boat. Petersen hired Michel Ravenscroft, a 23-year-old woman from England, as a ranch cook and housekeeper; she later became a ranch hand, proceeded to apprentice shepherd, and by 1980 had become head shepherd. She married Petersen in late 1983. Michel describes early in her employment (1979), she assisted transporting about 1000 sheep "of all types and descriptions" to Port Hueneme. She describes "countless generations of free-range Merinos had reared themselves over the years."⁸

Difficult weather conditions, economic downturn, increasing operating expenses and decreasing prices of meat and wool contributed to the reduction. In addition, The Nature Conservancy was eliminating sheep by then so fewer sheep were "migrating" to the eastern end of the island. Nevertheless, the Petersens worked for improvement. The semi-wild Merino rams were rounded up and either shipped out to market or shot. Seventy juvenile Rambouillet rams were imported to Santa Cruz Island to improve the flock.⁸

Petersen sold 1555 sheep in 1979 and 1822 in 1980. Petersen was injured in a plane crash in 1984. The Gherini's gave permission to a hunt club, The Island Adventures Club, to hunt sheep and hogs on the east ranch. Michel disagreed with this decision, and in May 1984 faced down a group of armed hunters who approached while she was herding her flock (my kind of woman!). The hunters backed down, and she (with assistance) herded the sheep to Scorpion Harbor to ship them off the island. At that time Petersen told her that was to be the last sheep roundup and the end of the Petersen sheep enterprise, as the Gherini family stood to make much more profit from hunting than from rent and portion of profits from the Petersens' sheep ranching enterprise.⁸

The Island Adventures Club, begun by Jaret Owens, had contracted with the Gherini's for hunting and other recreation rights. The ranch buildings were renovated by Owens' parents, who managed the Club until 1991. The enterprise was very successful and operated until 1997. In addition to rifle and bow and arrow hunting, the Club offered kayaking, helicopter tours, boat trips, and operated a bed and breakfast lodge on the island. Francis Gherini handled the bookkeeping for the Club.³

The Union Oil Company oil spill in the Santa Barbara Channel in 1969 brought environmental concerns to the public. The Santa Cruz Island Company had been leasing drilling sites for offshore oil drilling. In 1969 the Sierra Club filed suit to stop offshore oil drilling. The suit was unsuccessful but again, brought environmental hazards to the public's attention. In 1970, the California Environmental Quality Act was passed and in 1972 the California Coastal Zone Conservation Act was passed; this latter law created the California Coastal Commission. These laws made development in environmentally sensitive areas, including the Channel Islands, more of a challenge. In the late 1970's, U.S. Congress was considering and passing legislation to create the Channel Islands National Park. Simultaneously, the Coastal Commission reduced the minimum zoning for residential development on Santa Cruz Island from 10 acres to 320 acres. This put a stop to the Gherini family's resort development plans. The Channel Islands National Park was created in 1980 and included San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara Islands. This authorized acquisition of remaining privately owned lands except for

the 90 percent owned by The Nature Conservancy. After much family conflict, the Gherini family sold tracts 6 and 7 to the National Park Service. The National Park acquisition was to become official in February 1997. The weekend before, hunters from Island Adventures converged on Santa Cruz Island and killed hundreds of sheep.³

The Nature Conservancy sponsored a study of the feral sheep on the 90 percent in its ownership in 1979-81. The authors of this study, Van Vuren and Coblenz (1989)⁹, studied the adaptations of feral sheep on Santa Cruz Island and made recommendations for removing the sheep from the island in hopes of restoration of plant communities. Study methods included shooting, dissection, and tissue sampling, live capture and radio-collaring, and color marking live sheep.

At the time of the study, Santa Cruz Island supported the largest feral sheep population in the world, estimated at 21,240. All lambs were born Mid December to mid January, putting breeding time in July and August. Lamb survival past the first few weeks was high. Twinning was rare – ten sets of twins were observed, and of the sampled pregnant ewes, no twin fetuses were found. Ninety percent of the sampled ewes were pregnant or lactating. Sixty-three percent of 1.5 year old ewes were pregnant or lactating, and many females first conceived at 7 months of age.⁹

Home ranges averaged 511 acres for rams; ewes' home ranges were 168 to 563 acres. Males ranged more in summer, probably due to more activity during July-August rut and scarcity of forage. Group size for sheep ranged from 1 to 41 and averaged 6.4 sheep; 80 percent of groups consisted of 7 or fewer sheep. Minimum daily movement of radio-collared sheep averaged 1318 feet; highest minimum daily movement was 6693 feet. Movement was greater in the summer, especially among males.⁹

Sheep density in the severely impacted islands was 0.85 per acre; 0.36 per acre was moderately impacted, and 0.08 per acre was considered slightly impacted. Sheep density in severely impacted areas was high compared to feral sheep populations on islands in New Zealand and Scotland.⁹

No emaciation was noted during the dry season. Body condition variations were seasonal and related to reproductive cycle – males were in best condition in June before rut started in July, and females were in best condition in November, before December lambing.⁹

In 1988, the American Minor Breeds Conservancy (AMBC, now the Livestock Conservancy that we know and love), with a team of volunteers, rescued five ram lambs and seven ewe lambs from The Nature Conservancy lands. These were distributed to five California AMBC members. The Nature Conservancy later caught and contributed six more lambs.¹⁰

At the time of the National Park Service (NPS) acquisition, in 1997, the hunters of Island Adventures estimated 2300 sheep on the eastern end of the island. The NPS had decided to eliminate sheep from its holdings, and due to pressure from animal rights organizations, decided to capture and relocate the sheep to the mainland.¹¹ NPS personnel rebuilt corrals, fences, and traps, purchased and modified trailers, and acquired baits, ATVs, and containers for holding sheep and moving them by helicopter. A veterinarian was on site. Between May 1997 and May 1998, NPS personnel baited corrals with water, apple mash, molasses, hay, and sweet feed. With 32 people and helicopters, they herded and captured 1999 sheep. In June 1998, the NPS hired a contractor, a sheep herding company with 4 people and 8 border collies. This contractor captured 328 sheep in less than a month before giving up.

Between June 1998 and September 1998, the NPS continued as previous and captured 273 sheep. In August 1998, a different contractor, with experience in herding feral livestock, was hired. This contractor used herders on horseback, who could quickly reach and shut corral gates behind the sheep, to capture 6653 sheep, by December 1999. From January 2000 through February 2001, monitoring of the eastern part of the island continued, via aerial surveys. During this monitoring period, six sheep were located and captured. The sheep were shipped to Port Hueneme from Scorpion Harbor, then trucked to Buellton, California to transfer to the new owners.¹¹

In about 2005, The Nature Conservancy gave 8500 acres, consisting of the isthmus connecting the west and east ends of Santa Cruz Island, to the National Park Service. This brought the National Park holdings up to 24 percent of the island.³

Summary and Personal Notes

Jim and I acquired our starter flock of Santa Cruz Island sheep from Marion Stanley in July 2010. As an avid (though not particularly skilled) handspinner and knitter and beginning weaver, I was looking for a hardy, self-sufficient and fuss-free breed with nice wool, marketable to crafters and artists, and that were “endangered” and needed preservation and promotion (the sheep, not the crafters and artists). That these sheep were nearly indigenous in my adopted state of California, had an interesting history, and came from an environment similar to that of our ranch, were added attractions. I began this study wondering when exactly sheep were first brought to Santa Cruz Island – there seemed to be some conflicting accounts - and what kinds of sheep made up the ancestry of these unique and fascinating animals.

The breeds that contributed to the present-day Santa Cruz Island sheep certainly included Merino and Rambouillet, probably include Churra and Leicester. In my eyes, our sheep most closely resemble miniature Merinos, but I certainly can't discount influence of the other breeds. Especially, I think I see Churra traits in the wool of some of the sheep.

The small size, hardiness, tendency toward single births, and strong mothering instincts seem like logical adaptations to an island habitat with limited food supply. Hard hooves suggest adaptation to rocky terrain. The fine textured, short staple wool with high lanolin content seems an effective adaptation for sheep out in the weather. The high lanolin content enables the wool to shed rain and fog condensation, and the fine crimp texture makes it a superb insulator against winter's cold and summer's heat. The tendency toward wool-less legs, bellies, tails, and faces and the tendency of some sheep to shed their wool are additional adaptations to the feral existence with no regular shearing. Alertness and wariness also are feral animal traits – and imagine, if your ancestors had been hunted with rifles and bows and arrows, you would be a little shy of humans too.

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