

## Tussock World

*Unique Kidney Island in the Falklands  
—“a precious little world of its own”*

*Olin Sewall Pettingill, Jr.*

ON THE MANY treeless islands that emerge from the windy oceans of the Southern Hemisphere, no plant form is more characteristic or provides more important habitat for birdlife than the tussock grass (*Poa* spp.). It thrives close to the sea, blanketing the smaller islands and fringing the larger ones. Rarely does it reach inland beyond the moisture-laden winds and storm-tossed spray.

Tussock grass grows on rocky surfaces, starting from crevices or other indentations—wherever it can gain foothold. Once established, its roots from succeeding generations gradually build up a pedestal of peaty soil. The older the pedestal, the higher and more massive it becomes and the more luxuriant its crown of live blades that droop in veritable skirts. Clumps of tussock grass may completely cover a ledge, enshroud a steep slope, or festoon an entire escarpment.

Among the many islands where tussock grass is a vegetational feature are the Falklands, an archipelago now well known to the world in the South Atlantic lying roughly 300 miles northeast of the southern tip of South America between 51° and 53° South Latitude. Comprised of two main islands, East Falkland and West Falkland, and over two hundred small islands and islets, the Falklands have a total land area about the size of Connecticut. They have been a British colony ever since 1833, whose principal economy in this century is based on sheep ranching, and the larger islands have been heavily grazed to the extent that tussock grass, which once grew along all their coasts, has been destroyed in all but a few spots inaccessible to sheep, either by being fenced off or on too-steep slopes. Only on the smaller islands where grazing has never been attempted, does tussock grass thrive in its pristine luxuriance.

When Mrs. Pettingill and I went to the Falklands for six months in 1953-1954 to study and film birds, we were immediately advised that, of all places, we must not miss Kidney Island; indeed, we should spend as much time there as possible. It was one of the few smaller tussock islands off the coast of East Falkland, just seven miles away from Stanley, the capital and the colony's only town. Its cover of tussock grass (*P. flabellata*) was especially luxuriant; consequently over the years farmers had made a practice of harvesting it for their cattle. To facilitate the farmers' overnight stops and to provide shelter from sudden storms, the government of the colony erected a sturdy hut of corrugated steel equipped with built-in bunks, benches, table, stove, and little else. Word eventually spread about the colony that Kidney Island was as notable for its plentiful birdlife as for its tussock grass. In time, as the need for tussock grass decreased, Kidney Island was practically abandoned to bird

watchers. We were welcome to use the hut for as long as we wanted it; nobody had occupied it recently. Snapping up this opportunity, Eleanor and I spent altogether five weeks on the island during three different periods in the late spring and early summer.

KIDNEY ISLAND, above the tide line, covered 80 acres. Its north side faced the open sea with 50-foot cliffs. When we viewed its south side one half-mile away from East Falkland, what we saw was a low pale green rise from the sea, as soft in aspect as a cushion. But now, nearing the same side in our chartered ship, we soon made out a beach of yellowish sand (to be our landing site) in a cove protected by craggy ledges at either end and uniformly backed by tussock clumps so immense that they suggested palm trees. In the sunlight with the wind stirring them, their long blades glistened and shimmered. (I could clearly understand now why the first Europeans, who sighted the Falklands



*Aerial view of Kidney Island/Photo O.S. Pettingill.*



Kidney Island with top of hut showing. Photo/O.S. Pettingill.

from afar, reported them forested.) As for the hut, our prospective abode, all we could see was its roof poking up from tussock well above and back from the 30-foot slope leading up from the beach. No trail, no path of any sort could we see going up to it.

Since Kidney Island had not been visited by grass cutters for over a year and the hut had not been occupied, whatever trail there might have been up to the hut had become entirely obliterated by a year's growth of grass. It was late afternoon by the time our landing craft, after maneuvering through kelp beds, reached the beach; time was running short. With the help of the ship's crew carrying our equipment, food supplies, and coal for fuel, we forged our own way.



The author standing on ledge in front of Tussock Grass. Photo/Eleanor Pettingill.

From the moment we started our ascent I began to appreciate the toughness, height, and density of tussock grass. Each clump averaged about eight feet from the ground to the tallest blades; the pedestal itself was five feet high and equally great in circumference. Although the pedestals were three to five feet apart, the long drooping skirts

from one interlaced those of another, literally bridging the gap. Our struggle was a matter of grabbing several blades of one clump with one hand, several blades from the one opposite with the other, then pulling and forcing our way through the tangle. Fortunately the blades were not dangerously sharp-edged, nor did they break off in our hands—a testament to their great strength. Meanwhile we had the problem of keeping our footing as the ground was soggy—and slippery. Worse still, the ground sometimes gave way under our weight, delivering us up to our knees or farther into nesting burrows of what must have been big birds.

AT LAST WE REACHED the hut. The crew, after putting down their loads inside, left us, hastening to leave while there was still daylight. For us, it was long after dark by the time we had cleaned the hut and settled in, had supper, and were ready for some sleep.

Sleep? Not for me right away; I was much too excited, tantalized, sometimes mystified, by all the sounds outside. There was a considerable wind, quite enough to make tussock blades whip the hut's sides. In the distance to the north I could hear the surf pounding the cliffs that fronted on the ocean and at intervals between the ocean's surging I could easily make out the raucous cackling of Rockhopper Penguins (*Eudyptes crestatus*) that colonized the cliffs. Now and then, from most anywhere on the island, came the mournful brays of what had to be Magellanic Penguins (*Spheniscus magellanicus*). And from birds passing in flight over and around the hut came twitterings, howls, wheezes, and other assorted vocalizations, all eerie. While I never doubted that most of the birds were shearwaters and petrels, and a few were possibly owls, I wondered which birds were giving which sounds—and kept wondering until I fell asleep.

At dawn both of us were abruptly awakened by some creature scratching and clawing its way up the hut's metal roof to the ridgepole. Rushing outside, I startled a Turkey Vulture (*Cathartes aura*) which sailed off, eyeing me and circling several times, obviously curious. The hut, reaching high above the tussock, was probably its favorite perch.

During breakfast we studied our map of the island and planned our strategy



Eleanor Pettingill cutting a small Tussock pedestal for peat as fuel, Kidney Island. Photo/O.S. Pettingill.

for the day. First, we would explore the landing beach where we had been so occupied in getting ashore through the kelp beds and up to the hut, that we had barely looked at birds. Then we would go to the opposite side of the island, over the highest part, and down to the cliffs whose Rockhopper Penguins I had heard the night before.

Anxious as we were to turn our attention to the birds, we had to cut trails beforehand; otherwise we would be forever waylaid by battling tussock grass as we had been in reaching the hut. An ideal tool for this purpose would have been a machete, long ago developed for slashing one's way through tropical jungles, yet who would have thought to bring along a machete to the treeless Falkland Islands? The best thing available in the hut was a saw, a plain old handsaw for cutting boards. By gathering a fistful of grass blades in one hand and holding them taut, we could hack them off at the base with the saw held in the other. However long and laborious the process, it worked.

We were reminded during this and later bouts with tussock grass that the literature on the early explorations of the Falklands and other islands at approximate latitudes in the southern oceans alludes to persons who had managed to survive when marooned on tussock islands by subsisting on the grass. Probably true. Its basal cores are white, pulpy, and tender with every indication of richness in nutrient matter. Tasting them ourselves, we detected the slight flavor of almonds, though we pitied the poor hungry souls who had to live on them entirely. The cores were so small (about a quarter inch in diameter) that a hundred or more—after the time-consuming task of peeling off their tough encasements—would be necessary for a life-sustaining meal.

ONCE WE HAD AN adequate trail down to the beach, our next job was a trail to the cliffs. Working up from the hut to the island's higher part (between 50 and 70 feet elevation) was not at all difficult; the clumps were shoulder high and far enough apart to let us walk unimpeded between them. On the ground in full view of the sun were several flowering plants, among them little vines (*Rubus geoides*) bearing "wild strawberries." Bright red and inviting, they were juicy enough, we found, but practically tasteless. At a later time we gathered some, put them in sherry under heaps of sugar—the sherry was fine.

We were evidently working up through the drier part of the island as many of the tussock pedestals were incompletely skirted. We had been told that the pedestals could be used for fuel since their peaty interiors will burn. We thought little about it until our third and last stay on the island when we ran out of coal. Resorting to our indispensable saw, we cut up pedestals in small sections, dried them as best we could, then put them in the stove. With a little kindling and a generous draft, they ignited but gave off precious little heat. It would be truer to say that they smoldered rather than burned.

Our experiences with tussock grass so far paled compared to what was to come as we started down the steep grade to the cliffs. For here the tussock enjoyed maximum moisture from the sea and spray, hence attained full luxuriance. All at once we were passing between clumps that towered ten feet, their pedestals alone five to six feet high. The crowns were actually so high that their blades interlaced over and above us. Now in deep shade we felt closed in, claustrophobic, and proceeded cautiously. I say "cautiously" because we never knew whether the next step would be down into a nesting burrow. (By this time we had concluded somewhat facetiously that the entire subsurface of Kidney Island must be a labyrinth of tunnels.) The ground underfoot, bereft of sunlight, was soggy—slippery, of course—and matted with mosses, liverworts, and numerous mushrooms. We stirred up many insects, including huge carabid beetles, and large mole-crickets (*Parudenus* sp.), sluggish and strikingly fawn-colored.

Working down the slope we were en-



Rockhopper Penguins in Tussock Grass on Kidney Island. Photo/O.S. Pettingill.

couraged by hearing the Rockhopper colony ever closer. Soon we began to smell it for causes that we were about to discover. Upon emerging from the tall clumps back from the cliffs we were at once wallowing in a filthy morass between low, dead tussock clumps on which Rockhoppers were nesting. The birds were mud-stained as were their eggs and their partners standing by. To reach the cliffs, now so near and yet so far, we had no choice but to plod through the stinking muck and at the same time risk having these little, 15-inch high, bellicose characters latch onto our legs with their pincer-like bills and pummel us with their sturdy flippers. Figuratively holding our noses, we waded through, being attacked effectively only a couple of times, to an entirely different scene, open to the sea. And blissfully fresh air.

HERE JUST BACK of the cliffs, in broad spaces between upturned rock strata, and on a few ledge shelves where the cliffs began to descend, were several hundred Rockhopper nests, their noisy occupants spic and span—fronts shining white, backs jet black, and heads adorned with yellow "eyebrows" back of which yellow tufts stuck out, giving an Oriental effect. Although the nests were outside the tussock, the occupants had nonetheless used blades for lining them, gathered by hopping back into the tussock or filching them from neighboring nests.

A question occurred to me: were these penguins here because of the cliffs

or the tussock? The cliffs probably, since Rockhoppers prefer cliffs or at least steep slopes for nesting, often forming colonies far from tussock grass. When the colony on Kidney Island was established in the spring, presumably the optimal nest sites were those in the open and were claimed first. After they were taken, the remaining arrivals were left with the less favorable sites in the tussock.

Out in the open, within the Rockhopper colony, were several small, colonial enclaves of King Cormorants (*Phalacrocorax albiventer*), their nests in depressions between rock strata. All the nests (about 25 per enclave) were close together on conical mounds that the birds had built up from adjacent mud and lined with fresh tussock blades. Unlike the Rockhoppers, which had to accept the nearest available blades, the cormorants flew to edges of tussock growth outside the Rockhopper colony and there gathered blades. After our familiarity with the drab-appearing cormorants of North America, the Kings greatly impressed us, as they should have for they are truly among the world's handsomest cormorants—pure white below, lustrous greenish blue above, and sporting jaunty crests, orange caruncles at the base of the bill, and blue-violet skin around the eyes.

The beach where we had landed got our attention in the afternoon. Though largely sand, it was nevertheless strewn with rocks and littered with pieces, rows, and heaps of washed-up kelp and seaweed. I will never forget our stroll on the beach that afternoon if for no other



*Some typical birds of the Falkland Islands*



*Rockhopper Penguin, Eudyptes crestatus, in nesting area. Photo/Sidney Bahrt.*



*Magellanic Penguin, Spheniscus magellanicus, in Tussock Grass. Photo/O.S. Pettingill, Jr.*



*King Cormorant, Phalacrocorax albiventer, on nest lined with Tussock Grass. Photo/O.S. Pettingill, Jr.*



*Kelp Geese, Chloëphaga hybrida, ♂ left, ♀ right. Photo/O.S. Pettungill, Jr.*



*♀ Falkland Flightless Steamer Duck, Tachyeres brachypterus. Photo/Sidney Bahrt.*



*Black Oystercatcher, Haematopus ater. Photo/Sidney Bahrt.*





*Great Skua, Catharacta skua antarctica. Photo/Sidney Bahrt.*



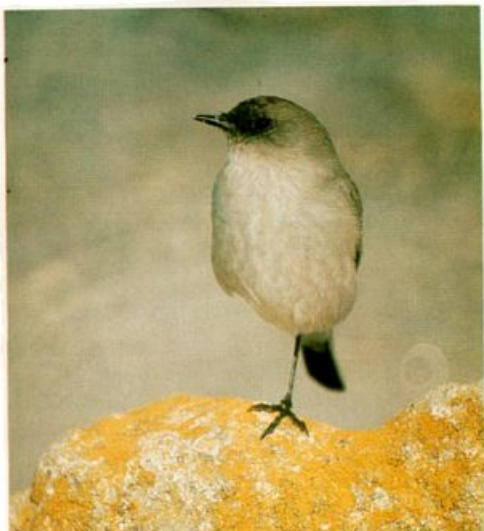
*Dolphin Gull, Leucophaeus scoresbii. Photo/Sidney Bahrt.*



*Short-eared Owl, Otus flammeus sanfordi, in Tussock Grass. Photo/O.S. Pettingill, Jr.*



*Tussockbird, Cincloides a. antarcticus, enticed to eat bread. Photo/O.S. Pettingill, Jr.*



*Dark-faced Ground Tyrant, Muscisaxicola m. macloviana. Photo/Sidney Bahrt.*



*Austral Thrush, Turdus f. falcklandii. Photo/O.S. Pettingill, Jr.*

reason than the tameness of the birds or their indifference to us. Magellanic Penguins stood fearlessly at the water's edge. In front of us a pair of Falkland Flightless Steamer Ducks (*Tachyeres brachypterus*) with their newly hatched, downy brood of seven calmly took to the water, the whitish-headed male in the lead on their way to the kelp beds. Nearly underfoot were Tussockbirds (*Cinclodes antarcticus*). Plain dark brown, about eight inches long, and members of the South American oven-bird family, they kept following us at our heels; when we stopped, they either stopped or walked around and over our feet. Their interest in us was puzzling until we became aware that our walking over plant litter stirred up or otherwise dislodged insects and crustaceans of which they were fond. House Wrens (*Troglodytes aedon*) were seemingly everywhere, fluttering from one rock to another, disappearing, popping into view, vanishing again. Present too were Austral Thrushes (*Turdus falcklandii*), much like American Robins (*T. migratorius*) except for their duller plumage and bright orange-yellow bill and feet. Both the Tussockbirds and thrushes were adept at pecking holes in the heaps of rotting plant debris. To see what they were after, we overturned a heap, uncovering a jumping, squirming, scurrying mass of invertebrate life.

We were to learn that all the birds we observed on the beach relied on tussock for nesting in one way or another. Magellanic Penguins and Tussockbirds excavated nesting burrows under clumps, the former deeply, the latter less so. Steamer Ducks hid their nests at the bases of clumps under overhanging blades. House Wrens fashioned their ball-like nests of plant fibers into the crowns of tussock clumps where they were concealed completely by the dead but still hanging blades of last year's growth. Austral Thrushes built their nests of grasses, open at the top, on the sides of pedestals, covered by the crowns of tussock blades.

**A**LTHOUGH THE Tussockbirds and House Wrens depended on the tussock bordering the beach, Magellanic Penguins and the thrushes also used the tussock in the island's interior. Here too were birds that we never saw on the beach, the Short-billed Marsh Wrens (*Cistothorus platensis*), whose nests were much like the House Wrens' and situated in the same manner.



Short-billed Marsh Wren on Kidney Island. Photo/O.S. Pettingill.

For some unremembered reason during our stroll we drew close to the tussock bordering the beach and got the scare of our lives when, above us in the tussock, a monstrous head loomed up belching, snorting, and spouting steam, its breath condensing in the cold air. We had aroused a sleeping bull sea lion (*Otaria byronia*). Forewarned about what to do when alarming such an enormous beast: get out of the way between him and the sea. We did, losing no time. Had we been in his way as he lunged from the tussock, we could have been squashed. Kidney Island was not without its hazards!

Continuing our stroll eastward from the beach we were soon scrambling over ledges to a promontory. On it stood a pure white bird, a male Kelp Goose (*Chloëphaga hybrida*), with no inclination to give ground as we drew within a few feet of him, close enough to see his black eyes, bill, and feet. His steadfast presence was a sure indication of a nearby nest which we easily found back at the base of a tussock clump under a curtain of tussock blades and covered by his mate. Black, barred with white, so different from him, she refused to budge until I started lifting her up to count the eggs.

Farther along, from a tidal pool among the ledges, we flushed a Black-crowned Night Heron (*Nycticorax nyc-*



Black-crowned Night Heron nesting on face of cliff of Kidney Island. Photo/O.S. Pettingill.

*tucorax*) that must have been stalking fish. On a later day we would locate night heron nests on the tops of tussock clumps that draped the low cliffs at the island's northwestern end; and on most any evening we would see night herons out on the kelp beds, standing and foraging.

Still farther along we surprised a pair of Blackish Oystercatchers (*Haematopus ater*) from a depression between ledges where they had a nest. They were almost totally black save for their red bills and eye-rings and pale beige feet that looked nude, untanned, slightly unfinished. The oystercatchers were the only birds we had seen which made no use whatever of tussock grass.

**D**ESPITE OUR PRODUCTIVE day, I could not feel satisfied until I had seen after nightfall what I had heard the night before, when we were so occupied in getting ourselves settled in the hut.

Just before sunset we made our way up through the tussock to the island's highest point, then climbed up on tussock clumps from where we could view far out to sea a thick line of dark birds, many hundreds of them, paralleling the horizon and the island for a mile. Momentarily the whole line rose up, circled several times, coming closer with each turn, and then settled down. Every few minutes the performance was repeated, each time bringing the birds closer as dusk approached. Finally, not far off shore, as though the entire maneuver had been scheduled to bring them close to the island at the moment of twilight, the great congregation lifted up from the water and dispersed over the island in a whirling swarm. Some swooshed by us, making us duck. Without decreasing their speed the birds crashed through the tussock to their burrows. All around us they were plummeting. The majority were crow-sized Sooty Shearwaters (*Puffinus griseus*); the others were the somewhat larger White-chinned Petrels (*Procellaria aequinoctialis*). From the depths of their burrows came bloodcurdling sounds—muffled, cat-like howls and intermittent screams of the shearwaters and the strident, oft-repeated screeches of the petrels—given as arrivals greeted their nest mates, which had been in attendance during the day, and they in turn responded.

Almost as suddenly as the onslaught began, in fifteen minutes it was over.

But there was more activity to come after darkness with the arrival of the much smaller, swallow-like Gray-backed Storm-Petrels (*Garrodia neris*). We could hear their high-pitched twitters and chatters; occasionally we caught them in the beam of a flashlight. Soon their invasion was over. Nevertheless, all through the night there would be movements of shearwaters and of petrels, both the large and small, some arriving, some leaving, many vocalizing.

Considering the swarm of Sooty Shearwaters and White-chinned Petrels that we had witnessed, much of the subsurface of Kidney Island really must have been a network of burrows to accommodate all the nests. The tunnels that I later examined at the western end of the island were long, twisting, and sometimes interconnecting. Although most of them were large enough for me to reach in up to my shoulder, they were too long and circuitous for me to go in as far as the nests. (It was just as well—I was always fearful that any burrow might belong to a Magellanic Penguin, capable of a painful bite with its hook-tipped bill.) The little Gray-backed Storm-Petrels tunneled far into the skirts of tussock clumps, well above ground.

The next morning along our trails we came upon the fresh parts of storm-petrels—more often than not simply the wings. Obviously this was the work of a nocturnal predator, catching the birds as they returned or departed in the night and devouring all but their pinions. The



King Cormorant viewing photographer quizzically. Photo/Sidney Bahrt.

predator was easy enough to determine by elimination. Since there were no land mammals on Kidney Island, aside from the introduced house mouse, and night herons never ventured into the dense tussock of the interior, it had to be a bird, the Short-eared Owl (*Asio flammeus*), the only nocturnal raptor in the Falklands.

**E**VEN THOUGH INFORMED that Short-eared Owls were residents at Kidney Island, we missed seeing them until the third night, long after dark. The weather was stormy; a strong wind shook our hut and tussock blades lashed it. Above the din I heard the *kick, kick* and wheezy sounds of one bird, the same sounds from another and still another. Opening the door and pointing

the beam of my flashlight in the direction of their source, I caught the orange eyeshine of three owls, each sitting high on a tussock clump. Kidney Island's nocturnal predators were on the prowl.

Such was our introduction to the tussock world of Kidney Island. Later its avian ecology would be studied and reported on by Robin W. Woods (*Ibis*, 112 (1970):15–20) who, with his wife, spent altogether seven weeks on the island between 1958 and 1968. And in 1971, I would return with my assistant, Maurice A.E. Rumboll, for a stay of twelve days.

Kidney Island is now set aside as a Nature Reserve as it should be for it is indeed a precious little world of its own. Except for the absence in winter of shearwaters, petrels, and the penguin-cormorant colony, it is the same world from season to season.

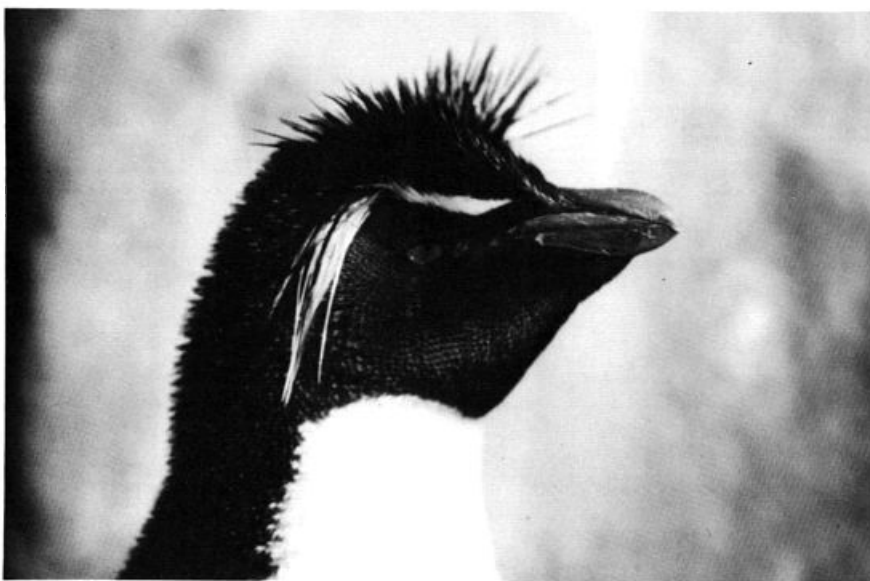


Great Skua in flight. Photo/Sidney Bahrt.

One must bear in mind that the Falklands, tempered by the sea, have an equable climate, seldom very warm in summer, rarely very cold in winter. Tussock grass continues green through winter and at Kidney Island provides year round cover for its landbirds, all permanent residents, and nesting sites for them in spring and summer. Seeds and invertebrates are in perpetual supply for food.

Much as Kidney Island has to offer anyone interested in birds, it is not exactly idyllic. Winds, seemingly incessant, lash tussock grass across the face and threaten the eyes with its sharp tips. Frequent rains soak the tussock, making the island one of the wettest places on earth. Unpredictably long, severe storms can prolong one's stay for days until navigation is again safe. All the same, the tussock world of Kidney Island is one of the most extraordinary places for birds that I have experienced in my lifetime.

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Rockhopper Penguin close up. Photo/Sidney Bahrt.



