

HISTORY OF MANAGEMENT IN THE NORTHWESTERN HAWAIIAN ISLANDS

BY

ROBERT J. SHALLENBERGER¹

I appreciate the opportunity to speak here today. I'm encouraged by the inclusion of a management paper at a conference focused on research. The distinction between research and management in the Northwestern Hawaiian Islands (NWHI) is necessarily blurred.

I'll start by letting you know what I will not be doing today. I will not speak as an official representative of The Nature Conservancy or the U.S. Fish and Wildlife Service. I will not provide a detailed, chronological review of NWHI management. Also, I will not talk much about fishery management, as there are those who are far more knowledgeable on that subject. I will, however, address what I believe to be the most significant management challenges faced by those responsible for stewardship of NWHI resources.

One of the perks that come with the Refuge Chief job is the opportunity to consult with people in high places. When I asked President Teddy Roosevelt for guidance, he told me "The Nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired in value." I think it is worthwhile to look back now and then and consider how we have done when measured against this standard. Only then can we make the right decisions about our future course.

PROTECTION

Commercial exploitation was the earliest management challenge in the NWHI, and the pressure to increase harvest of fishery resources makes it a significant challenge today as well. Commercial harvest of whales, seals, turtles, sharks, and sea cucumbers dates back to the 18th century, from the earliest European explorers. Sealing expeditions in the 19th century drove the monk seal to the brink of extinction. In excess of a million albatross and other NWHI seabirds were taken for their feathers and eggs, both by Japanese poachers and by others under permit from the Hawaiian Kingdom. Nearly a half million tons of guano were taken from Laysan Island alone (Rauzon, 2001). These activities would prove to have significant and lasting biological and political impacts on the NWHI.

Legal protection, as a management tool, comes in many forms. A critical first step occurred when each of the NWHI was claimed on behalf of the Kingdom, the Territory or, in the case of Midway, the United States Government. This solidified the jurisdiction

¹The Nature Conservancy of Hawaii, P.O. Box 6600, Kamuela, HI 96743 USA,
E-mail: rshallenberger@TNC.org

issue and avoided the balkanization of management that would have occurred had other nations successfully claimed some of these islands and atolls.

Lasting official protection for fish and wildlife of the NWHI came over time in the form of presidential and congressional action. But it did not come easy. The commercialization of wildlife in the late 19th century was a tragic chapter in the history of resource management. Hundreds of thousands of birds were being sold for their feathers at weekly auctions in America and Europe. An upwelling of concern about the staggering loss of colonial birds resulted in action to ensure permanent protection for important nesting sites and to prevent the marketing of bird products. In 1900, the Lacey Act was passed. This critically important statute provided federal authority over wild birds and gave the Secretary of Agriculture authority to adopt measures necessary to protect game birds “and other wild birds” (Reffalt, 1993).

Achieving protection specific to the NWHI took even longer. At the turn of the century, prominent members of the American Ornithologists Union were focusing their attention on a five-acre island in east-central Florida, called Pelican Island. After several years of unsuccessful efforts to acquire and protect the Island, they discovered an 1890 Deputy Attorney General’s legal opinion that the President could reserve public lands by proclamation or executive order under the “implied powers” of the presidency (Reffalt, 2003). This opinion, bolstered by the Lacey Act, was all it took to convince President Theodore Roosevelt to sign the executive order in March 1903 that would establish the first federal bird reservation. It is likely that no one had any idea that the Pelican Island Reservation would mark the inauspicious beginning of the National Wildlife Refuge System, a network of lands and water that a century later would have grown to nearly 550 refuges and nearly 95 million acres.

The floodgates of bird protection did not open immediately. It took more than a year to establish the next bird reservation, at Breton Island in Louisiana. Four more were added in 1905. The deluge came in Roosevelt’s last year in office. In all, Roosevelt created 51 bird reservations and 2 big game reservations. The Hawaiian Islands Reservation, created by Executive Order 1019 in February 1909, was number 27 on Roosevelt’s list.

The inclusion of the NWHI in the list of new executive orders appears to have been a case of fortuitous timing. Word of poaching in the NWHI had filtered back to Washington, particularly as a result of events taking place at Midway. The confrontation between Commercial Pacific Cable Company employees and Japanese poachers at Midway had resulted in Executive Order 199-A, signed by Roosevelt in 1903. This Executive Order put Midway under Navy control and was followed by a decision to send a detachment of Marines to the Atoll in 1904, to protect both the birdlife and the Cable Company employees.

Regrettably, there were shortcomings in the 1909 Executive Order that proved to be an impediment to effective management that remains unresolved. The Executive Order language describing the Reservation refers to “islets and reefs” of the NWHI. It lists and illustrates all the emergent islands (except Midway, under Navy control) and major reefs, including some with no emergent land. But it did not define the limits of “reefs.” The map which accompanied the Executive Order includes an elliptical dotted line around the

Archipelago, but no legend to indicate whether this line was meant to be illustrative or to actually portray a more expansive reservation. So, in the face of an ambiguous Executive Order, the debate over the actual “legal” boundary of the Reservation (later Refuge) has persisted.

Although it did not happen overnight, Roosevelt’s 1909 Executive Order provided the direction and authority necessary to stop both the poaching and the previously permitted harvest of seabirds and guano in the NWHI. More importantly, this Executive Order led to the inclusion of the NWHI in the National Wildlife Refuge System, making it subject to, and the beneficiary of, several laws, regulations, and policies put in place to protect lands and waters within this System.

This Executive Order was followed by several federal laws that would further enhance the protective status of sensitive habitats and wildlife of the NWHI. Among the most important statutes were the Migratory Bird Treaty Act, the National Wildlife Refuge System Administration Act, the Endangered Species Act, the Marine Mammal Protection Act, the Magnuson-Stevens Fishery Conservation and Management Act, and the National Marine Sanctuaries Act. More recently, the executive orders establishing the NWHI Coral Reef Ecosystem Reserve have set in motion the process to establish a marine sanctuary in the NWHI.

Enforcing these new protections turned out to be a significant challenge as well. Frequent trips by the Revenue Cutter *Thetis* provided a modest, but critical level of enforcement against poaching in the NWHI until 1916. Yet, it was more than 50 years after the Executive Order before a refuge manager was stationed in Hawaii. In the interim, Pearl Harbor and Midway were attacked, Tern Island was converted for military use, other NWHI were used as bombing targets, and LORAN stations were established at French Frigate Shoals and Kure.

It’s easy to understand, in retrospect, how the Pacific war would lead to military use of refuge lands, even without concurrence of the federal agency charged with management of the refuge. It is more difficult to grasp how commercial exploitation of refuge resources would be allowed to occur long after the 1909 Executive Order. In 1927, a large population of black-lipped pearl oysters was discovered at Pearl and Hermes Reef. Owners of the Hawaiian Sea Products Company removed more than 150,000 oysters during a three-year period. Biologists surveying this site in 1930 found the oyster population seriously depleted, and it has not recovered to this date (Rauzon, 2001). The second, more recent commercial project began in 1946, when a private company was issued a Territorial permit to fly fish and green sea turtles to Honolulu, using the Tern Island airstrip.

VESSEL TRAFFIC

Vessel traffic in the NWHI has proven to be a difficult management challenge of international scope. NWHI reefs are littered with the remains of sailing ships that ran aground in the 18th and 19th centuries. It should not be surprising that these vessels would fall victim to these treacherous reefs. What is more difficult to explain, given the

widespread availability of sophisticated navigational equipment, are the more recent groundings of fishing vessels and freighters. Examples include a Japanese fishing boat on Laysan in 1969 and one each on Kure and Laysan in 1976. The *Anangel Liberty* grounded at French Frigate Shoals in 1980, the *Paradise Queen II* at Kure in 1999, and the *Swordman I* at Pearl and Hermes in 2000. The burning and sinking of the *Hawaiian Patriot* north of French Frigate in 1977 was a particularly troubling wake-up call, because it demonstrated that grounding was not the only navigation hazard. More than five million gallons of fuel oil entered the ocean but, fortuitously, it was far enough away from the Atoll to avoid serious contamination of this critically important seal and turtle habitat. We'll never know how many birds were oiled at sea.

The good news is that the direct impacts of these recent groundings appear to have been relatively minor, but that was largely a matter of luck. The *Anangel Liberty* dumped 2,200 tons of kaolin clay over the side to lighten the ship enough to pull it off the reef. Fortuitously, currents on that day carried most of the clay out to sea, rather than into the Atoll. Both of the Japanese fishing boats that grounded on Laysan had evidence of rats on board, but they did not take up residence on the Island. Most of the fuel was removed from the *Paradise Queen II* before it broke apart, but the debris from that shipwreck continues to pollute the reef and shoreline at Kure. *Swordman I* was successfully pulled off the reef, although at considerable cost.

While we have largely dodged the bullet in these recent events, it is almost certainly only a matter of time before a vessel grounding or an at-sea vessel fire becomes a catastrophic event with very serious wildlife and habitat impacts. Considerable spill-response training has taken place in Honolulu and Midway. But the truth is that we are not well prepared to mitigate wildlife impacts at a large spill event, particularly if it occurs at any one of the uninhabited islands and atolls.

Marine debris is another very significant management challenge, made even more difficult by the international scope of the problem. The entanglement of wildlife has prompted an aggressive and collaborative effort among diverse agencies to locate and remove accumulated debris. The significant increase in debris collected in the last two years suggests it may actually be possible to stay ahead of the accumulation of new material. Yet, the long-term solution to this and the related plastic pollution challenge must be found in global efforts to address the source.

RARE SPECIES

Many of us involved in both research and management in the NWHI have spent the lion's share of our time in the recovery of rare species. Indeed, the line between research and management of rare species is particularly blurred. Many of the actions taken to promote recovery have been grand experiments in themselves.

By the time Executive Order 1019 was signed, some NWHI species were already in serious jeopardy. Both the Hawaiian monk seal and Laysan duck were nearly extinct. The Laysan honeycreeper and Laysan millerbird were gone by 1923 after introduced rabbits denuded their habitat. A translocated population of Laysan rails persisted on

Midway, but succumbed in 1941 when rats were inadvertently introduced. Sadly, that loss could have been avoided. A request to ship 20 rails from Midway to Laysan in 1940 was denied by the Territorial government (Rauzon, 2001).

By mid 20th century, the monk seal population had rebounded. Regrettably, and despite a very aggressive management effort, the seal population has since declined by more than half. The commercial harvest of seals was replaced by beach disturbance, entanglement, and depletion of prey as factors contributing to the decline of this species. Laysan ducks have fared much better, but are not out of the woods. A very recent translocation of birds to Midway will serve as an important hedge against a catastrophic event at Laysan.

As we consider our management priorities in the 21st century, I think it is useful to put the recovery program in the NWHI into perspective. This is the only refuge where the entire range of a listed animal species is confined to the limits of the refuge and, in this case, there are at least five that qualify. Most alarming, it is the only refuge on which an animal is known to have gone extinct, and this refuge lost at least three.

ALIEN SPECIES

Alien species represent an almost intractable management challenge in the NWHI. Of more than 300 plant species recorded in the NWHI, only 37 are indigenous, and 12 are endemic (Rauzon, 2001). The growing list of alien insects is even more disturbing, because the prospect of wholesale conversion of terrestrial ecosystems is very real. Regrettably, we researchers and managers have almost certainly contributed to the problem through the inadvertent transport of alien species.

The good news is that there has been an aggressive effort to address the most serious problem species and to stem the invasive tide. The elimination of rabbits on Laysan and Lisianski, early in the 20th century, reversed the path of destruction created by this thoughtless act of introduction. The much more recent “Cenchrus War” on Laysan was successful in preventing sandbur from converting this relatively simple ecosystem. Strict protocol to prevent further introductions is being aggressively enforced. On Midway, the successful elimination of rats has now resulted in an almost immediate response in the Bonin petrel colony. Rats have also been eradicated at Kure.

The bad news is that for every successful control effort there is another problem species waiting in the wings. Now we are challenged by big-headed ants on Kure and Midway and grasshoppers at Nihoa. In the latter case, the prospect of a total conversion of habitat and potential extinction of the Nihoa millerbird is a real possibility (E. Flint, pers. comm.). We’ve also seen a rapid spread of weedy plants, such as golden crownbeard and mustard, to Southeast Island at Pearl and Hermes Reef, presumably the result of inadvertent transport from Midway (E. Kridler, pers. comm.). Finally, researchers have documented the presence of alien marine species at several locations and, in particular, at Midway. This underscores the risk that movement of vessels through the NWHI in the future could inadvertently expand the scope of that problem.

MILITARY ACTIVITIES

Military and Coast Guard presence in the NWHI has left a permanent mark, dating back to the mid-19th century when dredging of a channel at Midway was first begun. The 1903 Executive Order that put Midway under Navy control set in motion the eventual transformation of this atoll for military use. Leading up to the Pacific War, French Frigate Shoals were used for ship and aircraft maneuvers. Creation of the Tern Island runway began in 1942 (Amerson, 1971). Some of the NWHI were used as bombing targets during the war. The Navy pulled out of Tern Island in 1946, while remaining at Midway until base closure in 1997. The Coast Guard operated a LORAN station at French Frigate Shoals until 1979 and at Kure until 1992.

It is impossible to fully assess the impacts of military and Coast Guard activity on fish and wildlife resources of the NWHI, but we do know some things for certain. Military construction and dredging did convert substantial marine habitat. Human activity on beaches at Kure, Midway, and Tern did inhibit use of this habitat by seals and turtles. Nearshore waters were contaminated by fuel and other chemicals, and the use of lead paint at Midway does present a wildlife hazard that was not resolved at base closure. On balance, the military played a critical role in the early control of poaching and enforcement of refuge regulations. The military has also provided indispensable logistical support in transporting managers and researchers throughout the Archipelago. Finally, the military has expended in excess of \$100 million to clean up the contamination at Midway and Tern islands, resulting from decades of activity.

CHANGES AT MIDWAY

I think that the Midway Project deserves some discussion of its own, because it highlights the difficulty in managing costly infrastructure and the challenge of providing legitimate opportunity for public access. The U.S. Fish and Wildlife Service (FWS) had been interested in the wildlife resources of Midway for decades prior to the 1993 announcement of base closure. The FWS signed a co-management agreement with the Navy in 1982 that led to creation of an “overlay” national wildlife refuge in 1988. It, then, should have been no surprise that the FWS was eager to manage this site when the Navy announced it was leaving. However, the disturbing prospect of operating and maintaining this complex facility led the FWS to consider other options. Also, knowing that this heavily modified site could accommodate public use with minimal impact, the FWS explored ways to make public visitation a management objective.

The selected approach was to enter into a cooperative agreement with a private entity with the manpower and experience necessary to operate the facility and to develop a viable public-use program. The premise was that income derived from the public-use program would pay for the cost of the operation. Two companies submitted proposals, and Midway Phoenix Corporation was selected. The cooperative agreement was signed, and the first visitors arrived in 1996.

The project succeeded in achieving its principal objectives in the first three years

of operation. Regulations in place to minimize disturbance to monk seals seemed to have worked, as monk seal use of Sand Island beaches gradually increased. Several thousand visitors enjoyed Midway's natural and historic resources. Unfortunately, the relationship with the Midway Phoenix Corporation deteriorated, eventually resulting in termination of the partnership.

The termination of the relationship has forced the FWS to put most of the public-use program on hold and consider alternative strategies for future operation of the facility. It remains to be seen whether a solution will be found that ensures adequate funding for facility operation and enables rebuilding of a visitor program. Regardless, there are some lessons to be learned. Midway does, in my opinion, represent the single most viable opportunity for providing the public with a "window" on the refuge. The trick is to do so without adversely impacting the site or the fish and wildlife resources that inhabit the area.

INTERAGENCY COLLABORATION

The last, but certainly not least serious management challenge I will mention is interagency collaboration. The critical need for collaboration has its origin in the various executive orders and acts of Congress that have divided responsibilities among many players (Shallenberger, 1984). The Navy was given jurisdiction over Midway in 1903. Teddy Roosevelt's 1909 Executive Order gave responsibility for the Hawaiian Islands Reservation to the Department of Agriculture. The Hawaii Organic Act and Hawaii Admission Act gave the Territory responsibility for nearshore waters of the NWHI, except Midway. In 1936, Franklin Delano Roosevelt gave jurisdiction at Kure Atoll to the Navy. President Truman mistakenly "restored" jurisdiction over Kure Atoll to the Territory in 1952, despite the fact it had been included in the Hawaiian Islands Reservation by EO 1019 in 1909. More recent legislation split management responsibility for seals and turtles among FWS, NMFS, and the State. National Ocean Service joined the game in December 2000 when Executive Order 13178 created the NWHI Coral Reef Ecosystem Reserve.

Let me qualify this discussion by noting that there have been numerous examples of very effective interagency collaboration in the NWHI, in spite of the jurisdictional quagmire. Just a few notable examples include the State/FWS agreement in the 1950s for joint surveys in the NWHI, the Tripartite studies in the early 1980s, the NOWRAMP expeditions, the Sanctuary Advisory Council, the net debris retrieval project, the Head Start seal recovery project and, more recently, the "Navigating Change" Hokulea project.

Let me also point out that the division of jurisdiction and authorities in the NWHI does not have to be an impediment to successful resource management. In fact, it can be a huge asset. Truly effective collaboration enables the agencies to pool their authorities, their money, and their staff expertise to achieve common objectives. For some reason, this level of collaboration seems easier to achieve among researchers than among managers. The recently published summary of information needs in the NWHI demonstrates that fact. I think we managers spend too much time strutting our stuff and

arguing about who is in charge. That sounds more like “egosystem” management to me.

In order to promote effective management collaboration, we will have to step back and view the resource issues on an ecosystem level first. Then, and only then, can we begin to explore how our individual authorities, resources, and expertise can be strategically applied and complement one another.

The management agencies involved have taken an important step forward by developing a draft memorandum of agreement to promote coordinated management in the NWHI. Although this document has stalled for the moment in the bowels of one or more agencies, it does hold promise for the future. To be truly collaborative, agencies must explore how their differing authorities and regulations can complement one another and provide the depth of protection needed. It remains to be seen whether or not the sanctuary proposal can provide the framework necessary for this level of collaboration. I suspect it will only happen if the agencies decide that collaboration to achieve ecosystem-based goals is a whole lot more productive than turf.

CONCLUSIONS

I'll end where I started, with reference to Teddy Roosevelt's management standard. As we close the first century of active management in the NWHI, is it fair to say that we are passing on this natural resource increased, and not impaired in value? I think the candid answer is that we have won some and lost some. We face a greater array of threats, but we're armed with a far more substantial body of knowledge and greater layers of protection.

I'd like to wrap this up by passing on some advice for those of you who will carry the torch beyond this point:

1. Resource managers must find ways to collaborate effectively at the ecosystem level.
2. The application of new technologies to resource management and research in the NWHI is already changing the way we look at this place. The best is almost certainly yet to come.
3. Most of the major management challenges in the NWHI are proving to be global in scope. The solutions must be global as well.
4. Strict protocols to minimize the threat posed by alien species must be developed and rigorously enforced. The prospect of radical ecosystem conversion is very real.
5. A very cautionary approach to resource exploitation is warranted, particularly in the absence of adequate information.
6. The tools for effective management lie in the information generated by research.
7. Finally, do not underestimate the critical importance of an enlightened public and support from people in high places. Indeed, nothing of lasting significance will ever be accomplished without both.

Of course, resource management can only work well if supported by the body

of knowledge that derives from research. I am both inspired and awed by the dramatic growth in interest in the NWHI by the research community. I wish you the best success in your endeavors here and beyond.

LITERATURE CITED

Amerson, A.B.

1971. The Natural History of French Frigate Shoals, Northwestern Hawaiian Islands. *Atoll Research Bulletin* No. 150. Smithsonian Institution.

Rauzon, M.

2001. *Isles of Refuge*. University of Hawaii Press.

Reffalt, W.C.

1993. Historical Chronology: The National Wildlife Refuge System. Unpublished manuscript.

Reffalt, W.C.

2003. Report on Refuge System History for the Centennial. U.S. Fish and Wildlife Service.

Shallenberger, R.J.

1984. Management of the Hawaiian Islands National Wildlife Refuge. Proceedings of the Second Symposium on Resource Investigations in the Northwestern Hawaiian Islands. University of Hawaii Sea Grant.