

Dealing With In-Park Controversy Surrounding Resources Management Actions:

A Case Study of the Island Fox Monitoring Program at Channel Islands National Park

As resource managers or scientists in protected areas, we sometimes assume that our actions, be they research, monitoring, or mitigation, are not only the best course of action but are also supported, if not applauded, by other park staff. This is not always the case, though, and when our actions or intended actions generate controversy among the staff, the results can be divisive.

At Channel Islands National Park, vocal opposition by a handful of staff members very nearly halted a rather innocuous population monitoring program for island fox (*Urocyon littoralis*). In the end, an environmental assessment (EA) for the proposed action was the instrument by which the program was evaluated, and was also the decision-making process which ultimately allowed the fox monitoring program to be implemented. Unanimous staff support for the project was never truly gained, though direct opposition to the project was tempered by the objectivity of the EA process, and by increased communication and flexibility on the part of our resources management staff. For us, the staff reaction was a wake-up call, and the island fox monitoring program has become a case study in how staff perceptions

can influence implementation of a project.

The Biological Monitoring Program at Channel Islands National Park

Channel Islands is one of several units chosen as prototype parks for the USNPS inventory and monitoring program. Accordingly, the park has developed a comprehensive biological monitoring program for both marine and terrestrial ecosystems. Due to imminent threats to marine resources, the marine component was developed first, prior to the park's selection for the national program. The terrestrial protocols, including the one for island fox, were developed later. The design study for island fox and other terrestrial vertebrates was begun in 1985, and the final protocol was published as a handbook in 1988. However, the

park was unable to hire permanent staff to implement the terrestrial protocols until 1992, when the bulk of the servicewide funding came through. Consequently, the protocol sat on the shelf for five years before park staff made plans to implement it in 1993.

The island fox was a logical choice for monitoring. A diminutive relative of the mainland gray fox (*Urocyon cinereoargenteus*), the island fox is found on the six largest of California's eight Channel Islands. Though individuals weigh less than 4 kg, the fox is the largest native mammal on the islands. Due to its small population size on several islands, the fox has been listed as threatened by the state of California and is a Category 2 candidate species for the federal list of threatened and endangered species. The island fox was chosen as a key species to monitor at the park because of its state-listed status, its apparently low population, the general lack of demographic information about this species, and the relatively high amount of public interest in this unique canid.

The fox monitoring protocol uses standard capture-mark-recapture techniques to generate estimates of island fox population densities on San Miguel Island. The protocol, as written, called for fox to be captured using box-type traps on large grids, with animals permanently marked with thick cable-tie collars. Prior to the protocol's implementation in 1993, park staff made several changes to it in order to take advantage of new

technology, and to bring the park's program in line with island fox monitoring programs being conducted outside the park. These changes included increasing the number of traps and decreasing the distance between traps, shifting the trapping season from winter to mid-summer, and changing the marking method to colored ear-tags, while experimenting with the use of passive-integrated transponder (PIT) tags.

Objections to the Monitoring Program by Park Staff

In early 1993, the terrestrial monitoring staff announced plans to conduct summer fox monitoring field work on San Miguel Island. At the same time, the park had received matching cost-share funding to support doctoral dissertation work regarding island fox genetics and ecology on Santa Rosa Island, with the ultimate intent of conducting a population viability analysis for the species. However, as the monitoring staff prepared for summer field work, it became apparent that the project did not enjoy unanimous support from other park staff. A handful of park staff, including some members of the management team, objected vehemently to a live-trapping program for island fox, this despite a three-year design study funded by USNPS and previous review and approval of the published protocol by park management. The objections focused on three assumptions:

- Live-trapping and marking would adversely affect island fox

individuals and populations;

- Previous fox research on San Miguel had made the foxes on that island skittish and wary of humans, unlike "friendlier" foxes on other islands; and
- Island foxes were doing fine, and did not need to be monitored.

We were surprised, even blindsided, by the vocal opposition we encountered. It became apparent that the objections were, in part, the outward manifestations of the following larger issues that lurked beneath the surface.

Charismatic megafauna and the effect of scale. The Channel Islands lack large native carnivores and ungulates, so the undeniably cute island fox is the recipient of paternalistic and protective feelings commonly directed toward larger heroic species. For many park staff, as well as visitors, the island fox has come to symbolize the uniqueness of the Channel Islands, and, consequently, the species seems to carry special rank. People feel especially protective of it. Thus, to some, capture and marking of pinnipeds on San Miguel by National Marine Fisheries Service biologists is an acceptable research methodology, but live-trapping and marking island fox is not.

Benign neglect and the mistrust of science. We were surprised to discover an attitude among some park staff that island foxes were obviously doing fine, and did not need to be studied, monitored, or managed, and

that further study would be detrimental to the species. Here, then, was an undercurrent of anti-intellectualism manifested in a mistrust of science in general, and resources management in particular. For those of us who were weaned on the findings of the Leopold Commission, this was a reminder that not all USNPS employees view good data as a prerequisite for making informed management decisions regarding park resources.

Aesthetics. Some staff felt that the visitor experience on San Miguel Island would be diminished by viewing fox with obvious identification marks, such as colored ear tags.

Oral tradition and the sins of the past. The cable-tie collars used as permanent markers in the original design study had caused the death of one fox, before the collar design was improved. Though eight years had passed, we discovered an oral tradition handed down among San Miguel Island staff held that the negative past trapping experiences had made San Miguel Island fox skittish and wary of humans, and that more research was the last thing the fox population needed.

Interdivisional friction. Being the new kid on the block, with a recent base-funding increase for the monitoring program, the resources management division has been the target of some resentment from other staff divisions that have not fared so well. This accounted for some of the vitriol directed toward the proposed fox monitoring.

Political pressure. The grazing permittee on Santa Rosa Island objected strenuously to the proposed live-trapping, marking, and blood-sampling of fox on that island, terming the methods “cruel” and “inhumane.” While on the surface this may not appear sufficient to sink a program, in this case the permittee pulls considerable weight politically, and the park carefully chooses the battles it wishes to fight with it. As it turned out, park management chose not to pursue fox research on Santa Rosa.

Canis envy. Resources management staff coined this phrase to describe the resentment directed toward the field personnel who would be allowed to handle the foxes.

NEPA as an Evaluative Tool and Decision-making Process

Faced with in-park controversy regarding the proposed monitoring, park management directed that an environmental assessment be prepared covering both the research and monitoring. This may be viewed as a somewhat biased application of the National Environmental Policy Act (NEPA), since most other resource management activities and all monitoring programs had been assumed to be covered under the umbrella NEPA compliance performed on the park’s general management plan and resources management plan. Moreover, the departmental categorical exclusion for non-destructive data collection (Part 516, Department of the Interior Manual, Section 2, Ap-

pendix 1.6) may have applied to the proposed fox monitoring, though the departmental exception regarding controversial environmental effects (Part 516, Section 2.3A(3)(c)) may also have been applicable.

However, as well as being a vehicle for environmental compliance, an environmental assessment can also be used as a decision-making mechanism. We found the objectivity inherent in the environmental assessment process to be of great value in evaluating the worthiness for monitoring and in determining probable effects of the monitoring on island fox.

The environmental assessment focused on several key questions. First, was fox monitoring necessary? That is, would it provide park management with data useful, if not required, for managing park resources? Second, would proposed fox monitoring methods negatively affect fox populations or individuals, or were there other less-intrusive methods that would be acceptable?

For the EA we interviewed all researchers who had ever worked on island fox to determine effects on individuals and populations. We found that the incidence of injury and mortality caused by traps was extremely low for the box-type procedure. Dental injury (broken teeth and bleeding gums) had occurred occasionally before it became standard procedure to add polyvinyl chloride (PVC) “chew bars” to traps. Known mortality was limited to the one collar-caused death during the design

phase of the San Miguel study, and one animal that had died from hypothermia on Santa Catalina Island. No researchers found a change over time in fox response to trapping: some individuals were trap-happy, some were trap-shy, and these proportions did not change significantly over the course of the studies. Trapping did not appear to be an adverse experience for the fox, as evidenced by the high rate of recaptures for island fox studies. Neither individuals or populations appeared to be affected by fox monitoring methods.

There was also consensus among researchers that grid trapping and capture-mark-recapture were the only viable population monitoring methods for island fox, and that other methods, such as observation of sign or crude counts, were not tenable.

The EA also put to rest doubts about the value of monitoring data. The information to be gained from the research and a long-term population monitoring program is crucial if the USNPS is to insure the long-term viability of island fox populations under its management authority. Small, isolated populations such as those of the island fox are subject to quick demographic changes that can be brought about by environmental or human-caused factors. For example, if a population decline were to be caused by introduction of a canine disease, fox populations could become locally extirpated before a change was detected and well before any management actions could be taken. Establishment of a long-term

population monitoring program will allow USNPS managers timely access to data on population trend and causal factors upon which management decisions can be based.

The finding of no significant impact and record of decision cited the preponderance of evidence supporting a monitoring program for island fox. This was moderated by a concession to the grazing permittee that fox monitoring would not be implemented on Santa Rosa Island, though the USNPS reserved the right to do so in the future.

The Need for Communication and Flexibility

Though we saw the park decision as a victory for rational thought, intellectualism, and the scientific method, park staff support for the project was still not unanimous. And while we regretted that some were not as swayed by the evidence as we were, we respected the diversity of opinions on the subject (though one of our staff was heard to grumble, "We don't tell them how to do law enforcement or maintenance, so why should they be able to tell us how to monitor?"). Suffice it to say that it is heartening that staff who are not resources managers care deeply about the resource.

We realized that we had a long way to go in convincing park staff of the need for comprehensive monitoring of sensitive park resources such as the island fox. We had, indeed, failed to communicate adequately the potential threats to island fox and the

need for long-term monitoring information. Ecological principles, resource management goals, research, monitoring, and mitigation are the everyday concepts that we biologists take for granted, but they can be as foreign as rocket science to park staff members who haven't had those ideas drilled into their head through experience or education. While most people can see that clean facilities and a safe environment are necessities for visitors, it takes a little time to digest concepts such as population viability analysis, or local population extirpation through stochastic processes.

And not wanting to be bad winners, we were more than happy to concede several points that were still bones of contention for some park

staff. For example, monitoring staff stepped up the conversion of fox marking methods from colored ear tags to PIT tags. We had planned to use PIT tags exclusively as soon as we could test their efficacy. The tags are no bigger than a grain of rice and are injected subcutaneously (Figure 1), where they stay for the life of the animal as an imperceptible but permanent mark. Hence, no more unsightly colored markers on otherwise wild animals. Second, we left a portion of San Miguel unsampled, so there would be a population of foxes which had never been trapped. Finally, we reduced the number of permanent grid markers on San Miguel to one per grid, to decrease the number of rebar stakes in natural settings.



Figure 1. USNPS monitoring staff insert a passive integrated transponder (PIT) tag into an island fox on San Miguel Island.

From our standpoint, the program to date has been very successful. Two years of field data have generated good density estimates with tight confidence intervals, as well as solid data on recruitment and age/sex ratios. Moreover, we have trapped some of the original collared animals from the design study phase. These foxes were first trapped during the period 1985-88 and so are at least 7-10 years old by now. This new data extends the known longevity for island fox by several years.

We must remind ourselves, as well as others, that these short-term results

are not the reason we are pursuing this monitoring so aggressively. The litmus test of the fox monitoring program, as for the rest of the long-term ecological monitoring programs in USNPS, is whether the data, in the long run, are relevant to management decisions. It is thus crucial to build a constituency among park staff for monitoring and other research and resources management activities. For if we cannot convince park staff of the worthiness of informed decision-making, how can we expect a skeptical public to embrace it?



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